California Fish and Game Commission

Compilation of Public Comments on Petition 2023-33MPA_AM1

This PDF file compiles public comments that were included as exhibits in meeting materials and supplemental handouts for Commission and Marine Resources Committee (MRC) meetings since November 2023. Additional exhibits and supplemental handouts will be added after each Commission meeting, including those received by the public comment deadline, until the Commission takes final action on the petition.

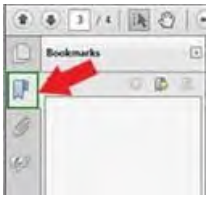
Note: Commission meeting materials include a representative selection of comments, rather than a comprehensive suite of all related comments received. Given the large volume of public comments received, the Commission has directed staff to summarize comments and provide a representative selection in meeting materials to reflect the range of perspectives shared. Commissioners are able to review a diversity of perspectives while still having access to all individual comments submitted, which are part of the Commission's administrative record. Members of the public may contact staff for access to any written comments not included in this document.

Last updated: through November 2025 MRC

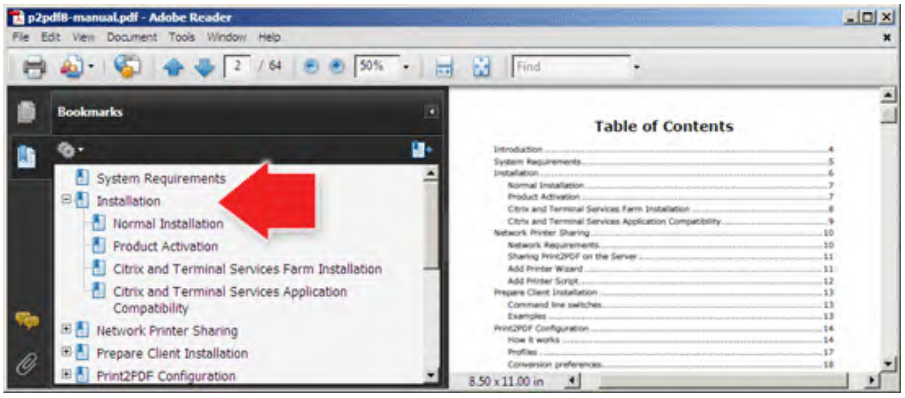
EASY GUIDE TO USING THE PACKET

1. Download and open the binder document using your Adobe Acrobat program/app.

2. If a bookmark panel does not automatically appear on either the top or left side of the screen, click/tap on the “bookmark symbol” located near the top left-hand corner.



3. To make adjustments to the view, use the Page Display option in the View tab. You should see something like:



4. We suggest leaving open the bookmark panel to help you move efficiently among the comments in the packet. It’s helpful to think of these bookmarks as a table of contents that allows you to go to specific points in the packet without having to scroll through hundreds of pages.

5. You can resize the two panels by placing your cursor in the dark, vertical line located between the panels and using a long click /tap to move in either direction.

6. You may also adjust the sizing of the documents by adjusting the sizing preferences located on the Page Display icons found in the top toolbar or in the View tab.

7. Do not hesitate to contact staff if you have any questions or would like assistance.

From: Doug Bush <[redacted]>
Sent: Friday, January 26, 2024 10:48 AM
To: Wildlife Kelp <[redacted]>
Cc: FGC <FGC@fgc.ca.gov>
Subject: 2023-33MPA

Please be aware that there is a petition for consideration in the Feb FGC meeting 2023-33MPA to expand existing MPAs in several locations on the CA coast for the explicit purpose of kelp forest habitat preservation. The economic impacts considered in the application do not make any consideration of kelp harvest. Specifically, expansion of the Pt Conception SMR is proposed for 14.6 sq miles to the east. This proposed area has historically been used for harvest and is presently included in our FGC approved mechanical kelp harvesting plan.

This bed is a key element of our kelp harvesting security and contingency and including this area in an expanded SMR would have a significant negative effect on our operations.

Please ensure that this information is included in the binder and should require that this petition cannot proceed without further consideration by affected stakeholders.

_____

douglas bush
managing member/gm
the cultured abalone farm, llc
c. [redacted]

THE CULTURED ABALONE FARM
Santa Barbara, California

From: Aubrie Fowler <[redacted]>
Sent: Wednesday, January 31, 2024 5:12 PM
To: FGC <FGC@fgc.ca.gov>; Ashcraft, Susan@FGC <[redacted]>
Cc: Calla Allison <[redacted]>; Claire Arre <[redacted]>; Jamie Blatter <[redacted]>
Subject: FGC Meeting Binder Submission

Hi Susan and Commission staff,

Please see the attached exhibit (saved as a PDF and Excel sheet, whichever formatting is preferred) to please be added to the meeting binder for the February Fish and Game Commission meeting on 2/14-2/15/2024.

The link to the Google sheet can be found **here** as well; this was the format that the MPA Collaborative Vetted Regulation Recommendations was previously shared with Commission and Department staff.

Please let me know if there's more context you need from me.

Thank you,
Aubrie

Aubrie Fowler (she/her)
South Coast Specialist
MPA Collaborative Network
cell: [redacted]
Sign-up for our Quarterly Newsletter
Find and join your local Collaborative

County	MPA	Current Regs Summarized	Compliance concerns and/or management problem identified	Regulation Recommendation for Adaptive Management	Consensus?	Justification	Supporting Management Suggestion	Petitioner Lead	Contact Information	Recommendation Category	Designation Change?
Del Norte	Pyramid Point SMCA	Rec take of surf smelt by dip net or Hawaiian type throw net. Tolowa Dee-ni' exempt	Onshore and offshore hook and line fishing, collecting sand crabs as bait, kayak fishers, violations from boaters registered in both CA and OR	Remove allowance for surf smelt by dip net or Hawaiian type throw net; Change to No-Take SMCA with Tribal exemption for Tolowa Dee-ni'	Yes	Smelt is culturally important species to Tolowa and No Take designation will be clearer to public, reducing violations	Signs being vandalized, ripped out. Outreach to gain compliance needed (Guardian Watchmen)	Tolowa Dee-ni' Nation	rosa.laucci@tolowa.com	Take Allowance Change	Yes, from SMCA to No-Take SMCA with Tribal exemption
Del Norte	Pyramid Point SMCA	Rec take of surf smelt by dip net or Hawaiian type throw net. Tolowa Dee-ni' exempt	Elk Valley Rancheria is interested in exploring the possibility of being included in exempt status	Add Elk Valley Rancheria to exempt Tribes if requested by Tribal Council	Yes	Elk Valley Rancheria has ancestral ties to the area				Take Allowance Change	
Del Norte	Pyramid Point SMCA	Rec take of surf smelt by dip net or Hawaiian type throw net. Tolowa Dee-ni' exempt	Boundary is in Oregon	Change northern boundary to align with recognized California/Oregon state line	Yes	Original boundary used a mapping system that does not align with on-the-ground state line.		Tolowa Dee-ni' Nation	rosa.laucci@tolowa.com	Boundary Change	
Del Norte	Point St. George Offshore Reef SMCA	Rec take of salmon by trolling and Dungeness crab by trap. Commercial take of salmon with troll fishing gear and Dungeness crab by trap. Elk Valley and Tolowa Dee-ni' exempt		No change	Yes						
Del Norte	Sea Lion Rock Special Closure	300'	No data	No change	Yes						
Del Norte	Castle Rock Special Closure	300'	Poke poling at Preston Island and Battery Point and Hook Finger Point during extremely low tides. Kayaks near closure	No change	Yes						
Del Norte	False Klamath Rock Special Closure	300' from 3/1-8/31	Low flyovers by US Coast Guard helicopter. Kayaks near closure, kaking kelp. Dogs off leash	No change	Yes		Signs needed at Wilson Creek. Potential site for CoastSnap to crowdsource changes around rock				
Humboldt	Reading Rock SMCA	Rec take of salmon by trolling; surf smelt by dip net or Hawaiian type throw net; Dungeness crab by trap, hoop net or hand. Commercial take of salmon with troll fishing gear; surf smelt by dip net; Dungeness crab by trap. Trinidad, Resighini and Yurok exempt	Hook and line fishing and take of sand crabs regularly occur, especially at southern boundary Gold Bluffs beach traditional smelt camp Track amount of surf smelt taken (25 lbs current limit). Hawaiian Type throw net inappropriate	Work with California Tribes and indigenous people to change “Hawaiian type throw net” to a term that is more reflective of Indigenous Californian net based take methods	Yes	Reference to Hawaiian nets when indigenous terms exist for this take type is inappropriate and disrespectful	Monitor Surf smelt as a part of state monitoring plan.			Language Change	

Humboldt	Reading Rock SMCA	Rec take of salmon by trolling; surf smelt by dip net or Hawaiian type throw net; Dungeness crab by trap, hoop net or hand. Commercial take of salmon with troll fishing gear; surf smelt by dip net; Dungeness crab by trap. Trinidad, Resighini and Yurok exempt		Recommend implementing limits on commercial take of surf smelt	Yes	Culturally important species				Take Allowance Change	
Humboldt	Reading Rock SMR	No Take	Drifting commercial crab pots	No change	Yes						
Humboldt	Samoa SMCA	Rec take of salmon by trolling; surf smelt by dip net or Hawaiian type throw net; Dungeness crab by trap, hoop net or hand. Commercial take of salmon with troll fishing gear; surf smelt by dip net; Dungeness crab by trap. Wiyot exempt	Difficult to determine boundaries	Work with California Tribes and indigenous people to change “Hawaiian type throw net” to a term that is more reflective of Indigenous Californian net based take methods	Yes	Reference to Hawaiian nets when indigenous terms exist for this take type is inappropriate and disrespectful	Monitor recreational and commercial (through landing/block reports) take of salmon by troll and surf smelt by dip net and assess effect on population; Signs with you are here map at Mad River			Language Change	
Humboldt	South Humboldt Bay SMRMA	No Take except waterfowl may be taken. Wiyot exempt	Invasive grasses, loss of eelgrass, general threats to habitat. Non Tribal members clamming. Difficult to identify boundaries within South Humboldt Bay	Determine reason it does not extend to southern water’s edge and extend if no reason	Yes	Clearer for outreach purposes to say from southern end of bay to 2nd hunter pull out	Direct enforcement to look for unlawful clamming			Boundary Change	
Humboldt	Sugarloaf Island Special Closure	300’		No change	Yes						
Humboldt	South Cape Mendocino SMR	No Take	Minimal patrol	No change	Yes		Develop a plan for evaluating remote area MPAs to determine impact, such as temporary M2 radar/drone surveillance; support southern Humboldt patrol by LED				
Humboldt	Steamboat Rock Special Closure	300' 3/1-8/31	Confusion on when it is open to swim out to and when it is closed	No change	Yes		Sign that highlights special closure and closure dates				
Humboldt	Mattole Canyon SMR	No Take	Minimal patrol. Some commercial crab pots observed during USCG flyover	No change	Yes		Develop a plan for evaluating remote area MPAs to determine impact, such as temporary M2 radar/drone surveillance; support southern Humboldt patrol by law enforcement division				
Humboldt	Sea Lion Gulch SMR	No Take	Backpackers harvest mussels along entire Lost Coast Trail; people getting too close to new elephant seal colony. No cell connectivity to determine boundaries of MPA	Move southern boundary south to Cooskie Creek	BLM support but need fisher input	Creek is more identifiable feature for land based outreach to fishers hiking the Lost Coast Trail				Boundary Change	

Humboldt	Big Flat SMCA	Rec take of salmon by trolling and Dungeness crab by trap, hoop net or hand. Commercial take of salmon with troll fishing gear and Dungeness crab by trap. Multiple Tribes exempt	Backpackers harvest mussels along entire Lost Coast Trail; surf fishing occurs at Miller Flat. No cell connectivity to determine boundaries of MPA	No change	Yes		More outreach needed for fishers hiking lost coast. Include more detailed information in BLM Lost Coast map				
Mendocino	Double Cone Rock SMCA	Rec take of salmon by trolling; Dungeness crab by trap, hoop net or hand. Commercial take of salmon with troll fishing gear and Dungeness crab by trap	Unknown. Limited patrol. Report of excessive urchin and need for grazer suppression.	Reassess restoration policy in SMCAs impacted by climate change/kelp loss	Yes	Loss of kelp habitat needs to be addressed in this SMCA	Allow for restoration work/grazer suppression to address urchin barrens (reds and purples)	California Sea Urchin Commission - allow for commercial take of urchin		Other	
Mendocino	Vizcaino Rock Special Closure	300' 3/1-8/31		No change	Yes						
Mendocino	Ten Mile SMR	No Take	Primary concern is shore-based fishing (rod and reel at seaside creek beach). Recreational fishers take rockfish and lingcod, crab pots "walk themselves" into MPA at southern boundary. Dogs off leash	No change	Yes		OK/boundary sign needed at northern boundary. Simplify outreach language around MPA clusters				
Mendocino	Ten Mile Beach SMCA	Rec take of Dungeness crab by trap, hoop net or hand. Commercial take of Dungeness crab by trap. Many Tribes exempt	Unlawful take of fish (rockfish, lingcod); dogs off leash in snowy plover habitat. Potential sand dump site south side of Ten Mile Beach	No change	Yes		Simplify outreach language around MPA clusters				
Mendocino	Ten Mile Estuary SMCA	Waterfowl may be taken. Many Tribes exempt	Limited access for fishers	No change	Yes		Simplify outreach language around MPA clusters				
Mendocino	MacKerricher SMCA	All rec take allowed. Commercial take allowed except for bull kelp and giant kelp	Multiple violations occur daily since closest to Fort Bragg city center (general fish and game code violations). North boundary (Laguna Point) hotspot for intertidal take	Add protection for intertidal zone, per State Parks, in support for protection of the resource and ease of enforcement/outreach	Many in support but no full consensus	There are limited areas in the county to lawfully take intertidal animals such as mussels, turban snails, limpets, etc.	More enforcement support needed due to limited State Parks personnel. Focus on tidepool education. Intertidal specific take signs are needed	State Parks pending review		Take Allowance Change	
Mendocino	Point Cabrillo SMR	No Take	Lighthouse sees lots of boats fishing offshore of Frolic Cove on northern end of Point Cabrillo SMR or inside	No change	Yes		OK boundary signs would be beneficial on both boundaries for kayak fishing				
Mendocino	Russian Gulch SMCA	All rec take allowed. Commercial take allowed except for bull kelp and giant kelp	General fish and game code violations	No change	Yes						

Mendocino	Big River Estuary SMCA	Rec take of surfperch by hook and line from shore only and Dungeness crab by hoop net or hand. Many Tribes exempt. Waterfowl may be taken	Increased use for swimming and recreation has led to safety concerns, including close calls between swimmers and hunters. Swimmers mixing with motorized boats may lead to accidents	Hunting should be prohibited due to high public use/public safety issues, per State Parks	Yes	Community reported incidents of near misses between hunters/boaters and swimmers		State Parks pending review		Allowed Activity Change	
Mendocino	Big River Estuary SMCA	Rec take of surfperch by hook and line from shore only and Dungeness crab by hoop net or hand. Many Tribes exempt. Waterfowl may be taken	Can MPA restrict motorized vessels if not ecological reserve?	Restrict all motorized vessels with allowance for public safety, per State Parks	Yes, with clarification that motorized vessels are only restricted going east (up river)	West access from launch should be allowed for boaters going out to ocean	Data on crab fishery is needed to determine whether allowance is sustainable. Need clear signage restricting snare traps. Pick up after dog signs needed	State Parks pending review		Allowed Activity Change	
Mendocino	Van Damme SMCA	All rec take allowed. Commercial take allowed except for bull kelp and giant kelp	Overtake and take of undersize fish	No change	Yes						
Mendocino	Navarro River Estuary SMCA	Rec take of salmonoids by hook and line. Many Tribes exempt. Waterfowl may be taken	People illegally breach sandbar (but outside MPA?)	No change	Yes						
Mendocino	Point Arena SMR	No Take	Fishing in SMR reported by lighthouse manager	No change	Yes		OK boundary signs needed				
Mendocino	Point Arena SMCA	Rec take of salmon by trolling. Commercial take of salmon with troll fishing gear		No change	Yes						
Mendocino	Sea Lion Cove	Rec and commercial take of finfish	Urchin barrens	Reassess restoration policy in SMCAs impacted by climate change/kelp loss	Yes		Allow for restoration work/grazer suppression to address urchin barrens (reds and purples)	California Sea Urchin Commission - allow for commercial take of urchin		Other	
Mendocino	Saunders Reef SMCA	Rec take of salmon by trolling. Commercial take of salmon with troll fishing gear and urchin	Citations issued for people diving and taking at Schooner Gulch; illegal shore fishing from Hearn Gulch	No change	Yes		Additional enforcement personnel/efforts are needed				
Sonoma	Del Mar Landing SMR	No Take	Fishing at north end	No change	Yes		Trail pamphlets with MPA information				
Sonoma	Stewarts Point SMR	No Take	Poaching at 3 mile line. Difficult for fishers to determine where 3 mile line is and difficult to enforce from land	Allow for trolling of salmon. Change to SMCA?	No. Discussed with no strong opposition but more info needed	Impact to commercial salmon fishing can be addressed with minimal impact to other resources	More signage needed at public access points			Take Allowance Change	Yes, would change SMR to SMCA. No consensus
Sonoma	Stewarts Point SMCA	Rec take from shore only of marine aquatic plants other than sea palm, marine invertebrates, finfish by hook and line, surf smelt by beach net, species authorized by hand-held dip net	Tribal based MPA	Prohibit all take and add Kashia Pomo to Tribal exemptions to make affirmative rights of Tribal Members re: collection, harvesting, and research	Yes	MPA is only accessed by Kashia Tribal members from shore (owned by Tribe) so would be same protection while acknowledging Tribal rights				Take Allowance Change	Yes, change from SMCA to No-Take SMCA with Tribal exemption

Sonoma	Salt Point SMCA	Recreational take of abalone and finfish allowed	Take of abalone during closure; poaching of intertidal species. Confusion regarding intertidal take	No change	Yes		Needs more signage on collecting/take of shellfish and other non finfish				
Sonoma	Gerstle Cove SMR	No Take	Excessive intertidal take. Rec fishers fishing the line	No change	Yes		Need for good tidepooler rules signs to address harmful tidepooling				
Sonoma	Russian River SMRMA	No take except waterfowl may be taken	Marine mammal disturbance occurring. County of Sonoma needs to conduct restoration work as part of management plan	Allow for restoration work in SMRMA	Yes	Restoration will not impact haul out sites, marine mammals or birds				Other	
Sonoma	Russian River SMCA	Rec take of Dungeness crab by trap, and surf smelt by hand-held dip net or beach net. Commercial take of Dungeness crab by trap	Illegal onshore and offshore fishing; seal disturbance "seal selfies" near Goat Rock. Trash/dogs off leash	No change	Yes		More outreach for out of town fishers/permanent signage				
Sonoma	Bodega Head SMR	No Take	Take of rockfish and trolling for salmon; fishing on northern boundary off rocks Difficult “fan” shape and hard to identify northern boundary makes enforcement difficult	No change	Yes	Would require new outreach					
Sonoma/Marin	Bodega Head SMCA	Rec take of pelagic finfish by trolling, Dungeness crab by trap, and market squid by hand-held dip net. Commercial take of pelagic finfish by troll fishing gear and round haul net, Dungeness crab by trap, and market squid by round haul net	Take of rockfish and trolling for salmon; fishing on northern boundary off rocks Difficult “fan” shape and hard to identify northern boundary makes enforcement difficult	No change	Yes						
Sonoma/Marin	Estero Americano SMRMA	No take except waterfowl may be taken	Confusion as to boundary “high tide line” and who manages strip of beach between ocean and estuary that is often closed; Difficulty identifying eastern boundary. No way to see boundary from shore	No change	Yes		More signs needed at access points here to address compliance concerns				
Marin	Estero de San Antonio SMRMA	No take except waterfowl may be taken	Some take (animal remains) and illegal fishing	No change	Yes						
Marin	Point Reyes SMR	No take	Sand dollar and fossil take, rod and reel fishing from vessels, party boats troll for salmon; violations are limited offshore	No change	Yes		Signage and more enforcement needed, especially at Drakes Beach and Coast Guard Station. Consolidated mixed messaging signs, with dog information.				

Marin	Point Reyes SMCA	Rec take of salmon by trolling and Dungeness crab by trap. Commercial take of salmon with troll fishing gear and Dungeness crab by trap	Commercial crabbers set coonstripe shrimp traps on top of crab traps; Boundaries in MPA cluster hard to identify; NPS jurisdiction limited to	No change	Yes						
Marin	Point Reyes Headlands Special Closure	No access from mean high tide line to a distance of 1000 feet seaward	Recreational vessels fishing in summer; Disturbance spiked in 2020; USFW continues to monitor this area	No change at this time	Yes	Might need to revisit making adjustments in the future if data shows changes/increases in disturbance					
Marin	Estero de Limantour SMR	No take	Difficult to determine boundary between SMR and Drakes Estero SMCA makes enforcement difficult. There are suspicions that poaching of clams occurs in the SMR from people on kayaks from Drakes Estero	Extend SMR designation all the way into Drakes Estero	Yes	NPS in support of expanding SMR because federally designated wilderness, major harbor seal haul out, and critical nursery habitat for leopard shark and bay rays		EAC Marin with NPS letter of support		Boundary Change	
Marin	Drakes Estero SMCA	The recreational take of clams is allowed	Difficult to determine boundary line between Drakes Estero SMCA and Estero de Limantour SMR leading to poaching. Cows accessing/pooping from NPS ranch leased land	Prohibit clamming in Drakes Estero SMCA. Merge with Estero de Limantour SMR.	Yes	SMCA designation was originally due to oyster farm that is no longer there. NPS in support of making into a SMR due to federally designated wilderness area	Give people direction/ outreach materials on where they CAN clam safely	EAC Marin with NPS letter of support		Take Allowance Change	Yes, change from SMCA to SMR
Marin	Point Resistance Rock Special Closure	No access from mean high tide line to a distance of 300 feet seaward of rock	Seabird flushing by vessels. USFW monitoring area.	No change	Yes	GFNMS thinks current regulations are good, very important to their mission and public outreach					
Marin	Double Point/Stormy Stack Special Closure	No access from mean high tide line to a distance of 300 feet seaward of rock	Seabird flushing by vessels and surfers, who enter harbor seal rookery. Increased visitation due to people hiking to Alamere Falls	No change	Yes	GFNMS thinks current regulations are good, very important to their mission and public outreach and don't want to extend to shore to allow shore access	Put signs with regulations and text about importance of special closure at trailhead; more outreach to boaters about special closures needed				

Marin	Duxbury Reef SMCA	Recreational take of finfish from shore and abalone* is allowed	Difficult to enforce and outreach about why you can take finfish but not invertebrates. Beach Watch data at this site for 30 years show slight decrease in activities in last 10 years, but take of invertebrates has been observed, and the Greater Farallones National Marine Sanctuary Superintendent has provided information about the need to consider additional conservation measures at Duxbury Reef. Maria Brown (NMS) submitted a letter saying Duxbury Reef would benefit from increased protection of unique and important habitat of entire reef (largest shale reef in N. America). EAC MPA Watch data shows	Change to SMR because of difficulty of interpretation and enforcement. Extend southern boundary further out to sea (south) and northern boundary to Double Point to fully cover reef	No	No agreement on extending boundaries to cover the reef and changing to SMR. More research needed on benefits of changing existing ribbon from SMCA to SMR; Might be important fishing access point for public	More signs needed and more support for onsite education and enforcement from CDFW to agate beach and land-side terrestrial Duxbury	EAC Marin		Take Allowance Change	Yes, would change SMCA to SMR. No consensus
Marin	Duxbury Reef SMCA	Recreational take of finfish from shore and abalone* is allowed	Heavy use and impacts, intertidal take – buckets and tools (e.g., crow bars, tire jacks) used to take black turban snails and purple urchin that are nestled into cracks. People need to break the reef to get to purple urchin	Potential compromise would be to add specific tidepool protections, similar to OC	TBD	NMS would like to continue conversation to explore potential compromises	Research other tidepool docent programs in MPAs with mixed use of allowed fishing/tidepool protections			Language Change	
San Francisco	North Farallon Islands SMR	No Take	Commercial crab case here	No change	Yes	More data needed for this MPA cluster	Increase CDFW LED patrols during peak months. Need for CCFRP program here				
San Francisco	North Farallon Islands Special Closure	No vessel shall be operated or anchored at any time from the mean high tide line to a distance of 1000 feet seaward of the mean lower low tide line of any shoreline of North Farallon Island, or to a distance of 300 feet seaward of the mean lower low tide line of any shoreline of the remaining three southern islets		No change	Yes						

San Francisco	Southeast Farallon Islands SMR	No Take	Small recreational boats. A number of encroachments occur into SMR during better weather months	No change	Yes		Increase patrols from LED and consider M2 radar at this location				
San Francisco	Southeast Farallon Islands SMCA	Recreational take of salmon by trolling and commercial take of salmon by troll fishing gear	Salmon fishers use salmon gear to fish for halibut	No change	Yes						
San Francisco	Southeast Farallon Islands Special Closure	Closed 300 feet seaward year-round, except Fisherman's Bay to East Landing, southeastern tip of the island and southeastern side of Saddle (Seal) Rock, which is closed from December 1 through September 14. 5 mile per hour speed limit 1000 ft seaward of mean lower low tide of any shoreline Exhaust system requirements for commercial dive boats	Boats cut across the special closure	No change	Yes	Predates MLPA process, careful consideration went into crafting special closure regulations					
San Mateo	Egg (Devil's Slide) Rock to Devil's Slide Special Closure	A special closure is designated from the mean high tide line to a distance of 300 feet seaward of the mean lower low tide line of any shoreline of any of the three rocks comprising Egg (Devil's Slide) Rock; Transit in between the rock and the mainland between these points is prohibited at any time.	Reported violations include fishing boats inside boundaries and low flying aircraft/drones	Change name to "Devil's Slide Special Closure"	Yes	Egg rock is no longer a name used/recognized locally. Devil's Slide is more appropriate and simpler for outreach				Language Change	
San Mateo	Montara SMR	No Take	A top cited MPA in Central Coast, highest in San Mateo; fishing offshore and tidepool take; Difficulty interpreting southern boundary	Move Montara SMR onshore southern boundary to current Pillar Point SMCA southern boundary (north end of Maverick's Beach), then extending out to current offshore southern SMR boundary point	Yes	Easier for enforcement and makes SMR boundaries consistent with Fitzgerald Marine Reserve boundaries				Boundary Change	

San Mateo	Pillar Point SMCA	The recreational take of pelagic finfish by trolling, Dungeness crab by trap, and market squid by hand-held dip net is allowed. The commercial take of pelagic finfish by troll or round haul net Dungeness crab by trap, and market squid by round haul net is allowed.	Unclear boundary leads to poaching in intertidal Difficult for local law enforcement to ensure compliance of tidepool take regulations due to high volume of consumptive visitors	Extend southern SMCA boundary further south to edge of harbor jetty, extending out to existing offshore southern point. Onshore northern boundary would be same as Montara SMR onshore southern boundary	Yes	Would cover entire reef in MPA for ease of allied agency outreach and enforcement.				Boundary Change	
San Mateo	Pillar Point SMCA	The recreational take of pelagic finfish by trolling, Dungeness crab by trap, and market squid by hand-held dip net is allowed. The commercial take of pelagic finfish by troll or round haul net Dungeness crab by trap, and market squid by round haul net is allowed.		Change regulations to allow for recreational hook and line take of finfish from shore and take of mussels, crabs, snails and seaweeds for equity and access purposes	Yes	Allowing for shore based hook and line and some intertidal take maintains access for consumptive users while applying some protection for a heavily impacted habitat				Take Allowance Change	
San Mateo/Santa Cruz	Año Nuevo SMR	No Take	Unlawful take of snails; fishing; wildlife disturbance. Boats driving squid out of MPA. Confusion because sign at top of trail to Greyhound Rock says fishing beach but must go left at bottom to legally fish	Move southern boundary line to have whole of Greyhound Rock in SMR	Yes, at both Santa Cruz and San Mateo Collaborative meetings	Clearer boundary makes enforcement easier	Ensure sign with map at bottom of trail. Utilize social/digital/traditional media for public outreach	State Parks pending review		Boundary Change	
San Mateo/Santa Cruz	Greyhound Rock SMCA	Rec take of giant kelp by hand harvest only, market squid, salmon. Other finfish by hook and line only from shore. Commercial take of giant kelp by hand harvest only, salmon and market squid	Take of mussels at southern boundary Confusion with Año Nuevo SMR boundary/whether fishing is allowed at Greyhound Rock Split between 2 counties	Move northern boundary line to have whole of Greyhound Rock outside of SMCA and in SMR; Move southern boundary south to beginning of Scott Creek bridge	Yes, at both Santa Cruz and San Mateo Collaborative meetings	Reef should be fully protected or fully open. Preference to cover reef but either way will have clearer boundary for outreach/enforcement. Move of southern boundary would cover reef to address intertidal impacts	Need for sign with map at Scotts Creek	State Parks pending review		Boundary Change	
San Mateo/Santa Cruz	Greyhound Rock SMCA	Rec take of giant kelp by hand harvest only, market squid, salmon. Other finfish by hook and line only from shore. Commercial take of giant kelp by hand harvest only, salmon and market squid	Confusing regulations	Replace comma with semi-colon in regulations after "giant kelp by hand harvest only", or otherwise edit	Yes	Clearer language needed to clarify you are not required to catch salmon and squid by hand harvest only		State Parks pending review		Language Change	Section 100 change
Santa Cruz	Natural Bridges SMR	No Take	Hard to identify boundaries; safety concerns with fishers and swimmers at Natural Bridges State Park beach	Shift both boundaries south to more identifiable features (4 mile point and Natural Bridge)	Yes	State Parks would like SMR to cover the beach at Natural Bridges SP for public safety reasons	Need for interpretive signs with maps/good tidepooler rules, why MPAs, etc.	State Parks pending review		Boundary Change	
Santa Cruz	Soquel Canyon SMCA	Rec and commercial take of pelagic finfish	Split between 2 counties	No change	Yes						

Monterey	Elkhorn Slough SMR	No Take	Fishing occurs regularly at Kirby Park pier/dock, was originally built for fishers with disabilities with SFRA grant. Inconsistent enforcement.	Move northern boundary south of Kirby Park pier/dock. Shift entire MPA to maintain size	Yes, at both Santa Cruz and Monterey Collaborative meetings	Opens fishing area as originally intended to limit poaching; supports increased enforcement presence in area	If Kirby is open, must be concerted cross-jurisdictional effort to enforce shore waste of fish/debris and other F&G Code violations. Need for good fishing practices outreach	Elkhorn Slough Foundation		Boundary Change	
Monterey	Elkhorn Slough SMCA	The recreational take of finfish by hook and line only and clams is allowed. Clams may only be taken on the north shore of the slough in the area adjacent to the Moss Landing State Wildlife Area [subsection 550(a)].	Difficult to determine where SMR/SMCA boundary is (i.e., where kayak fishers can no longer fish).	Move SMR line to bird watching platform (eastern side)	Yes, at both Santa Cruz and Monterey Collaborative meetings	Bird watching platform provides a clear boundary for shore and kayak fishers and would maintain size of SMR with shift off Kirby		Elkhorn Slough Foundation		Boundary Change	
Monterey	Elkhorn Slough SMCA	The recreational take of finfish by hook and line only and clams is allowed. Clams may only be taken on the north shore of the slough in the area adjacent to the Moss Landing State Wildlife Area [subsection 550(a)].	Clamming disturbs sea otter rafts. Huge amounts of trash (fishing receptacles full)	Removing allowance for clamming to address impact to otters and human health considerations	Maybe?	Need more info on impact to recreational clammers and safety of consuming clams	Need for more trash receptacles/removal	Elkhorn Slough Foundation		Take Allowance Change	
Monterey	Moro Cojo Slough State Marine Reserve	No take	Some access on eastern end. Agricultural influence. Elkhorn Slough NERR in support of no change	No change	Yes						
Monterey/Santa Cruz	Soquel Canyon State Marine Conservation Area	Recreational and commercial take of pelagic finfish is allowed	Many violations, especially illegally set crab traps (commercial) and rockfish take (recreational). Whale disturbance. More impact due to depth restrictions lifted	No change	Yes						
Monterey	Portuguese Ledge State Marine Conservation Area	Recreational and commercial take of pelagic finfish is allowed	Many violations, especially rockfish take (recreational). Whale disturbance	No change	Yes						
Monterey	Edward F. Ricketts State Marine Conservation Area	Recreational take of finfish by hook and line. Commercial take of giant kelp and bull kelp by hand	Fishing debris from Coast Guard pier. Abalone and other intertidal poaching at breakwater	Explore regulations to limit fishing gear loss from Coast Guard pier (such as requiring use of breakaway leaders or no braided line)	Yes	Fishing gear loss impacts wildlife, habitat, and safety of divers due to entanglement	Partner with MBNMS on outreach of litter/derelict fishing gear			Language Change	
Monterey	Edward F. Ricketts State Marine Conservation Area	Recreational take of finfish by hook and line. Commercial take of giant kelp and bull kelp by hand	New regulations may restrict fishing for rockfish from boat close to shore after October 1	Change to SMR and join with Lovers Point-Julia Platt SMR	Maybe	No strong opposition but no fishing reps present		Giant Giant Kelp Restoration Project (G2KR)		Take Allowance Change	Yes, would change from SMCA to SMR

Monterey	Edward F. Ricketts State Marine Conservation Area	Recreational take of finfish by hook and line. Commercial take of giant kelp and bull kelp by hand		Allow restoration/urchin culling without requiring SCP	No	May lead to destruction of healthy urchins		Giant Giant Kelp Restoration Project (G2KR) - applies to Ed Ricketts, PG Gardens, and Carmel Bay SMCAs, and will include suggestion for buoys on sites		Other	
Monterey	Lovers Point- Julia Platt State Marine Reserve	No Take	Fishing off Lovers Point rocks, undersize and immature fish, spearfishers and fishing boats catch halibut, illegal tidepool take; confusion around northern boundary line	Move southern boundary line so Lovers Point is either all in or all out (with preference for all in reserve)	No	Disagreement about where to move line	Boundary marker or fishing/no fishing arrow sign needed if boundary doesn't change			Boundary Change	
Monterey	Lovers Point- Julia Platt State Marine Reserve	No Take		Move southern boundary to end of Lovers Point, splitting point equally in half	Yes	Fishing/No fishing arrow signs would make sense/be more accurate	Fishing/no fishing arrow sign needed at Lovers Point			Boundary Change	
Monterey	Pacific Grove Marine Gardens State Marine Conservation Area	Recreational take of finfish. Commercial take of giant kelp and bull kelp by hand	Spearfishing violations, especially from kayaks and dinghies; illegal take of scallops and crustaceans; undersize and immature fish taken Point Pinos is key oystercatcher nesting habitat	Move both boundary lines so Lovers Point and Point Pinos are all out of SMCA and in SMRs because both are key oystercatcher nesting sites	No	Rock outcropping and buoy at Point Pinos (southern boundary) are currently good boundary indicators for boaters				Boundary Change	
Monterey	Pacific Grove Marine Gardens State Marine Conservation Area	Recreational take of finfish. Commercial take of giant kelp and bull kelp by hand		Move northern boundary to end of Lovers Point	Yes	Fishing/No fishing arrow signs would make sense/be more accurate	Fishing/no fishing arrow sign needed at Lovers Point and Point Pinos			Boundary Change	
Monterey	Pacific Grove Marine Gardens State Marine Conservation Area	Recreational take of finfish. Commercial take of giant kelp and bull kelp by hand	New regulations may restrict fishing for rockfish from boat close to shore after October 1	Change to SMR, join with Lovers Point SMR	Maybe	No strong opposition but no fishing reps present		Giant Giant Kelp Restoration Project (G2KR)		Take Allowance Change	Yes, would change from SMCA to SMR
Monterey	Asilomar State Marine Reserve	No Take	Onshore and offshore fishing common, hook and line from nooks and crannies; harmful tidepooling, tidepool take; wildlife disturbance common Northern boundary at Point Pinos is confusing, splits rocks in half	No change	Yes		Fishing/No Fishing arrow signs needed at Point Pinos				
Monterey	Carmel Pinnacles State Marine Reserve	No Take	Offshore violations common	No change	Yes						
Monterey	Carmel Bay State Marine Conservation Area	Recreational take of finfish. Commercial take of giant kelp and bull kelp by hand	Intertidal take common, including abalone and mussels. Golf balls go into MPA and are not collected. Some kelp take at Stillwater Cove	No change	Yes		Work with Pebble Beach on reducing golf ball litter either through requiring biodegradable balls at key holes or ensuring balls are collected by divers				
Monterey	Point Lobos State Marine Reserve	No Take	Take occurs. Boundaries are confusing	No change	Yes						

Monterey	Point Lobos State Marine Reserve	No Take		Allow restoration/urchin culling	No	Difficult for enforcement/interpretation in no-take area		Giant Giant Kelp Restoration Project (G2KR)		Other	
Monterey	Point Lobos State Marine Conservation Area	Recreational take of salmon and albacore and the commercial take of salmon, albacore, and spot prawn is allowed		No change	Yes						
Monterey	Point Sur State Marine Reserve	No Take	Violations common between SMR and SMCA, southern corner is hard to enforce. Abalone case reported	Encompass the whole coastline of Point Sur in MPA	No	Keep boundaries as is				Boundary Change	
Monterey	Point Sur State Marine Conservation Area	Recreational and commercial take of salmon and albacore		Add bluefin tuna to list of species allowed for take	No	Lessens protection				Take Allowance Change	
Monterey	Big Creek State Marine Reserve	No Take	L-shape of SMR within SMCA is confusing	No change	Yes						
Monterey	Big Creek State Marine Conservation Area	Recreational take of salmon and albacore. Commercial take of salmon, albacore	Potential unlawful fishing off Marine Lab	No change	Yes						
San Luis Obispo	Piedras Blancas State Marine Reserve	No take	Missing signs. Onshore fishing violations (poaching mussels at Point Sierra Nevada). Wildlife disturbance. Extreme angle makes kayak fishers look like they are fishing in SMR	No change	Yes		Use boundary images on signs to help reference angle at pullout.				
San Luis Obispo	Piedras Blancas State Marine Conservation Area	Recreational and commercial take of salmon and albacore	Occasional poaching observed. Fishing for rockfish. No albacore, limited salmon observed by fishers/wardens	No change	Yes						
San Luis Obispo	Cambria State Marine Conservation Area	All recreational take is allowed	Harmful tidepooling occurring throughout MPA. Difficult to message good tidepooler rules without designated protections	Add tidepool protection language similar to Crystal Cove and Dana Point SMCAs	Yes	Would make it easier to message about responsible tidepooling and reduce inadvertent take	Tools for existing SP tidepool docent program needed here, such as Natural Bridges State Park tidepool cart	State Parks pending review; Environment California?		Take Allowance Change	
San Luis Obispo	Cambria State Marine Conservation Area	All recreational take is allowed	Boundary between Cambria SMCA and White Rock SMCA is confusing, leading to accidental poaching by kayak fishers putting in at boundary at Wedgewood	Shift White Rock SMCA northern boundary to end of neighborhood at Lampton Park. Shift southern boundary south 1/2 mile accordingly to not lose any protection and cover some kelp habitat	Yes	May be some pushback from commercial live rockfish fishery for southern shift but recreational anglers in support		Environment California?		Boundary Change	
San Luis Obispo	Cambria State Marine Conservation Area	All recreational take is allowed	No commercial take allowed but there is an existing kelp lease?	Remove kelp lease 209 OR clarify that lease holder cannot harvest within Cambria SMCA	Yes	Commercial harvest of kelp is incompatible with MPA regulations that allow recreational take only		Environment California?		Other	

San Luis Obispo	White Rock State Marine Conservation Area	Commercial take of giant kelp and bull kelp with valid lease	Boundary between Cambria SMCA and White Rock SMCA is confusing, leading to accidental poaching of kayak fishers putting in at boundary at Wedgewood	Shift White Rock SMCA northern boundary to end of neighborhood at Lampton Park. Shift southern boundary south 1/2 mile accordingly to not lose any protection	Yes	May be some pushback from commercial live rockfish fishery for southern shift but recreational anglers in support		Environment California?		Boundary Change	
San Luis Obispo	White Rock State Marine Conservation Area	Commercial take of giant kelp and bull kelp with valid lease		Prohibit commercial take of giant kelp and bull kelp with valid lease and change to an SMR	Yes	Original intent was a reserve but there was existing kelp lease. Current lease holder is fine with relinquishing/ disallowing take of kelp		Environment California?		Take Allowance Change	Yes, would change from SMCA to SMR
San Luis Obispo	Morro Bay State Marine Recreational Management Area	Waterfowl hunting allowed. Recreational take of finfish north of line at Pasadena Point. Aquaculture allowed	Poaching occurs at southern side that does not allow take of finfish. Line is confusing and unclear on maps and outreach materials. Illegal invertebrate take (e.g., sea stars at jetty, ghost shrimp at Windy Cove). Signs needed at blue pier	Shift no fishing boundary 150 yds north to public access at Pasadena Park (between Santa Ysabel and Baywood Way)	Yes	Makes it easier for county to manage and educate more accurately about fishing/no fishing line	Signs needed, especially at Blue Pier. County can install sign at Pasadena Park			Boundary Change	
San Luis Obispo	Morro Bay State Marine Recreational Management Area	Waterfowl hunting allowed. Recreational take of finfish north of line at Pasadena Point. Aquaculture allowed	Hunting "within" a bird sanctuary (City of Morro Bay) is confusing, safety concerns for paddlers with increased visitors who are unaware hunting is allowed. Concern about safety issues around hunting around neighborhoods. Trampling of plants occur on shoreline in Baywood Park.	No change to regulations at this time	Yes	Important hunting area. Confusion should be addressed through outreach	Overlay hunting map on SMRMA for outreach purposes Mixed message signs/more education needed about estuary impacts/erosion: "tread lightly" in Los Osos				
San Luis Obispo	Morro Bay State Marine Reserve	No Take	Some hunting violations, hugging line; Boardwalks work to protect birds! Might be good to have one at Baywood Park at 1st Street	No change (reluctantly)	Yes	Some desire to extend SMR west and into bottom part of bay beneath Baywood Peninsula but do not want to impede on aquaculture	More education and outreach needed				
San Luis Obispo	Point Buchon State Marine Reserve	No Take	Regular poaching offshore, trolling, and stopping to drop a line in water. Busiest MPA in SLO, most violations observed/cited	Move northern boundary to actual Point Buchon	Yes	Clearer boundary for fishers coming from Port San Luis	Boundary marker needed here. Make "flagpole" more visible (hang flag?) if boundary doesn't change	State Parks pending review		Boundary Change	
San Luis Obispo	Point Buchon State Marine Conservation Area	Recreational and commercial take of salmon and albacore allowed	Regular poaching, rockfish and lingcod, maybe some squid boats?	No change	Yes						

Santa Barbara and Ventura (Santa Barbara Channel)	Vandenberg SMR	No Take	Vandenberg Space Force Base (VSFB) allows active-duty officers, their dependents/families, and guests to fish off Vandenberg. Leads to confusion since officially a no-take area. Regulations should match take allowed. Petition has been submitted by City of Lompoc to allow shore fishing at Surf Beach	Change designation to SMCA that allows hook and line for finfish from shore only	Yes	Would increase actual protection due to past 5 Base Commanders' decision to allow all legal take on base and would address equity concerns by allowing access for non-military at Surf Beach		Greg Helms to propose intertidal ribbon		Take Allowance Change	Yes, would change from SMR to SMCA
Santa Barbara and Ventura (Santa Barbara Channel)	Vandenberg SMR	No Take		Revaluate MOA with VSFB that is being interpreted as allowing for full military recreational take in a no-take SMR	No, not needed if designation is changed to SMCA	Vandenberg conservation officer will enforce updated take regs on military personnel				Other	
Santa Barbara and Ventura (Santa Barbara Channel)	Point Conception SMR	No Take	Recent groundfish case. Difficult for enforcement to access from land through Dangermond Preserve. M2 radar at Pt. Conception shows a lot of boating activity, may	No change	Yes		Provide continued support for M2 radar with ground truthing and continued coordination/info sharing between agencies				
Santa Barbara and Ventura (Santa Barbara Channel)	Kashtayit SMCA	Rec take of finfish, invertebrates (except rock scallops and mussels) and giant kelp by hand harvest. Santa Ynez band of Chumash exempt	Illegal and dangerous access down the bluffs on Gaviota. Fishing without a license. Access issues for pier fishers with Gaviota pier closed. Difficult to interpret	Reword regulations for clarity of outreach: "Recreational take of finfish, invertebrates, and giant kelp allowed"	Yes	Simpler regulations will make outreach easier, increasing compliance, with minimal impacts to the resources	Have FGC/State push for pier repair at Gaviota Pier (SB County/State Parks) for safety/access reasons	State Parks pending review/Greg Helms		Language Change	Section 100 change
Santa Barbara and Ventura (Santa Barbara Channel)	Naples SMCA	Rec take by spearfishing of white seabass and pelagic finfish. Commercial take of giant kelp by hand or mechanical harvest. Santa Ynez Band of Chumash exempt	Hook and line fishing and access issues occur here, and most days there are at least two vehicles for fishing or surfing parked near Naples. Impact to hook and line fishers	Add hook and line to allowed method of take	No	Numbers/impact/level of take different between hook and line and spearfishing. Would drastically reduce protection				Take Allowance Change	
Santa Barbara and Ventura (Santa Barbara Channel)	Campus Point No-Take SMCA	No Take	Onshore and offshore hook and line fishing continues to be observed	Change purple to red for outreach purposes	Yes	Easier to explain "no take" if consistent with red SMR		Greg Helms		Other	
Santa Barbara and Ventura (Santa Barbara Channel)	Goleta Slough No-Take SMCA	No Take	Trespassing (e.g., illegal swimming, dogs). People occasionally use nets to fish here and/or fish off bridges at the finger boundaries of the slough. Dumping of sediment still occurs in Goleta Bay	Consider water quality designation for Goleta Bay	Yes	Goleta Bay is between two MPAs and there is a need to address impacts of sediment dumping to subsistence fishers off Goleta Pier		Greg Helms		Other	
Santa Barbara and Ventura (Santa Barbara Channel)	Goleta Slough No-Take SMCA	No Take		Change purple to red for outreach purposes	Yes	Easier to explain "no take" if consistent with red SMR		Greg Helms		Other	

Santa Barbara and Ventura (Santa Barbara Channel)	Richardson Rock SFMR	No Take		No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	San Miguel Island Special Closure	Allowance for sea urchin divers between Castle Rock and Judith Rock SMR western boundary (Point Bennet) between 3/15-4/30 and 10/1-12/15.	Commercial urchin poaching. Purpose to reduce disturbance to pinniped populations. Is closure still necessary? Point Bennet has one of the largest pinniped (six species) rookeries on the West Coast of North America	Revaluate need for special closure (SC); Clean up language to address confusion between 300 yards describing SC and 100 yards keeping boats from whole Island 102 A.1.(a)	Yes		M2 radar at NMFS marine mammal station	Greg Helms		Language Change	
Santa Barbara and Ventura (Santa Barbara Channel)	Harris Point SFMR	No Take	CDFW sees some fishers that are taking from shore, although it is not common	No change	Yes		Use land-based range markers (e.g., O & K) to mark boundaries				
Santa Barbara and Ventura (Santa Barbara Channel)	Judith Rock SFMR	No Take		No change	Yes		Use land-based range markers (e.g., O & K) to mark boundaries				
Santa Barbara and Ventura (Santa Barbara Channel)	Carrington Point SMR	No Take	Confusing angle relative to pier	No change	Yes	NPS outreach on angle has been good	More permanent boundary markers/signage is needed				
Santa Barbara and Ventura (Santa Barbara Channel)	Skunk Point SMR	No Take	Difficult to determine how far offshore boats are (in or out)	No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	South Point SFMR	No Take		No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	Painted Cave SMCA	Rec take of spiny lobster and pelagic finfish	People are taking non-pelagic fish species, rockfish, California sheephead, and live fish	No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	Gull Island SFMR	No Take		Have state discuss with NMS changing federal area to FMCA to allow for take of pelagics	No	More data/justification needed				Take Allowance Change	Yes, would turn federal MRs into federal MCAs. No consensus
Santa Barbara and Ventura (Santa Barbara Channel)	Scorpion SFMR	No Take	Fishing/take in little coves at eastern boundaries. Lobster traps	No change	Yes		More on-island enforcement presence needed				
Santa Barbara and Ventura (Santa Barbara Channel)	Anacapa Island Special Closure	No net or trap may be used in waters less than 20 feet deep. Brown Pelican closure from Portuguese Rock to Frenchy's Cove 1/1-10/31	Brown pelican area makes it difficult for Island Packers and others to land legally at Frenchy's	Add exemption to allow access/landing Frenchy's Cove	Yes	Intent was to allow landing at Frenchy's Cove but aligning brown pelican closure with SMR/SMCA boundary closed off access to safe landing		Greg Helms		Allowed Activity Change	
Santa Barbara and Ventura (Santa Barbara Channel)	Anacapa Island Special Closure	No net or trap may be used in waters less than 20 feet deep. Brown Pelican closure from Portuguese Rock to Frenchy's Cove 1/1-10/32	Depth hard to enforce due to sheer drop off from island	Reassess need for Special Closure and consider removing if not justified	Yes	May only need brown pelican closure rather than full island special closure to protect seabirds		Greg Helms		Allowed Activity Change	Yes, would remove special closure

Santa Barbara and Ventura (Santa Barbara Channel)	Anacapa Island SFMCA	Rec take of spiny lobster and pelagic finfish. Commercial take of spiny lobster. Santa Ynez Band of Chumash exempt	Confusion regarding what "pelagic" means may lead to unlawful take	No change	Yes		Outreach needed around pelagics				
Santa Barbara and Ventura (Santa Barbara Channel)	Anacapa Island SFMR	No Take	Violations for unlawful take	No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	Footprint SFMR	No Take	Lots of violations. Boats drift in because they cannot anchor	Have state discuss with NMS changing federal area to FMCA to allow for take of pelagics	No	More data/justification needed				Take Allowance Change	Yes, would turn federal MRs into federal MCAs. No consensus
Santa Barbara and Ventura (Santa Barbara Channel)	Begg Rock SMR	No Take	The MPA violations here are commercial and come from experienced	No change	Yes						
Santa Barbara and Ventura (Santa Barbara Channel)	Santa Barbara Island SFMR	No Take	Osborne Bank. CPFV/commercial lobster poaching. Overlapping jurisdictions	Have state discuss with NMS changing federal area to FMCA to allow for take of pelagics	No	More data/justification needed	M2 radar needed to monitor remote MPA			Take Allowance Change	Yes, would turn federal MRs into federal MCAs. No consensus
Los Angeles (Mainland)	Point Dume SMCA	Rec take by spearfishing of white seabass and pelagic finfish. Commercial take of swordfish by harpoon and coastal pelagic species by round haul net, brail gear, and light boat. Santa Ynez band exempt	Frequent noncompliance with MPAs and limited enforcement	Delete allowance for commercial take of Swordfish by harpoon	Yes	Swordfish fishing does not occur that close to shore	Additional enforcement personnel/efforts are needed	State Parks pending review; Heal the Bay		Take Allowance Change	
Los Angeles (Mainland)	Point Dume SMCA	Rec take by spearfishing of white seabass and pelagic finfish. Commercial take of swordfish by harpoon and coastal pelagic species by round haul net, brail gear, and light boat. Santa Ynez band exempt		Allow hook and line fishing for allowed method of take of white seabass and pelagic finfish	No	Lessening of protection/unclear impacts				Take Allowance Change	
Los Angeles (Mainland)	Point Dume SMR	No Take	Angle of eastern boundary is confusing/extends due west and is close to shore	No change	Yes		Use of surveyed boundary images in outreach can help address confusion with eastern boundary at Paradise Cove				
Los Angeles (Mainland)	Point Vicente No-Take SMCA	No Take	Frequent noncompliance with MPAs and limited enforcement	No change	Yes		Additional enforcement personnel/efforts are needed				
Los Angeles (Mainland)	Point Vicente No-Take SMCA	No Take	Confusion of significance of purple designation	Keep allowance for maintenance but change color from purple to red for ease of public interpretation	Yes	Easier to explain "no take" if consistent with red SMR				Other	

Los Angeles (Mainland)	Abalone Cove SMCA	Rec take by spearfishing of white seabass and pelagic finfish; and market squid by hand-held dip net. Commercial take of swordfish by harpoon and coastal pelagic species by round haul net, brail gear, and light boat	Harmful tidepooling impacts/take from tidepools. Frequent noncompliance with MPAs and limited enforcement	Delete allowance for commercial take of swordfish by harpoon	Yes	Swordfish fishing does not occur that close to shore	Additional enforcement personnel/efforts are needed	Heal the Bay		Take Allowance Change	
Los Angeles (Mainland)	Abalone Cove SMCA	Rec take by spearfishing of white seabass and pelagic finfish; and market squid by hand-held dip net. Commercial take of swordfish by harpoon and coastal pelagic species by round haul net, brail gear, and light boat		Allow hook and line fishing for allowed method of take of white seabass and pelagic finfish	No	Lessening of protection/unclear impacts				Take Allowance Change	
Los Angeles (Catalina Island)	Arrow Point to Lion Head Point SMCA	All rec and commercial take allowed. Take of invertebrates prohibited	Poaching lobster and abalone. Hoop nets. Difficult to identify 1,000 feet from shore at Indian/Endemic Rock	No change	Yes		Need for a locally managed (research) buoy to mark 1,000 feet point				
Los Angeles (Catalina Island)	Blue Cavern Onshore No-Take SMCA	No Take. No anchor area in original refuge boundaries	Fishing/using hoop nets close to shore at Big Fisherman Cove. Poaching at Yellowtail Point and Bird Rock; Confusion around no anchor zone	Change purple to red for outreach purposes	Yes, only if all current maintenance/access activities are still allowed	Easier to explain "no take" if consistent with red SMR	Need for some boundary marker at Yellowtail Point. MPA Watch transect would help identify use/ compliance issues here			Other	
Los Angeles (Catalina Island)	Blue Cavern Offshore SMCA	Rec take of pelagic finfish by hook and line and spearfishing and white seabass by spearfishing and market squid by hand held dip net. Commercial take of pelagic finfish by hook and line and swordfish by harpoon	Take via illegal gear types	No change	Yes						
Los Angeles (Catalina Island)	Long Point SMR	No Take	Trolling through MPA occurs. Misconception that MPA is only close to shore. Rental boats go past Long Point and fish	Make a distance from shore rather than lat/long for ease of outreach. Cut off corner and flip and move west (offshore) to maintain size	Yes	Clearer outreach to trollers to stay certain distance from shore, IF maintains size				Boundary Change	
Los Angeles (Catalina Island)	Lover's Cove SMCA	Rec take by hook and line from the Cabrillo Mole is allowed. Feeding fish allowed	Fishing from shore at the ramp near the Mole. Angle is difficult at eastern boundary. Food torpedoes are shot from tourist subs to attract fish to windows	Remove allowance for feeding of fish	Yes	Against intent of MLPA, affecting behavior of fish/habitat; public safety issue as fish become more aggressive and bite				Allowed Activity Change	
Los Angeles (Catalina Island)	Casino Point No-Take SMCA	No Take. Feeding fish allowed	Boundaries don't match dive park buoys. Feeding fish may be incompatible use. 40-50' depth at MPA line.	Remove allowance for feeding of fish.	Yes	Against intent of MLPA, affecting behavior of fish/habitat; public safety issue as fish become more aggressive and bite	Might need to utilize a weaning off process for fish used to being fed			Allowed Activity Change	

Los Angeles (Catalina Island)	Casino Point No-Take SMCA	No Take. Feeding fish allowed		Change purple to red for outreach purposes for outreach	Yes	Easier to explain "no take" if consistent with red SMR				Other	
Los Angeles (Catalina Island)	Farnsworth Onshore SMCA	Rec take by spearfishing of white seabass and pelagic finfish; marline, tunas and dorado by trolling and market squid by hand held dip net. Commercial take of swordfish by harpoon, coastal pelagics by roundhaul net, brail gear and light boat	More difficult to assess whether poaching is occurring on the backside. Challenging/confusing for fishers	No change	Yes		More outreach to fishers needed on why deep habitat/fish are protected here				
Los Angeles (Catalina Island)	Farnsworth Offshore SMCA	Rec take of pelagic finfish by hook and line or by spearfishing; white seabass by spearfishing; marlin, tunas and dorado by trolling and market squid by hand held dip net. Commercial take of swordfish by harpoon, coastal pelagics by roundhaul net, brail gear and light boat	CPFVs (party boats) are seen illegally fishing in Farnsworth Offshore SMCA, moving out if they see the CDFW patrol boat approaching. Regs restricting take of rockfish can be confusing for fishers/challenging to prove rockfish on board was taken outside	No change	Yes						
Los Angeles (Catalina Island)	Cat Harbor SMCA	Rec take of finfish by hook and line or by spearfishing, market squid by hook and line, and spiny lobster and sea urchin. Commercial take of sea cucumbers by diving only and spiny lobster and sea urchin. Aquaculture of finfish	Some take of undersized fish	No change	Yes						
Orange	Bolsa Bay SMCA	Rec take of finfish by hook and line from shore in designated areas only	Confusion between Bolsa Bay and Bolsa Chica Basin MPAs	Potentially combine Bolsa Bay with Bolsa Chica Basin MPAs?	No	State Lands requirement to have fishing				Boundary Change	Yes, would change from SMCA to SMR. No consensus
Orange	Bolsa Chica Basin No-Take SMCA	No Take. Allows for maintenance of artificial structures	Water management infrastructure is failing - needs management and repairs. Shoaling and potential closing of inlet - need cost effective alternative to dredging and $ to implement. Could ultimately change boundaries of MPAs	MPA should cover all waters in ecological reserve. Move northeastern boundary to Graham	Yes	Makes enforcement easier so CDFW can cite for unlawful fishing using 632 instead of no trespassing		OC Coastkeeper	Wendy Berube	Boundary Change	
Orange	Bolsa Chica Basin No-Take SMCA	No Take. Allows for maintenance of artificial structures	Confusion between Bolsa Bay and Bolsa Chica Basin MPA regulations and whether take is allowed. Bridge inconsistency	Change purple to red for outreach purposes	Yes	Easier to explain "no take" if consistent with red SMR		OC Coastkeeper	Wendy Berube	Other	

Orange	Upper Newport Bay SMCA	Rec take of finfish by hook and line from shore in designated areas only	Ecological Reserve and MPA overlapping jurisdiction. Fishing from floats by PCH bridge and using gill nets at Jamboree	No change	Yes		Harbor and estuary signs needed at Newport Dunes. Additional enforcement personnel/efforts are needed				
Orange	Crystal Cove SMCA	Rec take of finfish by hook and line or by spearfishing and spiny lobster and sea urchin. Commercial take of sea urchin, spiny lobster by trap, and coastal pelagic species by round haul net, brail gear and light boat	Harmful tidepooling and undersized lobster. Nighttime poaching. Angle is difficult at southern boundary	Better define tidepool definition to encompass rocky intertidal habitat	Yes	"Area encompassing the rocky pools" is confusing, makes it sounds like it is only the pools, not intertidal zone when dry	Night vision for State Parks officers to address nighttime poaching	State Parks pending review; OC Coastkeeper	Wendy Berube	Language Change	
Orange	Crystal Cove SMCA	Rec take of finfish by hook and line or by spearfishing and spiny lobster and sea urchin. Commercial take of sea urchin, spiny lobster by trap, and coastal pelagic species by round haul net, brail gear and light boat		Add "non-living, geological or cultural" marine resource to tidepool take prohibition for consistency with 632(a)1(C)	Yes	Clarifies tidepool protections to include rocks and shells		State Parks pending review; OC Coastkeeper	Wendy Berube	Language Change	
Orange	Laguna Beach SMR	No Take	Poaching in gated/private communities; angle is difficult at northern boundary	No change	Yes		More enforcement needed in private community. Bring back community scientist/anglers (i.e., CCFRP) to OC				
Orange	Laguna Beach No-Take SMCA	No Take. Maintenance allowed	Angle is difficult at southern boundary	Change purple to red for outreach purposes	Yes	Easier to explain "no take" if consistent with red SMR	Produce map that has layer that shows allowed maintenance/artificial structures and scientific take	OC Coastkeeper	Wendy Berube	Other	
Orange	Dana Point SMCA	Rec take of finfish by hook and line or by spearfishing and spiny lobster and sea urchin. Commercial take of sea urchin, spiny lobster by trap, and coastal pelagic species by round haul net, brail gear and light boat. Tidepools protected	Fishing without a license. Night poaching at 3 Arch. Take of limpets at north end. Shift in fishing pressure. Angle is difficult at southern boundary. Harmful tidepooling	Add "non-living, geological or cultural" marine resource to tidepool take prohibition for consistency with 632(a)1(C)	Yes	Clarifies tidepool protections to include rocks and shells		OC Coastkeeper	Wendy Berube	Language Change	
Orange	Dana Point SMCA	Rec take of finfish by hook and line or by spearfishing and spiny lobster and sea urchin. Commercial take of sea urchin, spiny lobster by trap, and coastal pelagic species by round haul net, brail gear and light boat. Tidepools protected		Better define tidepool definition to encompass rocky intertidal habitat or utilize a different term.	Yes	Tidepools are specific to pools but intertidal habitats protected can be free of pools in some cases. "Area encompassing the rocky pools" is unclear whether all rocky intertidal habitat is included here.		OC Coastkeeper	Wendy Berube	Language Change	
San Diego	Batiquitos Lagoon No-Take SMCA	No take. Boating, swimming, wading and diving prohibited	Confusion between ecological reserve regulations west of 5 and MPA regulations east of 5	Expand SMCA west of I-5 bridge to encompass all of ecological reserve	No	Expands MPA size, unclear on impacts to recreational fishing				Boundary Change	

San Diego	Batiquitos Lagoon No-Take SMCA	No take. Boating, swimming, wading and diving prohibited		Change to blue SMCA with designated fishing areas	Maybe	If does not reduce fishing opportunities under I-5 and 101 bridges, or lessen existing protections				Take Allowance Change	Yes, would change from No-Take SMCA to SMCA
San Diego	Batiquitos Lagoon No-Take SMCA	No take. Boating, swimming, wading and diving prohibited		Change purple to red for outreach purposes if boundaries remain the same	Yes	Easier to explain "no take" if consistent with red SMR				Other	
San Diego	Swami's SMCA	Rec take by hook and line from shore and rec take by spearfishing of white seabass and pelagic finfish	Harmful tidepooling, especially at Seaside reef. Enforcement for take of lobster is hard at southern boundary since it splits 2 jurisdictions and the reef (hard to know where they are actually taking from and who is responsible for enforcing what.)	Move southern boundary to jurisdictional boundary between State Parks and City of Solana Beach for full tidepool protection of reef	No	Increases size of MPA, reducing fishing access, and may impact take of halibut				Boundary Change	
San Diego	Swami's SMCA	Rec take by hook and line from shore and rec take by spearfishing of white seabass and pelagic finfish		Shift entire shape south (lifeguard tower to state/Solana Beach line to cover tidepool on south side)	Yes	Compromise. Keeps same size MPA but covers impacted tidepool area on southern boundary. Lifeguard tower clear boundary at north end		State Parks pending review; Wildcoast		Boundary Change	
San Diego	San Elijo Lagoon No Take SMCA	No take. Boating, swimming, wading and diving prohibited	Lots of people fishing at entrance to San Elijo lagoon under bridge and in channel	Move boundary to west side of the bridge (prohibiting fishing under the bridge) as long as accommodations are allowed for dredging	Yes	Signs are currently posted on west side of bridge to prohibit people from entering the San Elijo Lagoon. Makes outreach clearer		State Parks pending review; Wildcoast		Boundary Change	
San Diego	San Elijo Lagoon No Take SMCA	No take. Boating, swimming, wading and diving prohibited		Change purple to red for outreach purposes	Yes	Easier to explain "no take" if consistent with red SMR				Other	
San Diego	San Dieguito Lagoon SMCA	Rec take of finfish by hook and line from shore. Boating, swimming, wading and diving prohibited	Confusion between ecological reserve boundaries and regulations and MPA boundaries and regulations. Speculation that extent of water has changed since restoration. Original intent of 632 was to align with 630 in overlapping waters. Non-MPA areas are more restrictive which leads to confusion	Have MPA cover all water within ecological reserve.	Need more information	Check with Joint Power authority because would lessen protections if SMCA (that allows fishing) is expanded to all state waters	Sea level rise impacts should be considered			Boundary Change	
San Diego	San Diego-Scripps Coastal SMCA	Rec take of coastal pelagic species, except market squid, by hook and line only	Harmful tidepooling. People using gear types for fishing for species other than coastal pelagics but gear type cannot assume intent. Makes enforcement difficult. Also safety concerns with surf casters into high use swim/surf area	Add, "except from shore" to prohibit surf hook and line	Yes	Surf fishing from shore causes safety concerns (hooks getting caught on surfers/swimmers). Still allows kayakers to fish for bait fish on way out, which was original intent				Take Allowance Change	

San Diego	Matlahuayl SMR	No Take	Harmful tidepooling. Kayak fishing. Caves are being defaced/ graffitied	Add place name (La Jolla) to traditional Kumeyaay name (Matlahuayl)	No	Keep Kumeyaay name only for Tribal acknowledgement. Would also add confusion between other La Jolla MPAs	More focused patrols on caves in La Jolla to address littering/defacement of MPA			Language Change	
San Diego	South La Jolla SMR	No Take	Most highly cited MPA. Poaching of lobster and offshore fishing. Harmful tidepooling. Challenges of parking and access (coastline related challenges due to sea level rise, climate disturbance)	No change	Yes	Focus on local management/outreach/enforcement	Need for more focus on tidepools (outreach/ enforcement). More staff for allied agencies to help enforce. Encourage city to maintain safe accessways and deal with coastal erosion problems. More education on marine mammal disturbance				
San Diego	South La Jolla SMCA	Rec take of pelagic finfish by hook and line only		No change	Yes						
San Diego	Famosa Slough No Take SMCA	No Take	Homeless encampments. Construction run-off. Dogs and cats disturbing birds	Change purple to red for outreach purposes	Yes	Easier to explain “no take” if consistent with red SMR				Other	
San Diego	Cabrillo SMR	No Take	Harmful tidepooling. Offshore boats but NPS unable to contact other than through megaphone	Work with Kumeyaay to rename MPA to traditional Kumeyaay name	Yes	Kumeyaay name exists for this location. Need to confirm spelling	Additional enforcement personnel/efforts are needed			Language Change	
San Diego	Tijuana River Estuary SMCA	Rec take of coastal pelagic species, except market squid, by hand held dip net. Commercial take of coastal pelagics, except market squid by round haul net	Difficult take regulations to interpret in the field and take by hand held dip net not really occurring, per Imperial Beach lifeguards	No change							

Cell: K138
Note: was not sure about this categorization
MPA Collaborative

From: Devin O'Dea <[redacted]>
Sent: Thursday, February 1, 2024 04:10 PM
To: FGC <FGC@fgc.ca.gov>
Cc: Mark Smith <[redacted]>; Wayne Kotow <[redacted]>; Keely Hopkins <[redacted]>; California Chapter <[redacted]>
Subject: Discussion Item 10 - Regulation change petitions (marine)

Dear Commission Staff,

Please accept the attached comment letter on behalf of Backcountry Hunters & Anglers, the Coastal Conservation Association of California, and the Congressional Sportsman's Foundation pertaining to Discussion Item 10 at the upcoming Fish & Game Commission meeting.

Thank you,

Devin O'Dea | Western Policy & Conservation Manager
Backcountry Hunters & Anglers
Phone: (415) 246-5329
www.backcountryhunters.org

February 1, 2024

California Fish and Game Commission
715 P Street, 16th Floor,
Sacramento, CA 95814

RE: Discussion Item 10 - Regulation change petitions (marine)

Dear President Sklar, Vice President Zavaleta & Commissioners,

We appreciate the opportunity to comment on the numerous petitions under consideration at the February meeting of the California Fish & Game Commission, and we offer the perspective of the many hundred thousand supporters of our organizations to the Commission. We express grave concerns regarding several of the proposals to eliminate fishing access along large stretches of the California coast and argue that many of the petitions lack adequate scientific support and documentation to substantiate their positions.

The Decadal Management Review (DMR) of the Marine Protected Area Network (MPA) has offered important insights for MPA managers to help shape the adaptive management of MPA regulations, including promising research that MPAs may increase biomass and provide resiliency against the impacts of a changing climate for some species. The intent of the Marine Life Protection Act (MLPA) and the stewardship of our coastal resources are of paramount importance to California's heritage. However, these laudable goals and conservation benchmarks should not preclude access to harvest coastal foods where state and federal fisheries managers have demonstrated robust and resilient fish stocks without any current threat of overfishing, nor for those species where targeted fishing and active management would benefit the overall ecosystem balance.

There are numerous, seemingly well-intentioned petitions currently before the Fish & Game Commission that seek to preserve California's coastal waters citing anthropogenic impacts to biodiversity and ecosystems such as pollution, rising sea temperatures, disease, development and overfishing. While we support the intent to safeguard our fish stocks, biodiversity, and ecosystem integrity, we strongly disagree with the all-or-nothing approach adopted by many of the petitioners who proffer the wholesale elimination of fishing access without adequate scientific rationale or the acknowledgement of regulatory mechanisms already in place such as those established by the Magnuson-Stevens Fishery Conservation and Management Act working through the Pacific Fisheries Management Council, National Oceanic and Atmospheric Administration (NOAA) Fisheries, the California Department of Fish and Wildlife (CDFW), the Fish & Game Commission, and the additional state/federal laws and agencies dedicated to this task. Simply put, many of the petitions referenced below seek to advance preservation at all costs, pushing for wholesale closures that circumvent the regulatory processes already in place, ultimately bludgeoning access for the diverse angling communities that have revered these coastal traditions for generations.

Anglers and consumptive users will often be the first and loudest voices to advocate for restrictions or even closures to ensure the sustainability of a fishery, as evidenced by the numerous fishing groups and organizations advocating for the closure of the 2023 salmon season following the data and dismal projections provided by the Pacific Fisheries Management Council and CDFW. However, a Californian

constitutional right to fish seems to stand in conflict with the presumption that restriction of access is permissible where there is a lack of scientific evidence or data to justify the closure. Section 1, Article 25 of the California Constitution states, "the people shall have the right to fish upon and from the public lands of the State and in the waters thereof," and the courts in re Quinn (1973) defined "public lands of the state" referenced in this article to include "access to fish in the inland streams and coastal waters of the state."

Shore fishing, diving/spearfishing, kayak/boat fishing and coastal gathering are low impact activities that reflect the broad spectrum of California's diverse community and constitute a valuable resource for individuals across the economic divide to access nature and provide food for their families. We encourage the Commission and MPA managers to consider the numerous communities that enjoy the state's many sustainable food resources when considering protections and recommendations that might unnecessarily exclude these groups. We feel that these considerations are in line with the California Natural Resources Agency's Outdoors for All initiative and its commitment in the Pathways to 30x30 document to "implement projects that do no further harm or pose unintended consequences to historically marginalized communities."[1] Specifically, we wish to highlight this issue with regards to the expansion of California's MPA network which restricts shore-based diving, foraging, and fishing access for all Californians – especially historically marginalized communities, communities of color and Native American tribes. From California's Constitutional Right to Fish:

> Anglers from historically marginalized communities may be less able to travel to fishing locations and are more likely to require shore access, as opposed to access from a boat. Anglers in communities like this need accessible shore-fishing, particularly given the importance of subsistence fishing in poorer communities. Moreover, fishing opportunities offer physical and psychological benefits to disadvantaged communities, not just access to fish as food.[2]

It is within this context that we urge the Commission to take the following actions with regards to the petitions they have received.

Petition 2023-14MPA: *Allow commercial take of red sea urchins in nine state marine conservation areas (SMCAs)*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-15MPA: *Reclassify three northern Channel Islands state marine reserves (SMRs) to SMCAs and allow take of highly migratory species, pelagic finfish, and/or coastal pelagic finfish*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation, but are encouraged by the proposal and the potential opportunity to gather more data on limited take MPAs and long-term MPA monitoring at the Channels Islands.

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[1] https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/30-by-30/Final_Pathwaysto30x30_042022_508.pdf

[2] Coats, Francis, and Karrigan Bork. "CALIFORNIA'S CONSTITUTIONAL RIGHT TO FISH." *Environmental Law*, vol. 51, no. 4, 2021, pp. 1085–147. *JSTOR*, https://www.jstor.org/stable/48647570. Accessed 22 Mar. 2023.

Petition 2023-16MPA: *Reclassify Stewarts Point and Bodega Head SMRs to SMCAs and allow commercial take of salmon.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-18MPA: *Modify allowed uses for four marine protected areas (MPAs) in Santa Barbara Channel and eliminate two special closures.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-19MPA: *Designate new "Chitqawi" SMCA near Morro Bay for California-Chumash co-management*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-20MPA: *Reclassify and rename Point Buchon SMR to "Chumash SMCA" for co-management with tribal take exemption.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-21MPA: *Modify Pyramid Point SMCA to remove recreational take of surf smelt and allow tribal take exemption for Tolowa Dee-ni' Nation.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-22MPA: *Define "rocky intertidal zone," add research, monitoring, restoration and education allowance, and clarify protections in several Orange County MPAs.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-23MPA*: Reclassify three SMCAs to SMRs, designate one new SMR in Monterey, and make various changes related to kelp restoration.*

We recommend the Commission deny this petition.

While the petitioner's intent to restore kelp forests and ecosystem integrity at tankers reef and in the surrounding waters is laudable, this broadly proscriptive petition would unnecessarily restrict access for anglers where there is no clear scientific rationale. In fact, the petitioner submitted a very similar petition seeking to close access for groundfish along a large stretch of the coast in this region in 2023 which the Department of Fish & Wildlife rejected citing a lack of scientific evidence to support the claim. We support the ongoing efforts to restore kelp forests through urchin culling and other means, however we oppose reclassifying these SMCAs to SMRs and the establishment of a new SMR in Monterey.

Petition 2023-24MPA: *Expand Laguna Beach no-take SMCA southward to border of City of Laguna Beach and modify Dana Point SMCA boundaries*

We recommend the Commission deny this petition.

We oppose this petition on the basis that it lacks scientific documentation or justification to eliminate fishing access in the proposed area. The petitioner argues primarily for administrative ease that the no-take closure be extended to the edge of city limits. During the implementation of the MLPA, MPAs were sited utilizing careful selection criteria based on habitat type, proximity from other MPAs, impact to communities and more. The petitioner argues that all beaches within the City of Laguna Beach should be no-take MPAs in order to streamline enforcement and that homeowners "feel that it is not equitable to have only the north and central beaches protected." It should be noted that the petitioner also states clearly in the Economic or Fiscal Impact section of the petition that "estimated resident property values gain an increase of 20% from proximity to a fully protected MPA" which may explain more robust support from the city and homeowners.

The petitioner also cites kelp forest health as justification for eliminating fishing access, however the 100 + page report included with the petition doesn't reference fishing pressure or boat activity with regards to kelp forest health and instead focuses on water temperature, nutrients, wave height, upwelling, rainfall and other stressors. As such, we recommend the Commission deny this petition since there is no scientific documentation to support its claims, and it would only negatively impact anglers who would be forced to travel further to reach fishing grounds.

Petition 2023-27MPA: *Reclassify a portion or all of Anacapa SMCA to an SMR to protect eelgrass*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation. We recognize the value of eelgrass beds for overall ecosystem health and habitat; however, it should be noted that many recreational anglers who target pelagic fish do not anchor and instead prefer to drift fish or troll instead which would have zero impact on the bottom habitat and eelgrass.

Petition 2023-28MPA: *Designate a new SMR at Point Sal, or designate as an SMCA with a tribal take exemption based on tribal consultation*

We recommend the Commission deny this petition.

While the petitioner takes time to identify the important habitat types, larval transport zones, and cultural significance of the Point Sal area, and they reference potential threats to the region from coastal development and industry, they fail to elaborate in any substantive way why fishing access should be removed from this wild and iconic central coast fishing destination. The petitioner states: "current [commercial] fishing in the proposed area is limited, likely due to its considerable distance from nearest port areas of Morro Bay and Santa Barbara." They also admit that they have no data or analysis with regards to recreational fishing and state, "our request to CDFW for recreational fishing data from this area was being processed at time of submission; we will evaluate the potential impact to recreational fishers and submit it to the state following receipt of the requested data."

A limited google search of "Point Sal fishing" also uncovers a large number of recreational fishing blogs and videos detailing the remote and adventurous hike to fish this area from a diverse population of anglers. In 2023 one blogger wrote, "had a great time hiking miles and miles and miles to fish Point Sal with Martin Mansera from Mansera Outdoors…It's such a remote location and so difficult to access, it

makes for a really rad adventure." Recreational fishing trips to the area by boat are also common, and fishing is noted in nearly every travel guide or city/county website that talks about visiting Point Sal.

Regarding access and disadvantaged communities, the petitioner writes, "the California Environmental Protection Agency identifies the adjacent city of Guadalupe as "disadvantaged" under CA Senate Bill 535, and their synthesis of environmental and socioeconomic indicators further reveals that Guadalupe – alongside Santa Maria and Lompoc – are underprivileged communities that experience significant cumulative impacts from pollution. Given these communities' close proximity to Point Sal, implementing an SMR at the proposed site could enhance access for disadvantaged populations to valuable coastal resources and fishing opportunities."

To justify this confounding claim that removing fishing access could somehow *enhance fishing opportunities* for disadvantaged communities, the petitioner cites a study of commercial lobster fishing and the concept of "spillover." They write, "California's MPAs have been shown to increase the biomass of fishery-targeted species and promote "spillover" into nearby coastal areas, benefitting nearby fishing grounds."

Spillover and the positive impacts to fisheries located in waters adjacent to MPAs are often referenced in association with the MPA network, and the limited, initial science has demonstrated some positive correlations with spillover of invertebrates like lobsters to adjacent fishing grounds in select study areas and commercial fishing for tuna in Hawaii. However, there remains an opportunity to further study this hypothesis and to promote scientific research that successfully documents spillover of targeted finfish across the MPA network in California. Some data from MPA monitoring along the Central California Coast indicated limited evidence of spillover from targeted finfish that were tagged and recaptured at a later point during the study period as evidenced from the Starr et al study: Variation in Responses of Fishes across Multiple Reserves within a Network of Marine Protected Areas in Temperate Waters:

> As of July 2014, a total of 251 individual tag recaptures have been reported (Table 8). Tagged fishes were recaptured by commercial and recreational hook-and-line fishermen, commercial trap fishermen, SCUBA divers, and during our fishing surveys. Of all the tagged fishes recapture and reported, 71% were recaptured in the same site and grid cell as they were released, and 22% of recaptured fishes were caught within the same site but outside the original grid cell where they were released. Only 18 fish, or 7% of the recaptured fishes, were recaptured beyond the boundaries of the MPA or REF site in which they were released. The mean net distance moved by eight of nine species recaptured was less than half the length of the MPAs we studied.[3]

While we do not seek to draw conclusions regarding the overall merits of spillover to adjacent fisheries from the results of one study, we do encourage additional research to evaluate the impacts that MPAs have on local fisheries and fisheries as a whole, especially within the context of varied siting and disparate habitat types evidenced across the MPA network. As the Forcada study indicated, "We conclude that spillover effects are not a universal consequence of siting MPAs in temperate waters and they are related to the distribution of habitats inside and around MPAs." (Forcada et al., 2009).

Due to the limited scientific understanding of spillover as it relates to the Marine Protected Area Network as a whole, especially with regards to finfish which would be the primary target of recreational shore and

[3] 4 Starr RM, Wendt DE, Barnes CL, Marks CI, Malone D, et al. (2015) Variation in Responses of Fishes across Multiple Reserves within a Network of Marine Protected Areas in Temperate Waters. PLOS ONE 10(3): e0118502. https://doi.org/10.1371/journal.pone.0118502

boat-based anglers at Point Sal, we disagree with the petitioner's logical assumptions and the argument as a whole. In fact, when considered in the context presented from the *Constitutional Right to Fish* article, the discussion is turned on its head entirely. "Anglers from historically marginalized communities may be less able to travel to fishing locations and are more likely to require shore access, as opposed to access from a boat. Anglers in communities like this need accessible shore-fishing, particularly given the importance of subsistence fishing in poorer communities."[4]

With the two large no-take SMRs located just South of this newly proposed MPA (Vandenberg SMR & Point Conception SMR) and Point Buchon to the North, it would seem the opportunities to fish and forage the coast for residents of Guadalupe, Lompoc and Santa Maria are already few and far between. In fact, in 2022 the City of Lompoc petitioned the Fish & Game Commission to allow for shore-fishing access along a ½ mile stretch of beach with in the Vandenberg SMR, citing a lack of access to historic fishing grounds for the local communities.

We share the petitioner's concerns regarding habitat disruption from off-shore energy production and the associated infrastructure, however, we note the likely establishment of the Chumash Heritage National Marine Sanctuary (CHNMS) designation which would effectively curtail any development or offshore energy production in this region. Planning for the CHNMS has included fishing access as a key component of the proposed designation.

As a result, we recommend the Commission deny this petition.

Petition 2023-29MPA: *Designate a new SMCA with a tribal take exemption for and co-management with Santa Ynez Band of Chumash Indians in Santa Barbara*

We recommend the Commission deny this petition.

We oppose the petitioner's request to designate a new, no-take SMCA in Carpinteria for several reasons. First, the petitioner argues that spacing and connectivity is a key concern in this location with the distance between the Campus Point and Point Dume SMCAs at 64 nautical miles (nm) instead of the recommended 54 nm to ensure ecological connectivity. When this request is examined within the broader context of MPA siting, it is clear that the target spacing between MPAs could be easily achieved by moving the Campus Point SMCA South or the Point Dume SMCA North, since both are located well-within the recommended 54nm from adjacent MPAs on either side.

Additionally, the petitioner cites the location as important nursery habitat for juvenile great white sharks as justification for establishing a no-take SMR. They write, "Research conducted in the Southern California Bight has found that fisheries bycatch is likely the main source of mortality for JWS." However, the article they cite to support this claim, John F. Benson et. al., discloses that for great white sharks they captured and tagged, "mortality risk was substantially greater off the coast of Baja, Mexico compared with California." Importantly, the research paper also states, "that incidental gillnet capture continues to be the primary source of mortality for juveniles. The lower mortality risk we documented in California waters suggests that full closure of gillnet fishing close to shore is a more effective management strategy than simply banning targeted fishing to reduce mortality risk due to bycatch." [5]

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[4] Coats, Francis, and Karrigan Bork. "CALIFORNIA'S CONSTITUTIONAL RIGHT TO FISH." *Environmental Law*, vol. 51, no. 4, 2021, pp. 1085–147. *JSTOR*, https://www.jstor.org/stable/48647570. Accessed 22 Mar. 2023.

[5] Benson JF, Jorgensen SJ, O'Sullivan JB, et al. Juvenile survival, competing risks, and spatial variation in mortality risk of a marine apex predator. *J Appl Ecol*. 2018; 55: 2888–2897. https://doi.org/10.1111/1365-2664.13158

As the petitioner is undoubtedly aware, gillnet fishing is banned in state waters and therefore the proposed MPA would have no impact on the gillnet fishery or likely the mortality risk to great white sharks.

The petitioner notes the location's popularity with recreational lobster divers and the likely opposition from stakeholders who would oppose the additional loss of access. The mortality risk to great white sharks from the recreational lobster fishery is zero, similar to the risk from spearfishing, yet the petitioner seeks to eliminate access entirely without providing any scientific rationale for the closure. As a result, we request that the Commission deny this petition.

Petition 2023-31MPA: *Reclassify Drakes Estero SMCA to an SMR and combine with Estero de Limantour SMR as a single SMR:*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation but encourage the Commission to maintain access for clamming unless there is a clear threat to the fishery or surrounding ecosystem.

It is worth noting that the National Park Service mentions in their comment letter that the area is now Congressionally Designated Wilderness and that "recreational take of shellfish appears to be very rare, [and] requires long kayak trips in wilderness area." Just because something is difficult doesn't mean it should be illegal.

Petition 2023-32MPA: *Reclassify Duxbury Reef SMCA as an SMR and expand northern and southern boundaries*

We recommend that the Commission deny or refer this petition to the Department of Fish & Wildlife for review and recommendation but emphasize maintaining fishing access for local communities at Duxbury Reef. The vast majority of complaints regarding Duxbury reef are related to enforcement and compliance, rather than a scientific justification for eliminating access. Shore fishing is an important past-time for the diverse communities that comprise the North Bay Area, and removing access to a popular fishing destination should not be justified simply based on the actions of a few bad apples.

Petition 2023-33MPA: *Expand the boundaries of five SMRs and one SMCA, and designate a new SMR off Pleasure Point, in Santa Cruz*

We recommend that this petition be denied or referred to the Department of Fish & Wildlife for review and recommendation due to its broad scope and complexity. The petitioner seeks to enhance protections for kelp forests, but does so with an overly broad brush. Rather than advocating for reducing fishing pressure for predators of kelp grazers, like lobster and sheepshead, the petition advocates for the closure of all fishing, including the harvest of grazer species like urchins that have been documented to decimate kelp forests.

The petitioner argues that eliminating fishing pressure within the proposed MPA areas would somehow bolster kelp populations, but the claim is not well documented by scientific research in this petition. A noteworthy case study, by comparison, is the ongoing Tanker's Reef kelp restoration project, where volunteers have been culling purple urchins within study plots and tracking kelp recovery within the study area and a control site nearby. The initial data for the last three years shows a clear correlation between the removal of purple urchins and kelp recovery in the study plot with no kelp recovery in the adjacent control where urchins were not removed. Fishing is permitted in the Tanker's reef area, however, in adjacent MPA's that have not permitted active restoration and where fishing is not allowed, urchin barons persist and kelp recovery remains minimal.

Kelp forest health and resiliency is a complex and multi-variable equation that can be impacted by numerous factors including water temperature, disease, pollution, algal blooms, wave energy, commercial harvest and more. We support efforts to restore kelp forests across the coast and recognize the role they play in the overall ecosystem health of fisheries, especially the abalone fishery that remains closed until 2026. We urge caution, however where broad fishing closures are enacted in the attempt to solve a problem that requires a more nuanced and carefully crafted multidisciplinary approach.

It should also be noted that the petitioner indicates support for recreational hook and line fishing and spearfishing as an acceptable alternative in several of the MPAs referenced in the petition.

Petition 2023-34MPA: *Reclassify Point Buchon SMCA to an SMR and modify take at Farnsworth Onshore and Offshore SMCAs to only allow recreational spearfishing.*

We recommend that the Commission deny this petition and we emphasize the substantial impacts to current fishing access. The petitioner argues that since the salmon season was closed in 2023 it will likely be closed in perpetuity, which would justify eliminating salmon and albacore fishing access at the Point Buchon SMCA. Salmon populations often decrease during drought years and can rebound with increased precipitation or water allocation as was the case in 2008 and 2009 when the fishery was closed and then reopened. We are cautiously optimistic that the salmon numbers will once again bounce back following the increased precipitation received over the past two years.

In the draft Pathways to 30x30 document, the CNRA writes: “It should be noted that limited-take State MPAs provide an excellent model for other jurisdictions looking to balance biodiversity conservation with sustainable well-managed commercial and recreational fishing.” We feel that reclassifying the Point Buchon SMCA as an SMR and eliminating fishing in this area would be inappropriate; however, we support any attempts to improve enforcement and compliance with existing regulations.

Furthermore, the proposal to modify take at Farnsworth Onshore and Offshore SMCAs would disproportionately impact a broad variety and collection of user groups who may not be physically able or inclined to spearfish. For this reason and the lack of concrete scientific data to justify the additional restrictions, we recommend the Commission deny this petition.

Sincerely,

Devin O’Dea
Western Policy & Conservation Manager
Backcountry Hunters & Anglers

Wayne Kotow
Executive Director
Coastal Conservation Association California

Keely Hopkins
Western States Manager
Congressional Sportsman’s Foundation

FGC@FGC

From: Rachel Lucine <rlucine@environmentcalifornia.org>
Sent: Thursday, February 1, 2024 5:19 PM
To: FGC
Cc: Laura Deehan
Subject: Supplemental Materials for Petitions 2023-33MPA and 2023-34MPA
Attachments: 2.1.24 Fish & Wildlife MPA Letter.docx; 2.14.24 Marine Protected Areas_CFGC LOS (1).pdf; Local Elected Official - CA 30x30 MPA Letter of Support.pdf; eNGO Letter of Support- Kelp Forest Petition (2023-33MPA).pdf; eNGO Letter of Support- Strengthen MPA (2023-34MPA).pdf

Hello Fish and Game Commission,

Attached are additional supplemental materials for Environment California's and Azul's petitions (2023-33MPA and 2023-34MPA). We are pleased to share letters of support from State Senators Laird and Wiener, along with signatures from 16 local elected officials. Additionally, we have garnered 25 signatures from eNGOs for petition 2023-33MPA and 28 signatures from eNGOS for petition 2023-34MPA.

We are actively gathering more support and plan to submit additional materials and updates to these numbers before the February 9th deadline. Please feel free to reach out if you have any questions or need further information.

Best regards,

Rachel Lucine (she/her)
Ocean Conservation Campaign Associate, Environment California
Phone: (707) 241-5082
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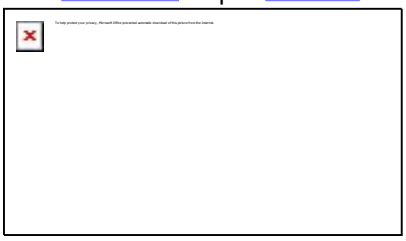

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California State Senate

SENATOR
SCOTT WIENER
威善高
ELEVENTH SENATE DISTRICT

MENTAL HEALTH CAUCUS
CHAIR
LEGISLATIVE JEWISH CAUCUS
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HEALTH
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PUBLIC SAFETY
SELECT COMMITTEE ON
BAY AREA PUBLIC TRANSIT
CHAIR
SELECT COMMITTEE ON
MENTAL HEALTH & ADDICTION
CHAIR

February 2, 2024

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Re: **Petitions to Modify the CA Marine Protected Area Network to Enhance Protections**

Dear President Sklar and Honorable Commissioners,

As a state senator and advocate for the health and vitality of California's coastal ecosystems, I am writing to express my unwavering support for the expansion of the state's network of Marine Protected Areas (MPAs). Implementing new highly or fully protected areas and increasing the rigor of existing marine protected areas are crucial steps in safeguarding our diverse marine species and ensuring the long-term well-being of the ecosystems off our shores.

The state of our ocean is at a critical juncture, with escalating global temperatures, declining biodiversity, and a growing number of endangered marine species. Northern California has lost more than 95% of its kelp forests since 2014, and kelp forests statewide have experienced declines over the past decade[1]. Pollution, overfishing, offshore drilling and other human activities are threatening ocean habitats and marine species, while the changing climate increases the risk of extreme weather events and puts even greater stress on ocean ecosystems.[2][3]

In the face of these mounting threats, California has a unique opportunity to take bold and effective action to conserve ocean habitats and ensure a greater abundance of life off our coast.

[1] Meredith McPherson et al, Large-scale shift in the structure of a kelp forest ecosystem co-occurs with an epizootic and marine heatwave, Communications Biology, March 5, 2021
[2] James Horrox, Steve Blackledge and Kelsey Lamp, "New Life for the Ocean: How marine protections keep our waters wild," Environment America Research and policy Center & Frontier Group, February 2021
[3] Arafeh-Dalmau et al., Integrating climate adaptation and transboundary management: Guildenes for designing climate smart marine protected areas, One Earth 6, 1-19 November 17, 2023

Over two decades ago, the state passed the groundbreaking Marine Life Protection Act (MLPA), which called on the state to use one of the most powerful tools for ocean conservation: marine protected areas (MPAs).

MPAs, like state parks on land, protect unique and important ocean habitats from activities that can damage ocean life. Areas that are strongly protected have been shown to be highly effective in conserving biodiversity, enhancing ecosystem resilience, and mitigating the impacts of climate change on our oceans.[4]

California's network of MPAs, foreseen in the MLPA, celebrated its tenth-anniversary last year, and the state's decadal management review showed that marine life in existing reserves better withstood recent marine heatwaves, and reserves across the state had higher biomass of commercially caught fish than areas lacking protection.[5]

Now, we need to build on this system and maintain California's role as a leader, both nationally and globally, in the fight to protect more ocean habitats.

That's why I urge you to strengthen and expand our state's network of MPAs within the adaptive management process of the Decadal Management Review. In particular, I am writing in support of the petitions calling to expand Natural Bridges SMR, Point Conception SMR, South Point SMR, Gull Island SMR, Cabrillo SMR, and Point Dume SMCA, strengthen the protections at Point Buchon SMCA and Farnsworth SMCA, and implement a new SMR at Pleasure Point.

We, as Californians, have a deep love for our ocean and feel a profound responsibility to participate in decisions that impact our state's coastal waters. Our ocean is not just a source of clean air, wildlife, and natural beauty but also a mystery that beckons exploration and discovery.

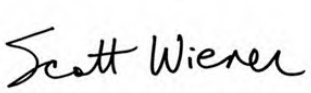
It is our moral imperative to lead the nation and the world in taking bold actions to preserve the sea in our own backyard, ensuring its future and the well-being of the communities that rely on it for their survival and prosperity.

In conclusion, I strongly urge you, Honorable Commissioners, to expand and strengthen California's MPA network to encompass and protect more critical ocean habitats. By doing so, you will leave a lasting legacy of environmental stewardship.
Thank you for your unwavering commitment to the welfare of our ocean and for considering this proposal. Together, we can ensure a healthier, more abundant future for the unique marine ecosystems that define California.

---

[4] James Horrox, Steve Blackledge and Kelsey Lamp, "New Life for the Ocean: How marine protections keep our waters wild," Environment America Research and policy Center & Frontier Group, February 2021
[5] California Department of Fish and Wildlife, 2022 California's Marine Protected Area Network Decadal Management Review

Sincerely,



Scott Wiener
Senator, 11th District

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California State Senate

SENATOR
JOHN LAIRD
SEVENTEENTH SENATE DISTRICT

COMMITTEES
BUDGET SUBCOMMITTEE #1 (EDUCATION)
CHAIR
JOINT COMMITTEE ON RULES
VICE CHAIR
BUDGET & FISCAL REVIEW
JUDICIARY
LABOR, PUBLIC EMPLOYMENT & RETIREMENT
NATURAL RESOURCES & WATER
JOINT LEGISLATIVE AUDIT COMMITTEE

February 14, 2024

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

Subject: Petition to Increase Enhance Protections and Streamline Enforcement for Specified California State MPAs

Dear President Sklar and Honorable Commissioners:

As the Senator representing the Central Coast and the entire Monterey Bay shoreline, I am writing to express my strong support for the expansion of California's network of Marine Protected Areas (MPAs) to include the expansion of Natural Bridges State Marine Reserve, increased protection of Point Buchon State Marine Reserve/State Marine Conservation Area and the creation of a new MPA at Pleasure Point. Protecting critical marine habitat (including stable kelp forests) and increasing protections for existing MPAs are crucial steps in ensuring the long-term health of the state's treasured marine ecosystems.

Over two decades ago, the California legislature passed the groundbreaking Marine Life Protection Act (MLPA), which facilitated the creation of MPAs in California waters. According to the Environment America Research and Policy Center, MPAs have proven highly effective in conserving biodiversity, enhancing ecosystem resilience, and mitigating the impacts of climate change on our oceans. California's network of MPAs celebrated its tenth anniversary last year, and the state's Decadal Management Review revealed that marine life in existing reserves exhibited increased tolerance to recent marine heatwaves, and reserves across the state produced higher biomass commercially caught fish than did areas that lack that protection.

However, the state of our ocean is at a critical juncture, with escalating global sea surface temperatures, declining biodiversity, and a growing number of endangered marine species. Northern California has lost more than 95% of its kelp forests since 2014, and kelp forests statewide have experienced drastic declines in biomass over the past decade. Pollution, overfishing, offshore drilling, and other human activities are threatening marine habitat, and

climate change increases risk of extreme weather events and enhances stress on ocean ecosystems. In the face of these mounting threats, California has a unique opportunity to take bold and effective action to conserve ocean habitats.

I urge you to expand California's MPA network to encompass areas of persistent kelp forests, according to the scope of the adaptive management process of the Decadal Management Review. In particular, I am writing in support of the expansion and strengthening of the Point Buchon and Natural Bridges State Marine Reserves (SMRs) off the coast of my Senate district. It is our moral imperative to lead the nation and the world in taking bold actions to preserve marine habitat, starting in our own backyard, by ensuring its future and the well-being of the communities that rely on it for their survival and prosperity.

Thank you for your steadfast commitment to environmental stewardship and the welfare of our ocean. Together, we can ensure a healthier, more abundant future for the unique marine ecosystems that define California’s coast.

Sincerely,

John Laird
Senator, 17th District

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

February 1, 2024

Re: **Petitions to Modify the CA Marine Protected Area Network to Enhance Protections**

Dear President Sklar and Honorable Commissioners,

As a local elected official and advocate for the health and vitality of California's coastal ecosystems, I am writing to express my unwavering support for the expansion of the state's network of Marine Protected Areas (MPAs). Implementing new highly or fully protected areas and increasing the rigor of existing marine protected areas are crucial steps in safeguarding our diverse marine species and ensuring the long-term well-being of the ecosystems off our shores.

The state of our ocean is at a critical juncture, with escalating global temperatures, declining biodiversity, and a growing number of endangered marine species. Northern California has lost more than 95% of its kelp forests since 2014, and kelp forests statewide have experienced declines over the past decade.[1] Pollution, overfishing, offshore drilling and other human activities are threatening ocean habitats and marine species, while the changing climate increases the risk of extreme weather events and puts even greater stress on ocean ecosystems.[2] [3]

In the face of these mounting threats, California has a unique opportunity to take bold and effective action to conserve ocean habitats and ensure a greater abundance of life off our coast. Over two decades ago, the state passed the groundbreaking Marine Life Protection Act (MLPA), which called on the state to use one of the most powerful tools for ocean conservation: marine protected areas (MPAs).

MPAs, like state parks on land, protect unique and important ocean habitats from activities that can damage ocean life. Areas that are strongly protected have been shown to be highly effective in conserving biodiversity, enhancing ecosystem resilience, and mitigating the impacts of climate change on our oceans.[4]

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[1] Meredith McPherson et. al, Large-scale shift in the structure of a kelp forest ecosystem co-occurs with an epizootic and marine heatwave, Communications Biology, March 5, 2021
[2] James Horrox, Steve Blackledge and Kelsey Lamp, "New Life for the Ocean: How marine protections keep our waters wild," Environment America Research and Policy Center & Frontier Group, February 2021.
[3] Arafeh-Dalmau et al., Integrating climate adaptation and transboundary management: Guidelines for designing climate smart marine protected areas, One Earth 6, 1–19 November 17, 2023 ª 2023 Published by Elsevier Inc.
[4] James Horrox, Steve Blackledge and Kelsey Lamp, "New Life for the Ocean: How marine protections keep our waters wild," Environment America Research and Policy Center & Frontier Group, February 2021.

California's network of MPAs, foreseen in the MLPA, celebrated its tenth-anniversary last year, and the state's decadal management review showed that marine life in existing reserves better withstood recent marine heatwaves, and reserves across the state had higher biomass of commercially caught fish than areas lacking protection.[5]

Now, we need to build on this system and maintain California's role as a leader, both nationally and globally, in the fight to protect more ocean habitats.

That's why I urge you to strengthen and expand our state's network of MPAs within the adaptive management process of the Decadal Management Review. In particular, I am writing in support of the petitions calling to expand Natural Bridges SMR, Point Conception SMR, South Point SMR, Gull Island SMR, Cabrillo SMR, and Point Dume SMCA, strengthen the protections at Point Buchon SMCA and Farnsworth SMCA, and implement a new SMR at Pleasure Point.

We, as Californians, have a deep love for our ocean and feel a profound responsibility to participate in decisions that impact our state's coastal waters. Our ocean is not just a source of clean air, wildlife, and natural beauty but also a mystery that beckons exploration and discovery. It is our moral imperative to lead the nation and the world in taking bold actions to preserve the sea in our own backyard, ensuring its future and the well-being of the communities that rely on it for their survival and prosperity.

In conclusion, I strongly urge you, Honorable Commissioners, to expand and strengthen California's MPA network to encompass and protect more critical ocean habitats. By doing so, you will leave a lasting legacy of environmental stewardship.

Thank you for your unwavering commitment to the welfare of our ocean and for considering this proposal. Together, we can ensure a healthier, more abundant future for the unique marine ecosystems that define California.

Sincerely,

Alex Miller, Council Member, City of Seaside

Teresa Acosta, Councilmember, City of Carlsbad

Yvette Brooks, Vice Mayor, City of Capitola

Andrea Marr, Council Member, City of Costa Mesa

Joaquin Jimenez, Mayor, City of Half Moon Bay

---

[5] California Department of Fish and Wildlife. (2022). California's Marine Protected Area Network Decadal Management Review.

Lisa Nash, Mayor, City of San Mateo

Christine Parra, Council Member, City of Santa Monica

Dan Kalmick, Council Member, City of Huntington Beach

Justin Massey, Mayor, City of Hermosa Beach

Angie Reyes English, Mayor Pro Tem, City of Hawthorne

Joan Hartmann, 3rd District Supervisor, City of Santa Barbara

Joy Lyndes, Council Member, City of Encinitas

Phil Brock, Mayor, City of Santa Monica

Jose Sanchez, Mayor, City of Monterey Park

Joel Torrez, Environment Deputy, LA County, Supervisor Janice Hahn

Anissa Raja, Legislative Director, Office of Councilmember Tim McOsker

California Fish and Game Commission
715 P Street, 16th floor,
Sacramento, CA 95814

February 14, 2024

RE: Petition to Modify CA Marine Protected Area Network to Enhance Protections for California's Most Resilient Kelp Forests

Dear President Sklar and Honorable Commissioners:

Northern California has lost more than 95% of its kelp forests since 2014, and kelp forests statewide have experienced declines over the past decade.[1] California sea otters are still listed as threatened under the Endangered Species Act, and one of the biggest barriers to this species' recovery and range expansion is increased shark bites from a lack of kelp forest cover. Marine heatwaves have doubled over the last 30 years, and have become more intense and longer in duration, putting stress on California's marine species and ecosystems.[2]

In the face of these mounting threats, California has a unique opportunity to take bold and effective action to conserve ocean habitats and ensure a greater abundance of life off our coast. Over two decades ago, the state passed the groundbreaking Marine Life Protection Act (MLPA), which called on the state to use one of the most powerful tools for ocean conservation: marine protected areas (MPAs).

MPAs, like state parks on land, protect unique and important ocean habitats from activities that can damage ocean life. Areas that are strongly protected have been shown to be highly effective in conserving biodiversity, enhancing ecosystem resilience, and mitigating the impacts of climate change on our oceans.[3] By providing areas that serve as buffers against climate change, fully protected MPAs adapt to changing environmental conditions because they better preserve natural interactions within ecosystems, allowing for greater resiliency .[4]

California's network of MPAs, foreseen in the MLPA, celebrated its tenth anniversary last year, and the state's decadal management review showed that MPAs effectively protect ocean habitats and increase fishery-targeted species' biomass. Now, we need to build on this system and maintain California's role as a national and global leader in the fight to protect more ocean habitats.

Protecting specific habitat areas, including the remaining areas of stable kelp forests is a crucial step in safeguarding our diverse marine species and ensuring the long-term well-being of our ocean environments.

We support the expansion of the MPA Network to include some of the most resilient kelp forests along California's coastline, by expanding Cabrillo State Marine Reserve, Point Dume State Marine Conservation Area, South Point State Marine Reserve, Gull Island State Marine Reserve,

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[1] Meredith McPherson et. al, Large-scale shift in the structure of a kelp forest ecosystem co-occurs with an epizootic and marine heatwave, Communications Biology, March 5, 2021

[2] García-Reyes, Marisol, Andrew Leising, Rebecca Asch, Steven Bograd, and Tessa M Hill. Rep. Indicators of Climate Change in California, "Coastal Ocean Temperature", *California Office of Environmental Health Hazard Assessment,* 2022.

[3] Arafeh-Dalmau et al., Integrating climate adaptation and transboundary management: Guidelines for designing climate smart marine protected areas, One Earth 6, 1–19 November 17, 2023 ª 2023 Published by Elsevier Inc.

[4] Jankowska, Emilia, et al. "Climate Benefits from Establishing Marine Protected Areas Targeted at Blue Carbon Solutions." *Proceedings of the National Academy of Sciences*, vol. 119, no. 23, 2022.

Point Conception State Marine Reserve, Natural Bridges State Marine Reserve, and by creating a new MPA around the beautiful kelp forest off Pleasure Point near Santa Cruz. While kelp forests have faced declines statewide in recent years, in these areas they have persisted or bounced back quickly in the face of marine heatwaves and other disturbances.[5] By expanding protections for these resilient forests under the MLPA, the state can minimize direct human impacts in these relatively healthy areas, helping to ensure their continued persistence and enhancing the effectiveness of restoration efforts for declining kelp ecosystems nearby.

Enhancing the protection of California's kelp forests strongly aligns with Goals 1, 2, 3, and 4 of the MLPA by preserving natural diversity, sustaining marine life populations, protecting marine habitats for their intrinsic value, and improving recreational and educational opportunities while minimizing human disturbance. [6] Safeguarding resilient kelp ecosystems will ensure critical habitat preservation for diverse marine species, including endangered sea otters and commercially valuable fish.

Our ocean is a source of clean air, wildlife, and natural beauty, but also a mystery that beckons preservation and exploration. California has the opportunity to lead the nation and the world in taking bold action to preserve the sea, ensuring its future and the well-being of the communities that rely on it for their survival and prosperity.

Sincerely,

Laura Deehan
State Director
Environment California Research and Policy Center

Tomas Valadez
CA Policy Associate
Azul

Robert Vergara
Roger Arliner Young (RAY) Ocean Conservation Fellow
Natural Resources Defense Council

Clara Castronovo
Board Chair

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[5] California Department of Fish and Wildlife. (2022). California's Marine Protected Area Network Decadal Management Review.
[6] "Marine Life Protection Act." CDFW. https://wildlife.ca.gov/Conservation/Marine/MPAs/MLPA.

CALPIRG Students

Keith Shattenkirk
Program Officer, Healthy Lands and Waters
Patagonia

Susan Jordan
Executive Director
California Coastal Protection Network

Ashley Eagle-Gibbs
Interim Executive Director
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Azsha Hudson
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Chelsea Tu
Executive Director
Monterey Waterkeeper

Angela Kemsley
Conservation Director
WILDCOAST

Janet Cox
President
Climate Action CA

Pauline Seales
Organizer
Santa Cruz Climate Action Network

Dan Silver
Executive Director

Endangered Habitats League

Josefina Barrantes
30x30 Coordinator
Environmental Protection Information Center (EPIC)

Martha Camacho Rodríguez
Director
SEE (Social Eco Education)

Megan Shumway
Member
CHN, Sacramento Climate Coaltion, SacAct

Antonina Markoff
Coordinator
The Climate Reality Project California State Coalition

Robert Gould, MD
President
San Francisco Bay Physicians for Social Responsibility

Esperanza Vielma
Executive Director
Environmental Coalition for Water Justice

Daniel Chandler
Steering Committee Member
350 Humboldt

Andria Ventura
Legislative and Policy Director
Clean Water Action/Clean Water Fund

Daniel Gluesenkamp
Executive Director
California Institute for Biodiversity

Elizabeth Dougherty
Executive Director

Wholly H2O

Baani Behniwal
Natural Sequestration Initiative Manager
The Climate Center

Jim Lindburg
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Scott Black
Executive Director
Xerces Society for Invertebrate Conservation

California Fish and Game Commission
715 P Street, 16th floor,
Sacramento, CA 95814

February 14, 2024

RE: Petition to Increase Level of Protection and Streamline Enforcement for Several California State MPAs

Dear President Sklar and Honorable Commissioners:

Our ocean is at a critical juncture, with escalating global temperatures, declining biodiversity, and a growing number of endangered marine species. Only 50 Pacific leatherback turtles are now found foraging off California's coast, a notable decrease from the 178 Pacific leatherbacks

observed from 1990 to 2003.[1] Marine heatwaves have doubled over the last 30 years and have become more intense and longer in duration, putting stress on California's marine species and ecosystems. [2]

In the face of these mounting threats, California has a unique opportunity to take bold and effective action to conserve ocean habitats and ensure a greater abundance of life off our coast. Over two decades ago, the state passed the groundbreaking Marine Life Protection Act (MLPA), which called on the state to use one of the most powerful tools for ocean conservation: marine protected areas (MPAs).

MPAs, like state parks on land, protect unique and important ocean habitats from activities that can damage ocean life. Areas that are strongly protected have been shown to be highly effective in conserving biodiversity, enhancing ecosystem resilience, and mitigating the impacts of climate change on our oceans.[3] By providing areas that serve as buffers against climate change, fully protected MPAs adapt to changing environmental conditions because they better preserve natural interactions within ecosystems, allowing for greater resiliency .[4]

California's network of MPAs, foreseen in the MLPA, celebrated its tenth anniversary last year, and the state's decadal management review showed that MPAs effectively protect ocean habitats and increase fishery-targeted species' biomass. Now, we need to build on this system and maintain California's role as a national and global leader in the fight to protect more ocean habitats.

Protecting specific habitat areas and increasing the rigor of existing marine protected areas are crucial steps in safeguarding our diverse marine species and ensuring the long-term well-being of our ocean environments.

It is vital that existing California MPAs are able to achieve their stated goals of conserving biodiversity and ecosystem health. We encourage the state to consider increasing protections for MPAs that are currently only lightly or minimally protected, especially in places where weaker

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[1] Benson, Scott R., Karin A. Forney, Jeffrey E. Moore, Erin L. LaCasella, James T. Harvey, and James V. Carretta. "A Long-Term Decline in the Abundance of Endangered Leatherback Turtles, Dermochelys Coriacea, at a Foraging Ground in the California Current Ecosystem." *Global Ecology and Conservation* 24 (November 2020).

[2] Teri E. Nicholson, Karl A. Mayer, Michelle M. Staedler, Jessica A. Fujii, Michael J. Murray, Andrew B. Johnson, M. Tim Tinker, Kyle S. Van Houtan, Gaps in kelp cover may threaten the recovery of California sea otters, *Ecography, a Journal of Space and Time in Ecology,* (February, 2018).
García-Reyes, Marisol, Andrew Leising, Rebecca Asch, Steven Bograd, and Tessa M Hill. Rep. Indicators of Climate Change in California, "Coastal Ocean Temperature", *California Office of Environmental Health Hazard Assessment,* 2022.

[3] Arafeh-Dalmau et al., Integrating climate adaptation and transboundary management: Guidelines for designing climate smart marine protected areas, One Earth 6, 1–19 November 17, 2023 ª 2023 Published by Elsevier Inc.

[4] Jankowska, Emilia, et al. "Climate Benefits from Establishing Marine Protected Areas Targeted at Blue Carbon Solutions." *Proceedings of the National Academy of Sciences*, vol. 119, no. 23, 2022.

or more complicated regulations lead to poor compliance and enforcement. We are proposing stronger protections for Point Buchon SMCA and the Farnsworth Onshore and Offshore SMCAs. Research has shown that highly and fully protected areas, where few if any destructive or extractive activities are allowed, provide greater ecological benefits than lightly or minimally protected areas.[5]

Enhancing the protection of California's critical ocean habitats strongly aligns with Goals 1, 2, 3, and 4 of the MLPA by preserving natural diversity, sustaining marine life populations, protecting marine habitats for their intrinsic value, and improving recreational and educational opportunities while minimizing human disturbance. [6] Safeguarding and further protecting critical marine habitats will ensure critical habitat preservation for diverse marine species, including endangered sea otters and commercially valuable fish.

In summary, we encourage you, Fish and Game Commissioners, to actively support strengthening and expanding California's Marine Protected Areas.

We appreciate your steadfast dedication to our ocean's well-being and consideration of this pressing issue. Working together, we can secure a more robust future for California's distinctive marine ecosystems.

Sincerely,

Laura Deehan
State Director
Environment California Research and Policy Center

Tomas Valadez
CA Policy Associate
Azul

Robert Vergara
Roger Arliner Young (RAY) Ocean Conservation Fellow
Natural Resources Defense Council

Clara Castronovo
Board Chair
CALPIRG Students

---

[5]Kirsten Grorud-Colvert *et al.*, The MPA Guide: A framework to achieve global goals for the ocean. *Science* **373** ,eabf0861(2021). DOI:10.1126/science.abf0861

[6] "Marine Life Protection Act." CDFW. https://wildlife.ca.gov/Conservation/Marine/MPAs/MLPA.

Keith Shattenkirk
Program Officer, Healthy Lands and Waters
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SEE (Social Eco Education)

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Legislative Consultant
Friends Committee on Legislation of California

Angela Kemsley
Conservation Director
WILDCOAST

Betsy López-Wagner
Principal
López-Wagner Strategies, an Equitable Communications Agency®

Scott Black
Executive Director
Xerces Society for Invertebrate Conservation

FGC@FGC

From: Rick Duenas <ricduenas@gmail.com>
Sent: Friday, February 2, 2024 8:41 AM
To: FGC
Subject: Public comment on several 2023-MPA petitions

Dear Members of the Commission,

My name is Rick Duenas. I reside in Pacifica, CA but recreate up and down the coast. I write to you as an avid angler and spearfisherman expressing concern and opposition regarding several of the 2023 MPA petitions that impact areas for which I am both a consumptive stakeholder and steward. Many of these petitions will exclude and alienate consumptive stakeholders from participating in the MPA network, whether through designation changes or boundary expansions. I urge you to please reject petitions 2023-23MPA, 2023-24MPA, 2023-26MPA, 2023- 27MPA, 2023-29MPA, 2023-32MPA, 2023-33MPA, and 2023-34MPA for the reasons enumerated below.

- 2023-23MPA: This petition will effectively ban fishing and spearfishing from the entire north side of the Monterey Peninsula by converting existing SMCAs to no-take SMRs. These SMCAs provide important nearshore opportunities for various consumptive stakeholders. The petitioner, as they attempted in a prior petition rejected by FGC (petition 2023-02), incorrectly claims eliminating finfish take will benefit kelp. In fact, the literature cited by the petition itself even states "[population and mean biomass responses] in the Central Coast MPAs were highly variable" and "kelp canopy monitoring from Landsat remote sensing did not detect a strong effect of MPA protection on average kelp canopy area." (Carr, et al.) This petition is not grounded in scientific reasoning or sound fisheries management and should be rejected.
- 2023-24MPA: This petition will effectively ban fishing, spearfishing, and all other take in the entirety of Laguna Beach. The petitioner cites ease of enforcement and anecdotal overharvesting and substrate degradation as rationale. This is unfair to consumptive stakeholders, essentially saying "it is too hard for city enforcement to learn the different regulations between different areas, so we want to impose a blanket ban on all consumptive stakeholders rather than addressing the root problem of educating the public." Frankly, this petition proposes lazy, non-adaptive management and should be rejected.
- 2023-26MPA: This petition aims to protect intertidal habitat and simplify enforcement but will effectively ban lobster diving from the productive reef at the southern end of Cardiff State Beach. This petition should be rejected and the petitioner advised to propose a smaller, intertidal-take-specific MPA in its place if that truly is the concern.
- 2023- 27MPA: This petition aims to protect eel grass against anchor and lobster trap damage by converting Anacapa SMCA to a no-take SMR but will effectively ban consumptive take on the entire northern side of Anacapa Island. Why not simply address these threats via regulation change instead of designation change? This petition should be rejected and the petitioner advised

to propose a regulation change that prohibits lobster trapping and anchoring shallower than 20 meters; this will allow anglers and divers to drift through or swim in, the intention of the original regulations.

- 2023-29MPA: This petition will effectively ban all take off Carpinteria in Santa Barbara County. This is a popular and important nearshore access opportunity for lobster diving, which is limited to shallow reefs like those found here. This petition should be rejected or revised to make an exemption for low impact take like lobster diving and shore angling.
- 2023-32MPA: This petition will severely limit shore angling opportunities off the Marin coastline. This is an equity issue in that shore-based anglers cannot simply motor to other areas in boats. This petition should be rejected in favor of public education and outreach.
- 2023-33MPA: This petition will severely limit consumptive stakeholder opportunities in several important kelp forests in Southern and Central California, kelp forests that provide equitable access to nearshore activities like angling, lobster diving, and spearfishing. It is inappropriate for a single petition to propose changes to seven unrelated areas; this petition should be split into seven distinct petitions to weigh stakeholder input for each specific area. These expansions are unnecessary in that they target kelp forests that have done particularly well the last decade without MPA intervention. The petition cites warm water events and pollution as threats to kelp forests, yet expanding MPA areas do nothing to mitigate these threats. It is also important to manage these areas in the status quo to serve as a scientific control to compare the efficacy of other MPAs against. This petition should be rejected. Particularly egregious proposals therein:
    - Expanding Cabrillo SMR as proposed will result in divers and anglers losing access to 100% of nearshore reefs and kelp in San Diego.
    - Expanding South Point SMR as proposed will result in divers and anglers losing access to 50% of the south coastline of Santa Rosa Island.
    - Expanding Natural Bridges SMR (and intertidal-focused MPA) to 3nm offshore will eliminate large swaths of groundfish and salmon opportunity from anglers, completely unrelated to the inshore kelp.
    - Designating the Pleasure Point SMR as proposed will result in divers and anglers losing access to important inshore reefs and kelp in eastern Santa Cruz County.
- 2023-34MPA: This petition aims to ease enforcement and compliance by converting Point Buchon SMCA to a no-take SMR. Again, this is throwing the baby out with the bath water. Moreover, the petitioner justifies prohibiting take of salmon because there is a temporary statewide salmon closure, leaving no room for this to change in the future with better recruitment conditions. This petition should be rejected in favor of public education, outreach, and increase enforcement emphasis on the existing MPA.

In summary, the aforementioned petitions alienate and restrict opportunity for a large cohort of consumptive stakeholders across the state in an uncompromising and blanket manner. These petitions should be rejected and the petitioners advised to re-group and bring to the table more specific solutions that address root causes to the compliance, enforcement and protection gaps identified as rationale.

Thank you for your time.

Sincerely,
Rick Duenas

FGC@FGC

From: Michael Eberhardt <[redacted]>
Sent: Sunday, February 4, 2024 11:33 AM
To: FGC
Subject: Subject: Opposition to Proposed MPAs - Petitions 2023-23MPA, 2023-24MPA, 2023-26MPA, 2023-29MPA, 2023-32MPA, and 2023-33MPA

Michael Eberhardt

[redacted],

San Francisco, CA [redacted]

[redacted]com

[redacted]

2.4.24

Fish and Game Commission

715 P Street, 16th floor,

Sacramento, 95814

Subject: Opposition to Proposed MPAs - Petitions 2023-23MPA, 2023-24MPA, 2023-26MPA, 2023-29MPA, 2023-32MPA, and 2023-33MPA

Dear Commissioners,

I am writing to express my strong opposition to the series of Marine Protected Area (MPA) petitions currently under consideration, specifically 2023-23MPA, 2023-24MPA, 2023-26MPA, 2023-29MPA, 2023-32MPA, and 2023-33MPA. These proposed changes, I believe, are not only detrimental to the rights and

interests of consumptive stakeholders but are also lacking in scientific rationale, equitable enforcement strategies, and fail to directly address the purported environmental concerns.

2023-23MPA seeks to convert existing State Marine Conservation Areas (SMCAs) on the north side of the Monterey Peninsula into no-take State Marine Reserves (SMRs), effectively banning all fishing and spearfishing activities. This proposal disregards the importance of these areas for consumptive users and is based on the unfounded claim that prohibiting finfish take will benefit kelp forests. This approach is not supported by scientific evidence and overlooks the need for sound fisheries management practices.

2023-24MPA proposes a complete ban on fishing, spearfishing, and all other take activities in Laguna Beach. The justification for this sweeping prohibition—citing enforcement difficulties and anecdotal evidence of overharvesting—overlooks the fundamental issue of public education on existing regulations. This blanket approach unfairly penalizes law-abiding stakeholders and is an example of regulatory overreach based on convenience rather than necessity.

2023-26MPA aims to protect intertidal habitats at Cardiff State Beach but in doing so would unjustly prohibit lobster diving in one of the area's most productive reefs. This proposal is an overextension of enforcement simplification that sacrifices valuable recreational opportunities without considering more targeted and reasonable restrictions.

2023-29MPA seeks to eliminate all take activities off Carpinteria, impacting essential access for low-impact recreation such as lobster diving. This area is crucial for sustainable nearshore activities, and the proposed ban disregards the socio-economic benefits derived from these practices.

2023-32MPA would significantly restrict shore angling and some kayak fishing opportunities off the Marin coastline by expanding the Duxbury Reef SMCA. This change is proposed under the guise of enforcement ease but in reality, would severely limit public access to marine resources without a clear environmental justification.

2023-33MPA proposes broad restrictions across several key kelp forest areas in Southern and Central California. The sweeping nature of this petition fails to consider localized stakeholder input and does not effectively address the cited threats of warm water events and pollution. Instead, it would indiscriminately restrict access to valuable fishing grounds and recreational areas.

In summary, these petitions lack a balanced consideration of ecological preservation, stakeholder interests, and the socio-economic impact on local communities. They also fail to provide compelling scientific evidence to justify such extensive prohibitions. I urge the Commission to reject these proposals and to seek more targeted, science-based, and equitable solutions to marine conservation challenges.

Thank you for considering my views on this matter. I trust that the Commission will make decisions that are in the best interest of both our marine ecosystems and the communities that rely on them.

Sincerely,

Michael Eberhardt

FGC@FGC

From: Joe Huettl <[redacted]>
Sent: Sunday, February 4, 2024 4:12 PM
To: FGC
Subject: MPA

Dear President Sklar and Honorable Members of the Commission,

I am writing to oppose the following petitions under consideration at this month's Fish and Game Commission meeting.

2023-23MPA - Eliminating Tanker's Reef would remove an important area from a popular kayak fishing destination for rockfish, California halibut, sardines, and other fin fish. Kayak fishing has little or no impact on kelp beds. Changing three SMCAs to SMRs would also eliminate areas that are currently available and popular to catch squid recreationally. The petitioner makes statements regarding recreational fishing effects on both kelp health and diver safety that are not backed by science. The culling of urchins is listed as the primary strategy of kelp restoration and they do not make a good case for recreational fishing having much of an affect on that.

2023-33MPA - Expanding Natural Bridges SMR three nautical miles out goes far beyond the goals of the petition and severely negatively affects recreational fishing. Recreational fishing has little to no affect on kelp forests. Creating a new SMR at Pleasure Point would have a huge impact on recreational fishing with very little benefit to kelp restoration. This is a popular fishing area for non-motorized vessels and small boats. At some point these restrictions would eliminate Santa Cruz as a fishing destination, with local economic impacts to follow. In one of their letters they state that the proposed MPA is not subject to any significant commercial take. So the designation would affect sport fishing and diving for the most part.

2023-32MPA - Changing Duxbury Reef SMCA to an SMR will eliminate local shore fishing opportunities. Expanding the proposed SMR could have a negative affect on kayak and boat fishing.

2023-20MPA - Expanding Point Buchon North would eliminate one of the few ocean kayak fishing opportunities on the Central Coast.

Please take into account the loss of recreational fishing opportunities and their effect on local economies and morale.
This current barrage of petitions to expand the MPA network is meant to overwhelm the opposition and disregards the thousands of Californians who fish recreationally.

Sincerely,

Joseph Huettl
[redacted].
Walnut Creek , CA [redacted]

From: art montereyabalone.com <[redacted]>
Sent: Monday, February 5, 2024 11:05 AM
To: Wildlife Kelp <Kelp@wildlife.ca.gov>
Cc: Amanda Fay <[redacted]>; andrew montereyabalone.com <[redacted]>
Subject: RE: new/revised MPA's near Monterey

Sorry, I saw another area of interest, and would appreciate more information about the following petition:
XIX. Petition 2023-33MPA: Expand the boundaries of five SMRs and one SMCA, and designate a new SMR off Pleasure Point, in Santa Cruz

In general, we would be concerned about a closure of kelp harvesting in the area of Soquel Point and Pleasure Point given that they are important options if kelp is scarce around Cannery Row/Pacific Grove. With the existing SMR which prohibits harvesting around Lover's Point and Cove, and the urchin related scarcity of kelp beyond Otter Cove to Point Pinos, we are sometimes forced to harvest in either Carmel Bay or the area around Soquel and Pleasure Points.

Thanks, Art

February 8, 2024

California Fish and Game Commission
715 P Street, 16th Floor,
Sacramento, CA 95814

RE: Discussion Item 10 - Regulation change petitions (marine)

Dear President Sklar, Vice President Zavaleta & Commissioners,

We appreciate the opportunity to comment on the numerous petitions under consideration at the February meeting of the California Fish & Game Commission, and we offer the perspective of the many hundred thousand supporters of our organizations to the Commission. We express grave concerns regarding several of the proposals to eliminate fishing access along large stretches of the California coast and argue that many of the petitions lack adequate scientific support and documentation to substantiate their positions.

The Decadal Management Review (DMR) of the Marine Protected Area Network (MPA) has offered important insights for MPA managers to help shape the adaptive management of MPA regulations, including promising research that MPAs may increase biomass and provide resiliency against the impacts of a changing climate for some species. The intent of the Marine Life Protection Act (MLPA) and the stewardship of our coastal resources are of paramount importance to California's heritage. However, these laudable goals and conservation benchmarks should not preclude access to harvest coastal foods where state and federal fisheries managers have demonstrated robust and resilient fish stocks without any current threat of overfishing, nor for those species where targeted fishing and active management would benefit the overall ecosystem balance.

There are numerous, seemingly well-intentioned petitions currently before the Fish & Game Commission that seek to preserve California's coastal waters citing anthropogenic impacts to biodiversity and ecosystems such as pollution, rising sea temperatures, disease, development and overfishing. While we support the intent to safeguard our fish stocks, biodiversity, and ecosystem integrity, we strongly disagree with the all-or-nothing approach adopted by many of the petitioners who proffer the wholesale elimination of fishing access without adequate scientific rationale or the acknowledgement of regulatory mechanisms already in place such as those established by the Magnuson-Stevens Fishery Conservation and Management Act working through the Pacific Fisheries Management Council, National Oceanic and Atmospheric Administration (NOAA) Fisheries, the California Department of Fish and Wildlife (CDFW), the Fish & Game Commission, and the additional state/federal laws and agencies dedicated to this task. Simply put, many of the petitions referenced below seek to advance preservation at all costs, pushing for wholesale closures that circumvent the regulatory processes already in place, ultimately bludgeoning access for the diverse angling communities that have revered these coastal traditions for generations.

Anglers and consumptive users will often be the first and loudest voices to advocate for restrictions or even closures to ensure the sustainability of a fishery, as evidenced by the numerous fishing groups and organizations advocating for the closure of the 2023 salmon season following the data and dismal projections provided by the Pacific Fisheries Management Council and CDFW. However, a Californian

constitutional right to fish seems to stand in conflict with the presumption that restriction of access is permissible where there is a lack of scientific evidence or data to justify the closure. Section 1, Article 25 of the California Constitution states, "the people shall have the right to fish upon and from the public lands of the State and in the waters thereof," and the courts in re Quinn (1973) defined "public lands of the state" referenced in this article to include "access to fish in the inland streams and coastal waters of the state."

Shore fishing, diving/spearfishing, kayak/boat fishing and coastal gathering are low impact activities that reflect the broad spectrum of California's diverse community and constitute a valuable resource for individuals across the economic divide to access nature and provide food for their families. We encourage the Commission and MPA managers to consider the numerous communities that enjoy the state's many sustainable food resources when considering protections and recommendations that might unnecessarily exclude these groups. We feel that these considerations are in line with the California Natural Resources Agency's Outdoors for All initiative and its commitment in the Pathways to 30x30 document to "implement projects that do no further harm or pose unintended consequences to historically marginalized communities."[1] Specifically, we wish to highlight this issue with regards to the expansion of California's MPA network which restricts shore-based diving, foraging, and fishing access for all Californians – especially historically marginalized communities, communities of color and Native American tribes. From California's Constitutional Right to Fish:

> Anglers from historically marginalized communities may be less able to travel to fishing locations and are more likely to require shore access, as opposed to access from a boat. Anglers in communities like this need accessible shore-fishing, particularly given the importance of subsistence fishing in poorer communities. Moreover, fishing opportunities offer physical and psychological benefits to disadvantaged communities, not just access to fish as food.[2]

It is within this context that we urge the Commission to take the following actions with regards to the petitions they have received.

Petition 2023-14MPA: *Allow commercial take of red sea urchins in nine state marine conservation areas (SMCAs)*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-15MPA: *Reclassify three northern Channel Islands state marine reserves (SMRs) to SMCAs and allow take of highly migratory species, pelagic finfish, and/or coastal pelagic finfish*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation, but are encouraged by the proposal and the potential opportunity to gather more data on limited take MPAs and long-term MPA monitoring at the Channels Islands.

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[1] https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/30-by-30/Final_Pathwaysto30x30_042022_508.pdf

[2] Coats, Francis, and Karrigan Bork. "CALIFORNIA'S CONSTITUTIONAL RIGHT TO FISH." *Environmental Law*, vol. 51, no. 4, 2021, pp. 1085–147. *JSTOR*, https://www.jstor.org/stable/48647570. Accessed 22 Mar. 2023.

Petition 2023-16MPA: *Reclassify Stewarts Point and Bodega Head SMRs to SMCAs and allow commercial take of salmon.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-18MPA: *Modify allowed uses for four marine protected areas (MPAs) in Santa Barbara Channel and eliminate two special closures.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-19MPA: *Designate new "Chitqawi" SMCA near Morro Bay for California-Chumash co-management*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-20MPA: *Reclassify and rename Point Buchon SMR to "Chumash SMCA" for co-management with tribal take exemption.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-21MPA: *Modify Pyramid Point SMCA to remove recreational take of surf smelt and allow tribal take exemption for Tolowa Dee-ni' Nation.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-22MPA: *Define "rocky intertidal zone," add research, monitoring, restoration and education allowance, and clarify protections in several Orange County MPAs.*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation.

Petition 2023-23MPA*: Reclassify three SMCAs to SMRs, designate one new SMR in Monterey, and make various changes related to kelp restoration.*

We recommend the Commission deny this petition.

While the petitioner's intent to restore kelp forests and ecosystem integrity at tankers reef and in the surrounding waters is laudable, this broadly proscriptive petition would unnecessarily restrict access for anglers where there is no clear scientific rationale. In fact, the petitioner submitted a very similar petition seeking to close access for groundfish along a large stretch of the coast in this region in 2023 which the Department of Fish & Wildlife rejected citing a lack of scientific evidence to support the claim. We support the ongoing efforts to restore kelp forests through urchin culling and other means, however we oppose reclassifying these SMCAs to SMRs and the establishment of a new SMR in Monterey.

Petition 2023-24MPA: *Expand Laguna Beach no-take SMCA southward to border of City of Laguna Beach and modify Dana Point SMCA boundaries*

We recommend the Commission deny this petition.

We oppose this petition on the basis that it lacks scientific documentation or justification to eliminate fishing access in the proposed area. The petitioner argues primarily for administrative ease that the no-take closure be extended to the edge of city limits. During the implementation of the MLPA, MPAs were sited utilizing careful selection criteria based on habitat type, proximity from other MPAs, impact to communities and more. The petitioner argues that all beaches within the City of Laguna Beach should be no-take MPAs in order to streamline enforcement and that homeowners "feel that it is not equitable to have only the north and central beaches protected." It should be noted that the petitioner also states clearly in the Economic or Fiscal Impact section of the petition that "estimated resident property values gain an increase of 20% from proximity to a fully protected MPA" which may explain more robust support from the city and homeowners.

The petitioner also cites kelp forest health as justification for eliminating fishing access, however the 100 + page report included with the petition doesn't reference fishing pressure or boat activity with regards to kelp forest health and instead focuses on water temperature, nutrients, wave height, upwelling, rainfall and other stressors. As such, we recommend the Commission deny this petition since there is no scientific documentation to support its claims, and it would only negatively impact anglers who would be forced to travel further to reach fishing grounds.

Petition 2023-27MPA: *Reclassify a portion or all of Anacapa SMCA to an SMR to protect eelgrass*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation. We recognize the value of eelgrass beds for overall ecosystem health and habitat; however, it should be noted that many recreational anglers who target pelagic fish do not anchor and instead prefer to drift fish or troll instead which would have zero impact on the bottom habitat and eelgrass.

Petition 2023-28MPA: *Designate a new SMR at Point Sal, or designate as an SMCA with a tribal take exemption based on tribal consultation*

We recommend the Commission deny this petition.

While the petitioner takes time to identify the important habitat types, larval transport zones, and cultural significance of the Point Sal area, and they reference potential threats to the region from coastal development and industry, they fail to elaborate in any substantive way why fishing access should be removed from this wild and iconic central coast fishing destination. The petitioner states: "current [commercial] fishing in the proposed area is limited, likely due to its considerable distance from nearest port areas of Morro Bay and Santa Barbara." They also admit that they have no data or analysis with regards to recreational fishing and state, "our request to CDFW for recreational fishing data from this area was being processed at time of submission; we will evaluate the potential impact to recreational fishers and submit it to the state following receipt of the requested data."

A limited google search of "Point Sal fishing" also uncovers a large number of recreational fishing blogs and videos detailing the remote and adventurous hike to fish this area from a diverse population of anglers. In 2023 one blogger wrote, "had a great time hiking miles and miles and miles to fish Point Sal with Martin Mansera from Mansera Outdoors…It's such a remote location and so difficult to access, it

makes for a really rad adventure." Recreational fishing trips to the area by boat are also common, and fishing is noted in nearly every travel guide or city/county website that talks about visiting Point Sal.

Regarding access and disadvantaged communities, the petitioner writes, "the California Environmental Protection Agency identifies the adjacent city of Guadalupe as "disadvantaged" under CA Senate Bill 535, and their synthesis of environmental and socioeconomic indicators further reveals that Guadalupe – alongside Santa Maria and Lompoc – are underprivileged communities that experience significant cumulative impacts from pollution. Given these communities' close proximity to Point Sal, implementing an SMR at the proposed site could enhance access for disadvantaged populations to valuable coastal resources and fishing opportunities."

To justify this confounding claim that removing fishing access could somehow *enhance fishing opportunities* for disadvantaged communities, the petitioner cites a study of commercial lobster fishing and the concept of "spillover." They write, "California's MPAs have been shown to increase the biomass of fishery-targeted species and promote "spillover" into nearby coastal areas, benefitting nearby fishing grounds."

Spillover and the positive impacts to fisheries located in waters adjacent to MPAs are often referenced in association with the MPA network, and the limited, initial science has demonstrated some positive correlations with spillover of invertebrates like lobsters to adjacent fishing grounds in select study areas and commercial fishing for tuna in Hawaii. However, there remains an opportunity to further study this hypothesis and to promote scientific research that successfully documents spillover of targeted finfish across the MPA network in California. Some data from MPA monitoring along the Central California Coast indicated limited evidence of spillover from targeted finfish that were tagged and recaptured at a later point during the study period as evidenced from the Starr et al study: Variation in Responses of Fishes across Multiple Reserves within a Network of Marine Protected Areas in Temperate Waters:

> As of July 2014, a total of 251 individual tag recaptures have been reported (Table 8). Tagged fishes were recaptured by commercial and recreational hook-and-line fishermen, commercial trap fishermen, SCUBA divers, and during our fishing surveys. Of all the tagged fishes recapture and reported, 71% were recaptured in the same site and grid cell as they were released, and 22% of recaptured fishes were caught within the same site but outside the original grid cell where they were released. Only 18 fish, or 7% of the recaptured fishes, were recaptured beyond the boundaries of the MPA or REF site in which they were released. The mean net distance moved by eight of nine species recaptured was less than half the length of the MPAs we studied.[3]

While we do not seek to draw conclusions regarding the overall merits of spillover to adjacent fisheries from the results of one study, we do encourage additional research to evaluate the impacts that MPAs have on local fisheries and fisheries as a whole, especially within the context of varied siting and disparate habitat types evidenced across the MPA network. As the Forcada study indicated, "We conclude that spillover effects are not a universal consequence of siting MPAs in temperate waters and they are related to the distribution of habitats inside and around MPAs." (Forcada et al., 2009).

Due to the limited scientific understanding of spillover as it relates to the Marine Protected Area Network as a whole, especially with regards to finfish which would be the primary target of recreational shore and

[3] 4 Starr RM, Wendt DE, Barnes CL, Marks CI, Malone D, et al. (2015) Variation in Responses of Fishes across Multiple Reserves within a Network of Marine Protected Areas in Temperate Waters. PLOS ONE 10(3): e0118502. https://doi.org/10.1371/journal.pone.0118502

boat-based anglers at Point Sal, we disagree with the petitioner's logical assumptions and the argument as a whole. In fact, when considered in the context presented from the *Constitutional Right to Fish* article, the discussion is turned on its head entirely. "Anglers from historically marginalized communities may be less able to travel to fishing locations and are more likely to require shore access, as opposed to access from a boat. Anglers in communities like this need accessible shore-fishing, particularly given the importance of subsistence fishing in poorer communities."[4]

With the two large no-take SMRs located just South of this newly proposed MPA (Vandenberg SMR & Point Conception SMR) and Point Buchon to the North, it would seem the opportunities to fish and forage the coast for residents of Guadalupe, Lompoc and Santa Maria are already few and far between. In fact, in 2022 the City of Lompoc petitioned the Fish & Game Commission to allow for shore-fishing access along a ½ mile stretch of beach with in the Vandenberg SMR, citing a lack of access to historic fishing grounds for the local communities.

We share the petitioner's concerns regarding habitat disruption from off-shore energy production and the associated infrastructure, however, we note the likely establishment of the Chumash Heritage National Marine Sanctuary (CHNMS) designation which would effectively curtail any development or offshore energy production in this region. Planning for the CHNMS has included fishing access as a key component of the proposed designation.

As a result, we recommend the Commission deny this petition.

Petition 2023-29MPA: *Designate a new SMCA with a tribal take exemption for and co-management with Santa Ynez Band of Chumash Indians in Santa Barbara*

We recommend the Commission deny this petition.

We oppose the petitioner's request to designate a new, no-take SMCA in Carpinteria for several reasons. First, the petitioner argues that spacing and connectivity is a key concern in this location with the distance between the Campus Point and Point Dume SMCAs at 64 nautical miles (nm) instead of the recommended 54 nm to ensure ecological connectivity. When this request is examined within the broader context of MPA siting, it is clear that the target spacing between MPAs could be easily achieved by moving the Campus Point SMCA South or the Point Dume SMCA North, since both are located well-within the recommended 54nm from adjacent MPAs on either side.

Additionally, the petitioner cites the location as important nursery habitat for juvenile great white sharks as justification for establishing a no-take SMR. They write, "Research conducted in the Southern California Bight has found that fisheries bycatch is likely the main source of mortality for JWS." However, the article they cite to support this claim, John F. Benson et. al., discloses that for great white sharks they captured and tagged, "mortality risk was substantially greater off the coast of Baja, Mexico compared with California." Importantly, the research paper also states, "that incidental gillnet capture continues to be the primary source of mortality for juveniles. The lower mortality risk we documented in California waters suggests that full closure of gillnet fishing close to shore is a more effective management strategy than simply banning targeted fishing to reduce mortality risk due to bycatch." [5]

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[4] Coats, Francis, and Karrigan Bork. "CALIFORNIA'S CONSTITUTIONAL RIGHT TO FISH." *Environmental Law*, vol. 51, no. 4, 2021, pp. 1085–147. *JSTOR*, https://www.jstor.org/stable/48647570. Accessed 22 Mar. 2023.

[5] Benson JF, Jorgensen SJ, O'Sullivan JB, et al. Juvenile survival, competing risks, and spatial variation in mortality risk of a marine apex predator. *J Appl Ecol*. 2018; 55: 2888–2897. https://doi.org/10.1111/1365-2664.13158

As the petitioner is undoubtedly aware, gillnet fishing is banned in state waters and therefore the proposed MPA would have no impact on the gillnet fishery or likely the mortality risk to great white sharks.

The petitioner notes the location's popularity with recreational lobster divers and the likely opposition from stakeholders who would oppose the additional loss of access. The mortality risk to great white sharks from the recreational lobster fishery is zero, similar to the risk from spearfishing, yet the petitioner seeks to eliminate access entirely without providing any scientific rationale for the closure. As a result, we request that the Commission deny this petition.

Petition 2023-31MPA: *Reclassify Drakes Estero SMCA to an SMR and combine with Estero de Limantour SMR as a single SMR:*

We recommend referring this petition to the Department of Fish & Wildlife for review and recommendation but encourage the Commission to maintain access for clamming unless there is a clear threat to the fishery or surrounding ecosystem.

It is worth noting that the National Park Service mentions in their comment letter that the area is now Congressionally Designated Wilderness and that "recreational take of shellfish appears to be very rare, [and] requires long kayak trips in wilderness area." Just because something is difficult doesn't mean it should be illegal.

Petition 2023-32MPA: *Reclassify Duxbury Reef SMCA as an SMR and expand northern and southern boundaries*

We recommend that the Commission deny or refer this petition to the Department of Fish & Wildlife for review and recommendation but emphasize maintaining fishing access for local communities at Duxbury Reef. The vast majority of complaints regarding Duxbury reef are related to enforcement and compliance, rather than a scientific justification for eliminating access. Shore fishing is an important past-time for the diverse communities that comprise the North Bay Area, and removing access to a popular fishing destination should not be justified simply based on the actions of a few bad apples.

Petition 2023-33MPA: *Expand the boundaries of five SMRs and one SMCA, and designate a new SMR off Pleasure Point, in Santa Cruz*

We recommend that this petition be denied or referred to the Department of Fish & Wildlife for review and recommendation due to its broad scope and complexity. The petitioner seeks to enhance protections for kelp forests, but does so with an overly broad brush. Rather than advocating for reducing fishing pressure for predators of kelp grazers, like lobster and sheepshead, the petition advocates for the closure of all fishing, including the harvest of grazer species like urchins that have been documented to decimate kelp forests.

The petitioner argues that eliminating fishing pressure within the proposed MPA areas would somehow bolster kelp populations, but the claim is not well documented by scientific research in this petition. A noteworthy case study, by comparison, is the ongoing Tanker's Reef kelp restoration project, where volunteers have been culling purple urchins within study plots and tracking kelp recovery within the study area and a control site nearby. The initial data for the last three years shows a clear correlation between the removal of purple urchins and kelp recovery in the study plot with no kelp recovery in the adjacent control where urchins were not removed. Fishing is permitted in the Tanker's reef area, however, in adjacent MPA's that have not permitted active restoration and where fishing is not allowed, urchin barons persist and kelp recovery remains minimal.

Kelp forest health and resiliency is a complex and multi-variable equation that can be impacted by numerous factors including water temperature, disease, pollution, algal blooms, wave energy, commercial harvest and more. We support efforts to restore kelp forests across the coast and recognize the role they play in the overall ecosystem health of fisheries, especially the abalone fishery that remains closed until 2026. We urge caution, however where broad fishing closures are enacted in the attempt to solve a problem that requires a more nuanced and carefully crafted multidisciplinary approach.

It should also be noted that the petitioner indicates support for recreational hook and line fishing and spearfishing as an acceptable alternative in several of the MPAs referenced in the petition.

Petition 2023-34MPA: *Reclassify Point Buchon SMCA to an SMR and modify take at Farnsworth Onshore and Offshore SMCAs to only allow recreational spearfishing.*

We recommend that the Commission deny this petition and we emphasize the substantial impacts to current fishing access. The petitioner argues that since the salmon season was closed in 2023 it will likely be closed in perpetuity, which would justify eliminating salmon and albacore fishing access at the Point Buchon SMCA. Salmon populations often decrease during drought years and can rebound with increased precipitation or water allocation as was the case in 2008 and 2009 when the fishery was closed and then reopened. We are cautiously optimistic that the salmon numbers will once again bounce back following the increased precipitation received over the past two years.

In the draft Pathways to 30x30 document, the CNRA writes: “It should be noted that limited-take State MPAs provide an excellent model for other jurisdictions looking to balance biodiversity conservation with sustainable well-managed commercial and recreational fishing.” We feel that reclassifying the Point Buchon SMCA as an SMR and eliminating fishing in this area would be inappropriate; however, we support any attempts to improve enforcement and compliance with existing regulations.

Furthermore, the proposal to modify take at Farnsworth Onshore and Offshore SMCAs would disproportionately impact a broad variety and collection of user groups who may not be physically able or inclined to spearfish. For this reason and the lack of concrete scientific data to justify the additional restrictions, we recommend the Commission deny this petition.

Sincerely,

Devin O’Dea
Backcountry Hunters & Anglers

Rachel Fischer
National Marine Manufacturers Association

Wayne Kotow
Coastal Conservation Association California

James Stone
Nor-Cal Guides & Sportsman’s Association

Keely Hopkins
Congressional Sportsman’s Foundation

Larry Phillips
American Sportfishing Association

February 8, 2024

California Fish and Game Commission
715 P Street, 16th Floor,
Sacramento, CA 95814

RE: Discussion Item 10 - Regulation change petitions (marine)

Dear President Sklar, Vice President Zavaleta & Commissioners,

As an organization dedicated to ensuring our North American heritage of hunting and fishing in a natural setting with over 350,000 supporters, Backcountry Hunters & Anglers expresses serious concerns regarding several of the petitions currently before the California Fish & Game Commission that would eliminate fishing access along large stretches of the California coast.

The intent of the Marine Life Protection Act (MLPA) and the stewardship of our coastal resources are of paramount importance to California's heritage. However, these laudable goals and conservation benchmarks should not preclude access to harvest coastal foods where state and federal fisheries managers have demonstrated robust and resilient fish stocks without any current threat of overfishing, nor for those species where targeted fishing and active management would benefit the overall ecosystem balance.

There are numerous, seemingly well-intentioned petitions currently before the Fish & Game Commission that seek to preserve California's coastal waters citing anthropogenic impacts to biodiversity and ecosystems, such as pollution, rising sea temperatures, disease, development and fishing. While we support the intent to safeguard our fish stocks, biodiversity, and ecosystem integrity, we strongly disagree with the all-or-nothing approach adopted by many of the petitioners who proffer the wholesale elimination of fishing access without adequate scientific rationale.

Simply put, many of the petitions seek to advance preservation at all costs, pushing for wholesale closures that circumvent the regulatory processes already in place, ultimately bludgeoning access for the diverse angling communities that have revered these coastal traditions for generations.

Shore fishing, diving/spearfishing, kayak/boat fishing and coastal gathering are low impact activities that reflect the broad spectrum of California's diverse community and constitute a valuable resource for individuals across the economic divide to access nature and provide food for their families at the same time. We encourage the Commission and MPA managers to consider the numerous communities that enjoy the state's many sustainable food resources when considering protections and recommendations that might unnecessarily exclude these groups.

It is within this context that we urge the Commission to deny those petitions (outlined in our detailed letter to the Commission on 2/1/24) that would unnecessarily erode our longstanding coastal fishing and foraging traditions.

Date	Prefix	First	Last	Title	Address	City	State	Zip	Country	Action Taken
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2024-02-09 00:42:11.303		Mark	Ginsberg						US	Petition Signed
2024-02-09 00:28:34.06		Ryan	Murray						US	Petition Signed
2024-02-09 00:14:18.207		Vincent	Doyle						US	Petition Signed
2024-02-08 23:10:18.873		Steve	Rodriguez quijano						US	Petition Signed
2024-02-08 22:52:30.193		Darrin	Gambelin		[redacted]	San Mateo	CA	[redacted]	US	Petition Signed
2024-02-08 22:33:50.663		Mark	Sanders						US	Petition Signed
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2024-02-02 14:09:23.547		Mike	Costello						US	Petition Signed
2024-02-02 14:03:34.583	Mr.	Hunter	Miller		[redacted]	Kuna	ID	[redacted]	US	Petition Signed
2024-02-02 14:02:35.91		Jordan	Germyn						US	Petition Signed
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2024-02-02 13:23:58.117		Phillip	Sanders						US	Petition Signed
2024-02-02 13:17:26.583		Derrik	Kapalla						US	Petition Signed
2024-02-02 13:16:58.097		Craig	Simes						US	Petition Signed
2024-02-02 13:15:13.017		Valerie	Bednarski						US	Petition Signed
2024-02-02 13:14:01.07		Elijah	Black						US	Petition Signed
2024-02-02 13:12:08.623		Philip	Adornato						US	Petition Signed
2024-02-02 13:10:44.163		owen	shapiro						US	Petition Signed
2024-02-02 13:10:37.263		Steve	Dolan						US	Petition Signed
2024-02-02 13:09:39.617		Nick	Garcia						US	Petition Signed
2024-02-01 21:14:07.19		Keynan	Hobbs						US	Petition Signed
2024-02-01 19:52:19.6		Allen	Noren						US	Petition Signed
2024-02-01 19:31:26.837		Devin	O'Dea						US	Petition Signed

From: Matthew Bond <[redacted]>
Sent: Tuesday, March 5, 2024 10:43 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Opposition to Petition 2023-33MPA

Dear Commissioners, thank you for your tireless service on the California Fish and Game Commission.

My name is Matt Bond and I am writing to urge you to oppose petition 2023-33MPA.

Although noble in its aim to protect kelp forests, Petition 2023-33MPA is using misapplied conclusions, trying to extrapolate and tie together thinly tested and unrelated study findings, and otherwise asserts the false premise that "no-take" marine reserves will somehow better protect kelp forests from unforeseen future stressors than the myriad of other, more specific, fisheries and habitat management tools already at the department's disposal. It also falsely minimizes the societal impact that more "no-take" marine reserves will have on people and communities. Furthermore, it stands to undermine the years spent in stakeholder consensus meetings to build the existing reserves during the initial MLPA process. A critical example of this is the ask to expand the Gull Island MPA. The reason the north western boundary does not extend to the island is because we negotiated to keep Poza Anchorage open as a late season, foul weather, fishing and spearing spot in exchange for closing Winfield Scott on Anacapa and Carrington Point on Santa Rosa Island. Matt Lum and I represented the Santa Barbara Area consumptive divers in this. Greg Helms of the Ocean Conservancy, and Dr. Steve Gaines from UCSB, as well as other stakeholder participants were parties to this agreement.

With regard specifically to the proposed expansion, re-characterization to "no-take", or creation of new "no-take" marine reserves in areas that currently allow fishing access from shore or without a boat, I offer the following background and opinions:

I was born and raised in Isla Vista, California and am pretty sure I learned to swim in the tide pools of that coastal town. At a very young age I learned to forage those same tidepools, fish with a hand-line and then a pole, and eventually become proficient as a freediving spearfisher.

I grew up with a single mom and two sisters. We had very little money in our household. The four of us lived crammed in several different single or two bedroom apartments over the years and were blessed to qualify for food stamps. My childhood and adolescence was during a time when refugees from Laos, Cambodia, Vietnam, as well as displaced people from Iran, Central and South America, and Mexico filled the small college town and lived in identical conditions to us. We all spent most of our free time fishing and foraging in the ocean. For us this was both some of our only free and accessible recreation and also a way

to provide very meaningful sustenance for our families. I now realize this ability to walk to the beach, catch food and contribute to the well-being of my family and community helped me develop purpose and confidence as a young man, as well as kept me out of a lot of trouble. This upbringing taught to love and protect the ocean and started me on a path as an amateur marine biologist and conservationist.

When the MLPA process was announced in the late 1990s, I stepped up as co-representative for consumptive divers in the Santa Barbara Area. My main impetus for doing so was to keep access open for subsistence, shore-based fishing. Through the years of meetings and negotiations, I fought hard to share the human value of walking access to a sustainable food supply and recreation for the poorest of the community. My arguments failed. That entire coastline was closed to fishing with the implementation of The Campus Point MPA in 2012. With that, anyone who grew up like I did or lived in those adjacent communities who didn't have a car or boat to get to open areas never had the chance to experience what I did in the sea. They never had the chance to develop the understanding of the importance of healthy ecosystems as they relate to sustainable and free food for your hungry family.

Any new "no-take" marine reserves will further serve to disenfranchise future generations from enjoying their right to feed themselves and recreate in the ocean. They will rob California of a quintessential way of life which characterizes our seaside communities. They will serve as road blocks for disadvantaged communities in building deeper connections with their environment.

It is for these reasons I again urge you to reject in its entirety Petion 2023-3MPA.

Thank you.

Matt Bond, President & CEO
CA insurance license [redacted]

From: [redacted] <[redacted]>
Sent: Wednesday, March 6, 2024 2:51 PM
To: FGC <FGC@fgc.ca.gov>
Cc: [redacted]
Subject: Petition To The CA Fish and Game Commission for Regulation Change | FGC 1 (Rev 06/19) Tracking # 2023-33MPA

Dear Commissioners,
My name is Zach Wormhoudt, I am a 50-year resident of Santa Cruz, California, a lifelong surfer and recreational fishing + diving enthusiast. I am writing to oppose Petition 2023-2033, specifically for Santa Cruz/Capitola (Pleasure Point) proposed new Marine Protected Areas.
Countless people (children and adults) have been inspired to work towards ocean conservationism because of their experience with recreational fishing and diving. These critical advocates and stewards are at risk with the proposed expansion of the Santa Cruz MPA. The specific area proposed for closure would effectively wipe out most recreational fishing and diving opportunities within Santa Cruz, Seabright, Capitola, and Aptos communities. This proposal is unnecessary and will do more harm than good.
It is likely safe to assume that every person that has endorsed the Proposal for the new MPA's wants to help protect the ocean environment, but more than likely they are not aware of long-term implications that these types of closures can have. It may be easier to just close an area for recreational diving and fishing, than it is to manage the area, but the complete closure approach will result in the loss of countless current and future advocates for the ocean environment who have found a connection to the ocean through recreational diving and fishing. If recreational fishing and diving were shown to have significant impacts on the kelp bed ecosystems that would be justification for the closures, but none of the presented documentation makes the claim that these activities are part of the problem. Yes, it is more difficult to manage balanced use of the ocean environment, but it is a better choice that will increase stewardship and advocacy, more successfully benefiting the long-term health of the ocean environment.
In lieu of the expanded MPA's, greater environmental long-term benefits can be achieved by Adaptive Management: Flexibility and adaptability are crucial components of effective marine conservation strategies. Instead of relying solely on fixed MPA's, the department should embrace dynamic approaches that allow for continuous monitoring and adaptive management. This could involve continuing to implement temporary closures, seasonal restrictions, and other measures tailored to the specific needs of different marine environments.
The primary focus of protecting all ocean environments should be to continue to place primary attention on the principal threat of Climate Change: Climate change poses a formidable threat to marine ecosystems, affecting ocean temperatures, acidity levels, and biodiversity. Yes, MPA's do provide some level of protection against localized threats, but they do not address the broader harm posed by climate change. MPA boundaries

determinations should carefully consider all stakeholders and the potential loss of stewards for the marine areas they are intending to protect.

Without a doubt, MPA's can play a key role in marine conservation, but they are not a universal solution for protecting every marine environment. Great advances in marine ecosystem protections have and will continue to be made, but more than just a simple closure, we need a multifaceted approach that addresses enforcement challenges, considers future advocacy, socioeconomic impacts, tackles climate change, and embraces adaptive management principles.

Thank you for your consideration,

Zachary Wormhoudt
[redacted]

From: Janelle L. <[redacted]>
Sent: Monday, March 18, 2024 9:02 AM
To: FGC
Subject: 2023-33MPA: Marine protected areas for kelp forests

My name is **Janelle L**, from La Jolla, CA. I'm writing to you today with comments about **2023-33MPA: Marine protected areas for kelp forests**.

I watched a portion of the Fish & Game Commission recording pertaining to MPAs from Feb 14 and was listening to what Commissioner Zavaleta has to say starting at 5:12:35. I really think her comments there should be considered.

FGC@fgc

From: Justin Elder [redacted]
Sent: Monday, March 18, 2024 9:02 AM
To: FGC
Subject: Opposed to 2023-33 mpa

Good morning,

My name is Justin Elder and I have been heavily involved with many aspect of our heart california wildlife since birth. The salt water mpas that the state is purposing are of great concern to me as they will horribly reduce the level of sustainable take fish I am able to harvest of of the santa barbara coast. This lack of ability to provide for myself and family as well as the extreme financial hardship it would place on our ethical Comercial fleet this should not even be considered as an option. I believe the science will show we as fisherman and divers have a positive result on this echo system and these mpas will not yield the result they are intended too.

Thanks

FGC@fgc

From: Marinus Gruter [redacted]
Sent: Monday, March 18, 2024 3:08 PM
To: FGC
Subject: Opposed to Petition 2023-33 MPA

To whom it may concern:

Hello, my name is Marinus Gruter. I live in Ventura county and I am writing to you to explain why I believe closing down fishing with the idea that it will protect kelp from climate change is completely illogical. My family has been fishing for decades now and growing up with the ocean fishing, surfing, etc. I know will be a detrimental blow to not just my family but so many others that are like minded and use the ocean just like me for fishing and spearfishing if it is indeed closed down in the proposed regions. Taking away acess for divers to carefully select a fish in these planned MPA regions can really hurt a lot of us and our future generations. Divers are not part of the problem with this so called climate change protection of kelp.

I am completely against this idea. Thank you for your time,

Sincerely,
Marinus

FGC@fgc

From: [redacted]
Sent: Monday, March 18, 2024 6:33 PM
To: FGC
Subject: MPA proposal feedback

California Fish and Game Commission
P.O. Box 944209, Sacramento, CA 94244-2090
Dear California Fish and Game Commission:

My name is Rodney Armstrong and I own and operate a charter fishing business based in Santa Cruz. I am writing to oppose and express my concern with petition 2023-2033, especially as it pertains to the Santa Cruz/Monterey Bay areas. These proposed New MPAs, and MPA expansions would deny access to nearshore fishing grounds, which I, and the small community of charter fishing vessels would consider to be essential grounds that serve as a key component to adapting with the seasonal nature of our industry, and play a vital role in the success of our fishing seasons. Moreover, these grounds have a role to play in each individual local fishery. These changes would not only severely impact the charter community, but that of the commercial fishermen, and sport fishing community as a whole. All of these communities would proudly identify as passionate stewards of our great ocean. It is also my opinion that the greatest importance of these grounds is what they offer the young generations that we usher in to ocean stewardship. For their passion to flourish, they need places to roam and explore, and these grounds offer a safe way for them to do that.

I believe the complete removal of fishing activity in these areas will have little to no effect on the regrowth or proliferation of kelp populations. As it has already been stated in the petition, the issue lies with the sustained elevated sea temperatures, which has led to the decline of kelp stands, which is cause for the southern sea otter populations to find new grounds, leaving the urchin populations to go unchecked, thus making it harder for kelp stands to grow back. And because fishing activities don't fit well into that chain of events, I don't believe the removal of them does anything to address the problem. I believe that all of the powers involved bare the creative capacity to devise a strategy that would aid the regrowth of kelp populations without dealing damage to its neighboring inhabitants, the fishermen. I hope these ideas will be considered before a final decision is reached. Thank you.

-Rodney Armstrong
Captain and business owner of Santa Cruz Coastal Charters, a family business
Sent from my iPhone

FGC@fgc

From: David Schwier [redacted]
Sent: Monday, March 18, 2024 9:38 PM
To: FGC
Subject: Attn: Marine Resources Committee - citizen letter for 3/19 meeting

Dear Committee members,

I write this to say my family and I love the ocean, spearfishing and conservation. We recreate a couple dozen times a year on our boat in local waters around Orange County and Catalina Island. It is important to show my kids that our seafood also comes from local waters too and we can actively learn about them and maybe pursue some ourselves to catch. They love eating all of our minimal catches and are very thankful for the full experience.

We all take care of our beautiful environment and do beach cleanups, creating awareness, and respect for nature. My memories growing up with my father (deceased) and fishing his “secret spot” in Laguna Beach, cannot be replicated with my daughter because we are not allowed to fish there anymore. While I did take her snorkeling there to see the fish (amazing just the same), it just didn’t fulfill the dream of mine to hook a “big one” like dad and I did there years ago.

Please stop closing our access to these resources and all the joys that come with it. Our local impact can be sustainable with just more educating of the public. Please reopen the protected areas and then do another review in due time and see how to best proceed in keeping our oceans healthy and abundant in all life!

Thank you for reading my letter,
David Schwier
[redacted]

FGC@fgc

From: rspringe rspringe [redacted]
Sent: Tuesday, March 19, 2024 12:09 AM
To: FGC
Subject: Opposed to petition 2023-33MPA

Hello,
I am a California State Parks Lifeguard II, with just shy of a decade of experience and over 100 rescues. I have worked in 4 different counties that will be affected by this proposition if it is implemented. I also have multiple years of emergency and non-emergency vessel assistance experience in Santa Cruz county. Between these two jobs I have worked with numerous environmental agencies to keep the ocean, as well as the public, safe. In my free time, like most of the people around me, I try to enjoy the ocean, mostly spearfishing for scallops and rockfish. I also love being able to feed my loved ones with fresh, sustainable seafood.

Working at the beach every day, I get to see first hand how laws with specific intentions are implemented on the ground, versus how they play out in reality. When our legislators have passed laws that affect the beaches, it is obvious to me, my coworkers and fellow beachgoers when those laws have been informed by the input of the effected people and when they have not. Think back to COVID beach closures, myself and all of my lifeguard coworkers were verbally(and physically) attacked by the public over this for weeks. I can assure you that despite having conservation intentions, this proposition will not protect MPAs the way it is being presented, and the consequences will far outweigh any positive environmental impact. Laws being passed need input from those on the ground to be effective and as someone who is very involved in the coastal community, I'm not seeing that here.

Who knows if the response from the public would be as severe as there was for the COVID beach closures if this proposition becomes law, but Im speaking within my Lifeguard mission statement that I am against any law that I know will harm the parks that I serve. I would love to support a scientific peer reviewed proposition, with the input from the local stewards of the land that shows a clear path to healthier kelp beds, but I dont think this is it.

Thanks for your time, see you at the beach, Ryan Springer

FGC@fgc

From: jerry kulm
Sent: Tuesday, March 19, 2024 8:46 AM
To: FGC
Subject: Proposal for MLPA at Natural Bridges and Pleasure Point

I am writing in response to a recent article regarding implementing an MLPA in Monterey Bay, specifically Natural Bridges and Pleasure Point. I am a long-time surfer, fisherman, father, and grandfather. Some of the best memories I have are fishing near Santa Cruz and I lived by Pleasure Point for years. I see no impact to the kelp beds from fishing or boating. Most boaters completely avoid those areas due to tangling of kelp in props and fishing line. Please reject this proposal for one of the most enjoyable activities we as tax paying citizens can still enjoy.

Regards,

Jerry Kulm

FGC@fgc

From: jason
Sent: Tuesday, March 19, 2024 9:37 AM
To: FGC
Subject: Objection to Proposed New MLPA Zones in Natural Bridges and Pleasure Point

Hello,

This email is to express objection to proposed new MLPA zones in Natural Bridges and Pleasure Point. My understanding is that this is to be done to protect the kelp forests, which we all want, but I fail to see the logic in preventing fishing in the areas. Urchins are the primary problem here and otters and sea stars eat the urchins. I'm not aware of any proof that rockfish, lingcod, halibut, or sea bass eat urchins. It seems a more effective use of time and resources is to continue to promote harvest of sea urchins.

I live in the area and recreational fish Northern California ocean waters with my friends and family. Restricting sustainable use of our resources reduces awareness and the large population of people that care and rely on our resources.

Thanks,

Jason

FGC@fgc

From: Calin Brammer
Sent: Tuesday, March 19, 2024 10:32 AM
To: FGC
Subject: Opposing Petition 2023-2033

Hello,

My name is Calin Brammer, I live in San Diego, CA and I am writing to strongly oppose Petition 2023-2033 specifically, the proposed MPA reserves in the Point Loma area.

I have been diving and fishing this area for years, sustainably harvesting only what I need for my family. The ability to continue to perform these recreational activities is an important part of my family's lives and central to our identity living in this area so close to the coast. If these areas are closed off for any take this will negatively impact myself and the livelihood of many other locals. We pay a premium to live where we do because of the access that we have. If these areas are closed off for any take this will negatively impact myself and the livelihood of many other.

Please do not take this away from us.

Respectfully,
Calin Brammer

FGC@fgc

From: Patrick Spalding [redacted]
Sent: Tuesday, March 19, 2024 3:49 PM
To: FGC
Subject: Opposition to Proposed petitions

Dear Commission,

I was born in San Francisco and have lived my entire life along the central California coast. I have been actively engaged in freedive spearfishing since 2011. Based on the current scientific research, I do not support expansion of any MPAs in California. I specifically request that the Commission deny the petitions listed below. I appreciate your consideration, and I'm grateful for your support of our natural resources.

Sincerely,

Patrick Spalding

Petition 2023-23MPA

Petition 2023-33MPA

Petition 2023-34MPA

Petition 2023-29MPA:

Petition 2023-24MPA

FGC@fgc

From: Vic Giacalone
Sent: Thursday, March 21, 2024 9:27 AM
To: FGC
Subject: Potential MLPA near Santa Cruz

To whom it may concern;
I am a 77 year old man, who has fished in Monterey Bay for many years. My boat is docked in the Santa Cruz harbor.
I am highly opposed to the implementation of a Marine Life Protected Area designation for the “Pleasure Point” area of Monterey Bay I - Petition 2023-2033.
This is an area of the bay, which is accessible to many anglers, who do not possess or have access to larger vessels to travel off shore. And, there does not seem to be any objective reason for this area to be designated, as an MLPA.
I urge you to reject this proposal.
Thank you.

Vic Giacalone

FGC@fgc

From: Paul Meltzer
Sent: Friday, March 22, 2024 12:06 PM
To: FGC
Subject: MPA Expansion in Santa Cruz

Dear Members of the Commission:

I am writing in opposition to the expansion of the MPA in the SANTA CRUZ area. I am very familiar with the kelp beds in Santa Cruz as I have surfed, fished, windsurfed and paddled around the kelp beds for 60 years.

The proposed rule seeks to ban activities that have no effect on the health of the kelp beds, all done under the misleading battle cry of "Save The Kelp Beds!"

Petitioners submit no scientific evidence that fishing has caused a decline in the health of the kelp beds in Santa Cruz. This is one of the reasons that the Santa Cruz City Council voted against the proposed expansion of the MPA.

Another misleading aspect of the rule change is the idea of mass fishing in the kelp beds. Almost no one fishes in the kelp beds because the kelp will fowl your propeller. Fishing is done adjacent to the kelp with your engine turned off.

The Petitioners further fail to scrutinize the factual basis for their assumptions. While they can show correlation--kelp has declined in California while there was fishing--they fail to show causation, that fishing has caused any decline in Santa Cruz kelp beds.

Everyone agrees that the Santa Cruz kelp beds were healthier 60 years ago. Yet at that time Pleasure Point had an active sewage outflow, thus the name of one of the surf spots, Sewer Peak. Kelp beds were healthier during the outflow (correlation) yet no serious person would suggest that one caused the other.

This is the danger of Petitioner's reliance on correlation. There are many events that correlate with healthy kelp but have nothing to do with the result. For example, there was more kelp when there was logging, less emissions controls on vehicles, an active carbon burning power plant at Moss Landing and a polluting Cement Plant at Davenport.

And the converse is equally true, that there are events that have occurred at the same time as a decline in kelp health that had nothing to do with the result. Fishing near kelp is a perfect example.

There are other serious issues that have not been addressed. The Commission should consider the recreational opportunities that will be lost to a generation if these bans are approved. It should also consider the economic impact on the fishermen, their families and the many related businesses such as markets and restaurants, if fishermen are banned from fishing for kelp adjacent fish such as halibut.

I urge a rejection of the expansion of the MPA.

Respectfully submitted,

Paul B. Meltzer

[redacted]@fgc

From: BETSY SMITH <[redacted]>
Sent: Monday, March 25, 2024 12:18 PM
To: FGC
Subject: Proposed Pleasure Point, Santa Cruz MPA

Dear Fish and Game,

My Name is David M. Smith, I am from Santa Cruz, CA and I am speaking in opposition with Petition 2023-2033, the proposal for a new
state marine reserve in Pleasure Point Area of Santa Cruz County.
I have lived and fished in Santa Cruz and Capitola since 1982 and over the years I have observed the kelp forest between 26th Ave to Capitola
which includes Pleasure Point. In my opinion this is a healthy kelp forest and I have seen no decline in kelp or fish that it holds. Over the years we have seen a rise in the population of white sea bass and I also know from local friends who dive and fish that there are Sea Bass living in these kelp beds. We have had an abundance of Jack Smelt, Sardines, Anchovies, and Mackerel that move in and out of the Kelp beds. The Halibut, Ling cod and rock fish population has been healthy locally in Santa Cruz. Unfortunately there is more pressure recently because of Salmon Season closure.
To have a local coastline which is healthy and the community is using it for sportfishing and free diving is a great thing. Maybe you can study this Pleasure Point coastline to understand its ecology and why it is healthy. To make a MPA of Pleasure Point has no science to the decision.
Pleasure Point is a healthy ecosystem in the Monterey Bay and should not be taken away from our local community.
Thank you,

David M Smith
[redacted]

420 Capitola Avenue
Capitola, California 95010
Telephone: (831) 475-7300
FAX: (831) 479-8879
Website: http://www.cityofcapitola.org

FGC
Rec'd 4/4/24

California Fish and Game Commission
P.O. Box 944209
Sacramento, CA 94244-2090

March 28, 2024

Opposition to Proposed Modifications to the California Marine Protected Area Network

Dear President Sklar and Honorable Commissioners,

I am writing to express our opposition to the Environment California Research & Policy Center's petition to modify the California Marine Protected Areas Network to expand the Natural Bridges State Marine Reserve and establish a new Marine Protected Area (MPA) at or near Pleasure Point, unless the petition is amended to allow for recreational hook-and-line fishing and spearfishing.

While we recognize the critical importance of nearshore kelp forests and the Marine Life Protection Act's adaptive management process, we believe the current proposal unfairly restricts access to public resources. Recreational fishing is a popular activity in northern Monterey Bay, and the proposed expansion would hinder the ability of residents and visitors to enjoy this coastal area.

Moreover, the expansion plan raises concerns about the economic impact on Santa Cruz County. Surfing, diving, and fishing are major draws for tourism, generating revenue for local businesses. Restricting access to these activities could negatively affect the economic well-being of our community.

In conclusion, we oppose the current petition to propose a new Pleasure Point State Marine Reserve unless amended to allow for recreational hook-and-line fishing and spearfishing. We urge you to consider the importance of this amendment, which would effectively balance kelp forest protection with the needs of our community.

We remain committed to collaborating with you to find a solution that safeguards the marine environment while ensuring continued public access and economic prosperity for Santa Cruz County.

Thank you for your time and consideration.

Sincerely,

DocuSigned by:
Kristen Brown
9845E01983E9448...

Kristen Brown, Mayor
City of Capitola

REC'D 4/4/24 FGC

HELLO, MY NAME IS MIKE FIXTER. I AM 77 YEARS OLD & HAVE LIVED IN SANTA CRUZ SINCE 1951. DURING THAT TIME I HAVE FISHED OUR LOCAL WATERS BOTH SPORT & COMMERCIALLY, SURFED, PICKED ABALONE, CRABBED, DUG BOTH PISMO & COCKLE CLAMS, RAISED A FAMILY & SPENT 30 YEARS WITH CENTRAL FIRE PROTECTION DISTRICT. MOST OF IT AS A FIRE CAPTAIN WHO'S RESPONSE AREA EXTENDED FROM THE SANTA CRUZ YACHT HARBOR TO NEW BRIGHTON STATE BEACH. I AM ACCUTELY FAMILIAR WITH BOTH THE SHORELINE & OUTER WATERS, INCLUDING THOSE WATERS WITHIN THE NEWLY PROPOSED MPA'S IN THE SANTA CRUZ AREA.

MY FIRST EXPERIENCE WITH OUR KELP FORESTS TOOK PLACE AT AGE 6 WHEN MY FATHER RENTED A SKIFF OFF THE CAPITOLA WHARF & WE FISHED IN & AROUND THE NEARBY KELP FORESTS. THIS ADVENTURE LED TO MY LIFE LONG PASSION OF EXPLORING OUR COASTAL WATERS. SOMETHING YOUNG KIDS & ADULTS ALIKE COULD NEVER EXPERIENCE SHOULD THIS NEW MPA INITIATIVE EVER BECOME IMPLEMENTED.

I AM VERY MUCH AGAINST THIS INITIATIVE & HERE ARE SOME REASONS WHY:

1. TO MY KNOWLEDGE NO LEGITIMATE, IMPARTIAL, UP TO DATE SCIENTIFIC RESEARCH EXISTS THAT SUPPORTS THE BELIEF OUR KELP FORESTS ARE BEING NEGATIVELY AFFECTED IN EITHER THE EXISTING MPA FROM NATURAL BRIDGES TO FOUR MILE STATE BEACH, THE PROPOSED EXPANSION OF THAT AREA OR THE NEWLY PROPOSED MPA AROUND CAPITOLA, PLEASURE POINT & SANTA CRUZ.
2. CLOSING THOSE WELL ESTABLISHED EXISTING AREAS TO ESTABLISH NEW MPA'S WILL INTURN PUT MORE PRESSURE ON THOSE EXISTING OPEN AREAS.

3. THE ECONOMIC IMPACT UPON ALL THOSE AFFECTED WOULD BE CATASTROPHIC. FISHERMAN (BOTH SPORT + COMMERCIAL), FISH MARKETS, RESTAURANTS, BOAT RENTALS, TACKLE SHOPS, THE SANTA CRUZ YACHT HARBOR, SKIN DIVERS, KAYAKERS, WHALE WATCHERS, MARINE REPAIR FACILITIES & TOURISM WOULD ALL SUFFER.
4. THE POTENTIAL LOSS IN REVENUE GENERATED BY ALL THE VARIOUS USER GROUPS PAYING FOR LOCAL, STATE & FEDERAL PERMITS, LICENSE FEES & TAXES WOULD CREATE A HUGE FINANCIAL CRISIS HERE IN SANTA CRUZ & BEYOND.
5. CURRENT LIFESTYLES & EMPLOYMENT OPPORTUNITIES WOULD BECOME A THING OF THE PAST SHOULD THIS NEW MPA PROPOSAL EVER BECOME LAW.
6. TODAYS YOUTH, YOUR CHILDREN, MY CHILDREN & GRAND CHILDREN ALONG WITH ALL OTHERS INTERESTED IN OUR MARINE ENVIRONMENTS DESERVE THE OPPORTUNITY TO EXPERIENCE IT FIRST HAND. TO DEPRIVE THEM OF THIS IS IN NO ONES BEST INTEREST.

PLEASE JOIN US IN DEFEATING THIS NEW MPA PROPOSAL.

SINCERLY

mike Fister

From: Sean Michael Oshiro [redacted]
Sent: Saturday, April 20, 2024 7:05 PM
To: FGC <FGC@fgc.ca.gov>
Subject: propose MPA's

My name is Sean-Micael Oshiro, and I'm from southern California. I'm here to express my concerns about Petition 2023-2033, particularly regarding the proposed new state marine reserves in San Diego.

The ocean holds a special place in my heart. Growing up near its shores, I witnessed its beauty and experienced its healing power firsthand. Whether I found solace in the rhythmic crashing of waves or marveled at the diverse marine life beneath the surface, the ocean has always been a source of inspiration and tranquility for me.

However, I fear that the proposed marine reserves may disrupt the delicate balance of aquatic ecosystems in our area. While conservation efforts are vital, we must ensure they are implemented by thoughtful and considerate local communities who not only appreciate the ocean's beauty but also rely on it for their livelihoods.

Spearfishing has been more than just a hobby for me; it's been a gateway to some of the most meaningful connections in my life. Amidst the ocean's tranquil depths, I found the thrill of the hunt and unexpected companionship. One day, while exploring a reef, I encountered another spearfisher, sharing stories of our underwater adventures. As our friendship blossomed over shared passions and mutual respect for the ocean, it became evident that we had found more than just a diving buddy; we had discovered kindred spirits. I found my best friend through spearfishing, forging a bond as deep and enduring as the ocean.

Please consider the impact of Petition 2023-2033 on our coastal communities and the precious marine ecosystems they depend on. Let's work together to find sustainable solutions that protect our environment and way of life.

Thank you for your attention to this matter.

Please Oppose New Marine Protected Areas

James Janzler [redacted]

Fri 04/26/2024 12:48 PM

To:FGC <FGC@fgc.ca.gov>

California Fish and Game Commission,

My name is James Kanzler and I live in Santa Cruz County. I am an avid outdoorsmen, with fishing and hunting being my primary recreation. Please oppose new marine protected areas in our area. I am for responsible management. I am for regulation when it makes sense. The proposed new MPA's in Santa Cruz do not make sense, and are not supported by objective science.

I can say as someone who spends time on the water that the kelp beds off Santa Cruz and Capitola are larger now than they were 10 years ago. The fishing is better now than it was 10 years ago. I can also say that, like me, many people recreate in these near shore fisheries. If they became off limits to fishing it would essentially end inshore fishing opportunity in Santa Cruz. The only people who could continue to fish in the ocean would be those who can afford large boats.

Please oppose new MPA's. Current levels of regulation are working well.

Thank you,

James Kanzler

From: California Fishermens Resiliency Association <californiafishermensresiliency@gmail.com>
Sent: Wednesday, July 3, 2024 06:44 PM
To: FGC <FGC@fgc.ca.gov>
Cc: [redacted] Steve Scheiblauer <[redacted]>; Dave Colker <[redacted]>; Jake Mitchell <[redacted]>; [redacted]
Subject: MPA Petitions Support/Object

California Fish and Game Commission
PO Box 944209
1416 Ninth Street Suite 1320
Sacramento, California 94244-2090

July 3, 2024

Re: MPA Petitions/Support/Object

Commissioners:

The California Fisherman's Resiliency Association (CFRA) expresses its support for the following Marine Protected Area (MPA) petitions:

2023 - 14 MPA
2023 - 15 MPA
2023 - 16 MPA
2023 - 18 MPA
2023 - 30 MPA

Our support is based on research conducted by the University of Washington (sustainable fisheries- us.org) which exactly states that MPA's have no positive affect on threats to marine life posed by ocean acidification, global warming, coastal development, terrestrial and urban run-off and human pollution of the world environment. "Recent reviews of the extensive MPA network in California have concluded there is no evidence for a regional increase in biodiversity, or targeted fish abundance, nor is there evidence for MPA's providing climate resiliency"

We provide no support for the following MPA petitions:

2023 - 19 MPA
2023 - 20 MPA
2023 - 21 MPA
2023 - 22 MPA
2023 - 23 MPA
2023 - 24 MPA
2023 - 25 MPA
2023 - 26 MPA
2023 - 28 MPA
2023 - 29 MPA
2023 - 31 MPA
2023 - 32 MPA
2023 - 33 MPA
2023 - 34 MPA

Thank you for this opportunity to comment.

Ken Bates, Executive Director
California Fishermen's Resiliency Association Member Associations

Crescent City Commercial Fishermen's Association
Trinidad Bay Fishermen's Association
Shelter Cove Fishermen's Preservation, Inc.
Salmon Troller's Marketing Association of Noyo
Bodega Bay Commercial Fishermen's Association
San Francisco Crab Boat Owners Association
Half Moon Bay Commercial Fishermen's Association
The Alliance of Communities for Sustainable Fisheries
Commercial Fishermen of Santa Barbara
Santa Cruz Commercial Fishermen's Association
Pacific Coast Federation of Fishermen's Associations

Cc: Dave Colker
Peter Halmay
Steve Scheiblauer
Jake Mitchell

From: Sandy Brown <[redacted]>
Sent: Monday, July 15, 2024
To: FGC <FGC@fgc.ca.gov>
Subject: Marine Resources Committee Meeting, July 17, Item 2. Marine protected area (MPA) regulation change petitions evaluation process

Please accept the attached letter from Supervisor Justin Cummings regarding the MRC's item on Marine Protected Areas.

County of Santa Cruz

BOARD OF SUPERVISORS

701 OCEAN STREET, SUITE 500, SANTA CRUZ, CA 95060-4069
(831) 454-2200 FAX: (831) 454-3262 TDD/TTY - Call 711

MANU KOENIG	ZACH FRIEND	JUSTIN CUMMINGS	FELIPE HERNANDEZ	BRUCE MCPHERSON
FIRST DISTRICT	SECOND DISTRICT	THIRD DISTRICT	FOURTH DISTRICT	FIFTH DISTRICT

July 9, 2024

Marine Resources Committee of the California Fish and Game Commission
California Natural Resources Building
715 P Street, 16th Floor,
Sacramento, California 95814

RE: Opposition to the current proposal to expand the State Marine Reserve at Natural Bridges and to establish the State Marine Reserve at Pleasure Point, unless there are significant revisions and expanded public outreach.

Dear Commissioners,

I am writing in my capacity as Santa Cruz County Third District Supervisor to request that you consider the Board of Supervisors' statement of opposition (unanimously approved on March 12, 2024) to the petition proposing to expand the State Marine Reserve (SMR) at Natural Bridges, and to establish a new SMR in the Pleasure Point Area, as currently written.

As the Marine Resources Committee embarks on developing a process for handling this round of petitions, I urge you to categorize the Natural Bridges and Pleasure Point SMR proposals in a manner appropriate to their level of complexity and controversy.

The Board of Supervisors identified a number of concerns related to the highly specific recommendations proposed in this petition, including: a lack of scientific evidence to support its purported aim of increasing the size of kelp forests; a lack of engagement with regional stakeholders, including scientists, environmentalists, fishermen, indigenous tribes, and public officials who have a demonstrated record of working effectively towards meaningful marine protections; and the need for a collaborative process to develop a regulatory framework that balances kelp forest protection with public access and ecosystem restoration activities.

While the intent to protect kelp forest ecosystems is commendable, there is a lack of empirical evidence supporting the claim that current, well-regulated recreational fishing activities limit the extent of these kelp forests on California's Central Coast. The proposed MPA expansion areas already have stable kelp beds that recovered effectively from the 2014-2016 Marine Heat Wave. These areas demonstrate that current activities, including

low-impact recreational fishing and existing regulations, support healthy kelp forests and further restrictions may not provide additional value.

As the Marine Resources Committee evaluates this round of MPA petitions, it's also important to develop clear principles and guidance regarding how MPAs fit within the 30x30 framework established by the Office of the Governor and led by the State's Ocean Protection Council (OPC). This framework emphasizes the importance of accelerating actions that promote nature-based solutions and the necessity of collaborative partnerships among diverse stakeholders. By providing clear guidance on how specific petitions are consistent with the 30x30 goals, the committee can foster cooperative and inclusive efforts that align with the state's commitment to protecting biodiversity and enhancing resilience to climate change.

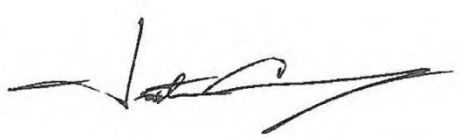
Our community strives to balance environmental access and protection to minimize negative impacts. While the petition authors are well-intended, their lack of public engagement and data to support the claim that prohibiting recreational fishing will increase kelp forest coverage indicates the need for more work before creating or expanding MPAs. The Santa Cruz Board of Supervisors is committed to protecting our environment and believes regulations on access should be well-informed, sustainable, and promote stewardship while protecting the environment.

Given the significant implications of establishing and expanding MPAs, it is crucial that the Marine Resources Subcommittee thoroughly consider the referenced petition before making any decisions. The proposed changes could impact a wide range of stakeholders, including local communities, businesses, and the environment itself. Ensuring a comprehensive review process that includes scientific validation, stakeholder engagement, and a balanced approach to conservation and public use is essential. This due diligence will help create effective and widely supported marine protection measures that truly benefit the ecosystem and the people who depend on it.

The Marine Resources Committee should ensure adequate time for consideration and negotiation, incorporating local stakeholder input. This will ensure any regulatory changes are grounded in robust data and community support, leading to more effective and accepted conservation measures.

Thank you for your consideration.

Sincerely,



JUSTIN CUMMINGS
Santa Cruz County Third District Supervisor

Please don’t adopt Cabrillo SMR expansion!

Matt C <[redacted]>
Wed 08/07/2024 07:49 PM
To:FGC <FGC@fgc.ca.gov>

Hello Council,

Please don’t adopt the petition requesting expansion of the Cabrillo SMR off of Point Loma.

Urchin fisherman can play a key role keeping urchins at bay in the face of sea star syndrome, thereby helping giant kelp reestablish.

Sportfishermen are a major support for DF&W’s budget via license sales and ocean enhancement stamps.

It would be a shame to get locked out of the beautiful kelp bed located in the “back yard” of Sab Diego in the name of conservation. Ocean heat waves, urban runoff/pollution and ocean acidification are major threats to the health of Southern California marine environments; locking sportfishermen out would create little benefit to the large scale health of our reefs and kelp beds.

Ironically, kelp beds throughout the SoCal bight are finally rebounding this year!!!

Thank you for your work on the commission and for considering this request.

Regards,

Matt Carleton
[redacted]

From: Anthony Garcia <[redacted]>
Sent: Wednesday, August 21, 2024 2:32 PM
To: FGC <FGC@fgc.ca.gov>
Subject: New expansion to the Cabrillo SMR zone

California Fish and Game Commission, I am a fishermen and fish around a lot of point loma and recently saw the new MPA expansions plans to the Cabrillo SMR. As a mostly shore and kayak fishermen I find the new expansion taking away almost all of my normal fishing grounds and kelp beds I grew up fishing. I understand this season has lead to insane amounts of kelp bass and other kelp fish being kept in insane amounts but that is only happening on charter boats. you cant keep 80 to 100 kelp bass in a kayak or on shores, half of us just catch to admire the fish and release them back. If there was anyway to change the area into a strictly catch and release only section for the time being to let them reproduce or close off the section during parts of seasons they are meant to grow the most, it would be a better alternative to permanently closing all of that water to all fishing. Another helpful idea would be to adjust the limits to the bag and sizing they need to be, it will keep people from trying to just eye out how big they are and actually make them take down a measurement, especially if they were only aloud to keep 2 or 3.

Thank you for your time,

Tony Garcia

From: Matt Steiger <[redacted]>
Sent: Wednesday, August 21, 2024 1:54 PM
To: FGC <FGC@fgc.ca.gov>
Subject: petition 2023-33MPA

Dear Commissioners,

I am writing in opposition to the proposed expansion of the Cabrillo State Marine Reserve, outlined under Petition 2023-33MPA. I am a physicist and fisherman who lives in San Diego. I use this ocean region regularly for recreating and to collect food. During low tides I comb the beach for shells, and also collect limpets, mussels, and kelp to supplement my family's food supply, and to consume wild foods from my local environment. I have also been training in hopes to swim out to the kelp for spearfishing. This is an important lifestyle choice for us; hunting, fishing, and foraging are fundamental human activities and I would say, human rights. We connect with nature by visiting it but also feeding our bodies from it. On low tide days this stretch of coast sees hundreds and thousands of parents, children, and people from impoverished communities. Most are there to enjoy the tide pools, collect shells or beach glass, and marvel at the hidden underwater world.

I am very worried about loss of access to this key piece of coast line. But I am also, at heart, an environmentalist and a conservationist. I make it my business to always know fish and game regs, and I follow and support them because I know we have 40M people in this state, and the resources have to be managed. As a physicist, I also firmly believe in science and making evidence based decisions. If there is ever a need to close down or heavily regulate a fishery (i.e. abalone, salmon, sturgeon, lobster...) I am 100% on board.

I would be heartbroken to lose fishing access to this region. But I did not want to comment on this until I had done some research on the proposal; specifically, the justification for it. I have read the petition and it seems to be primarily concerned with preserving the kelp beds off Point Loma. Let me be very clear that I understand and value the importance of kelp in the ocean ecosystem; as the cornerstone organism of the ocean food web. I have donated heavily to, and often volunteer for, a local non profit called Get Inspired Inc; who has worked exhaustively to restore kelp forests in Palos Verdes. If the kelp needs saving I will be first in line to help it.

I have read the proposal and what I *do not* see is any justification for this closure. There is no evidence presented that current recreational or commercial activity is significantly damaging the kelp. Likewise there is no argument presented that explains how closing fishing to this region will bolster the kelp. I'm sure there is occasionally boat damage to the kelp, but it is minor and sporadic. And as we all know, kelp grows

extraordinarily fast and the damage would only be to the growth tips; which can recover. In fact I have fished that kelp often from a boat, and I have never seen even a minor bit of damage occur; other than perhaps someone snagging an occasional "leaf" with their lure.

The petition itself classifies the Point Loma kelp as "highly persistent." Indeed, it has been there since before humans and seems to persist, in spite of climate change, commercial, and recreational fishing. I don't see any evidence that this closure is necessary to save the kelp. In fact, there is an argument that closing commercial fishing in this region will actually hurt the kelp. Peter Halmay and the SD Fisherman's Working Group rely heavily on this kelp forest for their commercial urchin fishery. As I'm sure you know, urchin eat the holdfast of the giant bull kelp that grows there. Putting that urchin population under protection will likely result in high loss of the forest. Furthermore, my understanding is that the kelp is at risk due to climate change and rising sea temperatures. I would argue that closing in-shore/near-shore access to fisheries exacerbates this problem. People will still fish, but now they must drive further out to sea, burn more gas, emit more carbon. When the solution, in part, is for people to try to eat things sourced much closer to home. I have not yet either mentioned that closing shore access to fishing and foraging disproportionately affects marginalized and poorer communities, who can't afford to buy boats and travel far out to sea to secure food.

Petition 2023-33MPA also mentions that measures like these are needed to achieve the goals of Governor Newsome's 30x30 initiative. As I said, I am in favor of conservation, and I am a fan of this initiative. However, Newsome's own policy outline defines what is meant by conservation in the initiative:

"**Examples of 30x30 Conservation Areas 30x30 Conservation Areas can take many forms across a broad spectrum**... **Recreational lands and coastal waters**: Parks and open spaces with multi-benefit management to support both recreational use and habitat protection. **This includes areas that allow sustainably managed recreational activities (such as hiking, hunting, fishing, boating, and wildlife viewing)**, where biodiversity conflicts are minimized. Careful resource planning in these areas helps determine reasonable limits for recreation to avoid significant negative impacts to natural resources from human overuse (for example biodiversity loss and soil erosion). **Examples include national parks, state parks, regional open spaces, and recreational hunting and fishing areas subject to resource planning criteria and management to prevent biodiversity loss**."

I am on board for conserving as much as we can. But it must be balanced against the human right of fishing, foraging, and collecting food. The proposal to make this region a SMR, which allows no take of anything--including shells--is too draconian. In particular, I

don't see how harvesting a few pounds of mussels once a year, or collecting and preserving shells has any negative impact on the kelp, whatsoever. Furthermore it is not clear to me that kelp preservation is part of the legal mandate of the original MLPA. I have read some of the FGC public notes on this petition and it specifies that policy guidance would be needed.

In conclusion, I strongly urge you to deny this petition. If need be, I feel less drastic measures can be taken to preserve the kelp and I urge the FGC to use a more science based approach to setting those rules. This petition, as written, is a blatant land (er--sea) grab from extreme environmental groups, who I'm sure would be very happy to see fishing, hunting, and foraging banned altogether. But as I know you have been recently reminded: these activities are protected under the California State Constitution; and as I've said, a fundamental human right.

Thank you for your consideration and for reading my comments. I would be happy to discuss more if needed, and I will look to join some of the public meetings (which sadly I have only just learned about).

Respectfully,

Matt Steiger

From: Darren Gertler <[redacted]>
Sent: Monday, August 26, 2024 10:21 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Public comment for Nov 6th Marine Resources Committee Meeting

Dear CA Fish and Wildlife Board Members and Leadership;

My name is Darren Gertler, I live and fish in Santa Cruz CA. I fish from a stand up paddle board and a 15 ft motorized skiff. I am writing and hopefully speaking in front of the commission to share my disagreement with the MPA Expansions that are being proposed by the petition process and the 30X30 Order

I work as a middle school woodshop teacher in a small local school district. Currently I am able to fish in my nearshore local waters to help feed my family. My nine year old daughter was raised eating the fish that we catch. When I ask her what she wants to eat at a BBQ she chooses fish collars over hot dogs and hamburgers every day! I am raising her with a foundational respect, appreciation, and understanding of our local marine ecosystems. If we lose access to our nearshore fisheries she will immediately begin losing her environmental stewardship.

At New Brighton Middle School I am also the co leader of the Fishing Club. The club is designed for both experienced and novice young anglers to experience fishing from our local shores. If the MPA extensions are approved we would lose so much coastal fishing access our club would be shuttered.

In conclusion, I hope that the board can understand that a tool as blunt as an additional complete closure would do more harm to our society and local fisheries. By limiting peoples access to their local ecosystems and foodsheds people become even more disconnected from them. As our populations, climates, and, oceans change we need to work collaboratively to provide more meaningful ways for our states citizens and visitors to engage in our Ocean resources.

Sincerely,

Darren Gertler
Santa Cruz Port Commissioner
Teacher
Father
Angler
Advocate
AllWaters Member

From: Barton Prideaux <[redacted]>
Sent: Thursday, August 22, 2024 4:28 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Vote No To Closing Point Loma Kelp

Hi,

My name is Barton Prideaux. I am a San Diego resident, an avid waterman, and a scientist at UCSD. I am writing to express my concerns with the proposals for the expanded state marine reserves in San Diego.

First, I want to explain what access to the Point Loma kelp beds means to me. This area is where I learned to love the ocean and to understand my role as a part of the coastal ecosystem, not just as an impassive observer. I have spent roughly 300 hours freediving and spearfishing in this kelp bed since I moved to San Diego in 2018. I can show you where the most interesting rock formations are, and I can show you where the bottom is a wasteland of hard flat rock. There is an amazing cave in 55' of water where you will find black seabass oddly just resting on about 1 out every 3 trips. I can tell you exactly where the biggest sheephead are because I have watched them grow over the past several years and I can tell you that one went missing this year… likely caught or shot. My girlfriend jokes that I can find my way around that kelp bed easier than I can drive around San Diego.

I shoot 1-2 fish a year in that kelp bed. So why do I spend so much time there? I love diving there because the Point Loma kelp bed is "our" kelp bed. It is accessible from shore, but its dramatic cliffs make it unsuitable for sunbathers. In short, it is a waterman's paradise. When you live nearby, you feel a sense of stewardship over it. My ratio of hours/fish there is not impressive… it might be a more efficient use of my time to go buy fish at the store. But maybe hunting in our local kelp forest is about more than just bringing home a fish?

Hunting your local area has been a part of the human role as environmental stewards on this earth for millenia. When I am in the water hunting, I am observing the flora and fauna around me, managing my instincts, and trying to understand why different fish are behaving in certain ways (some would call that empathizing!). I am not thinking about my manuscript edits, coding bugs, or grant deadlines. I am a hunter, looking for food, just as homo sapiens has done for thousands of years. Something about that grounds me and when I come back from a dive, I am a better scientist, friend, and partner.

We all want the best for the Point Loma kelp bed, but a no-take MPA is not the best way to achieve that. Kelp beds thrive in cold water and suffer if their predators become too numerous. An MPA will do nothing to make the water colder and the implementation of a no-take MPA to reduce the populations of sea urchins is akin to using a hammer when you

need a scalpel. Please consider a more targeted approach to conservation than a blanket elimination of the hunting grounds of San Diego watermen.

Sincerely,

Barton

Barton Prideaux, PhD
[redacted]

From: cameron cribben <[redacted]>
Sent: Tuesday, August 27, 2024 07:21 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Proposed mpa's

Hello Commissioners,

My name is Cameron Cribben I am a Point Loma commercial fisherman. I fish Spiny Lobster and Rock Crab also owning a local fish market called Tunaville Market and Grocery that solely sells local seafood. The projected Point Loma closure engulfs 100% of where I make my living. This closure is moving faster then the small amount of local fisherman can keep up with. I'm doing my part by trying to attend meetings and speak out with local legislators but also wanted to show members of commission a first hand look at the people this is truly effecting. After years of permitting and construction building our fish market in Driscolls wharf we were faced with an eviction notice. Learning all our hard work was doing to be demolished. We met with many Port of San Diego members at the market and were able to show them our family owned business and how important this was to not only us but to Point Loma and neighboring communities. Today Tunaville is a Point Loma staple. With all this said I wanted to invite you to our dock where the lobster boats tie up to our fish market where we sell local lobster that were caught in our very own backyard. Where my 4 year old son comes after preschool to see the lobsters and crab his dad catches everyday and to see the faces of the people this closure is punishing. Truly sorry for the rant just trying my best to fight for our sustainable fisheries

Sent from my iPhone

From: Michael Isaacman <[redacted]>
Sent: Wednesday, October 9, 2024 09:56 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Petition 2023-33MPA Opposition

Hi,

My name is Michael Isaacman and I live in La Jolla, CA and I am writing to oppose and express concerns with Petition 2023-33MPA, specifically for Cabrillo SMR and the proposals for the expanded state marine reserve in San Diego, CA.

I frequently spearfish in that area and this petition would be a devastating loss to the spearfishing community. When spearfishing we only take fish that are within size and take limits and feel that this is the most ethical way to harvest the fish we love.

Please oppose this expansion of prohibited fishing areas as this kelp forrest is currently very healthy and full of exceptional fish.

Thank you.

Regards,
Mike

Exhibit 19

Agenda Item 2, Marine Protected Areas Petitions Evaluation

Received by the California Fish and Game Commission for the November 6-7, 2024 Marine Resources Committee Meeting

List of Public Comments and Attachments

1. Email from Chris Killen, All Waters PAC, transmitting op ed from Dr. Ray Hillborn, Professor, posted online at Santa Barbara Independent, and an article by Dr. Jason Johns, Conservation Scientist, posted to sbfreedivers.com, received October 9, 2024
2. Email from Bill Shed, CCA California, transmitting two attachments: Op ed from Dr. Ray Hillborn, Professor, posted online at Santa Barbara Independent (see comment 1), received 10/22/24
3. Email from Bill Shed, CCA California, transmitting two journal articles: Ceccarelli et al, 2024, and Hopf et al, 2024.

From: Christopher Killen <[redacted]>
Sent: Wednesday, October 9, 2024 11:50 AM
To: [redacted]; Ashcraft, Susan@FGC <[redacted]>; [redacted]; FGC <FGC@fgc.ca.gov>; [redacted]; [redacted]
Cc: [redacted]
Subject: A few recent papers about the effectiveness of MPA's

Hi all,

I hope my messages find you all well and good.

Attached is a collection of papers for your review as we continue in our efforts to pull together data and science around MPAs.

The first, which I'm assuming you have all seen by now, is from Ray Hilborn; a Professor in the School of Aquatic and Fishery Sciences at the University of Washington and served on the Science Advisory Team for 2 of the 4 regions during MLPA planning. He has been awarded the World Fisheries Science Prize and the Volvo Environmental Prize.

The second is from Jason Johns, a PHD out of Santa Barbara who founded One People One Reef.

Post-Doctoral Fellow

- Post-doctoral fellow with OPOR; using genomic tools to understand connectivity between the islands of Ulithi
- PhD in Ecology, Evolution, and Marine Biology, University of California Santa Barbara, September 2023
- Jason is interested in coupling vast indigenous knowledge earned over time with modern tools to better understand the management of ecosystems and natural resources.
- Jason has spent most of his life in the ocean surfing, fishing, and free diving, but is beginning his professional marine science career with OPOR, as his background is in plant biology and genetics. He is looking forward to blending his love for the ocean and learning from people from different parts of the world with his love for doing science.

Would love to know your thoughts!

Respectfully,

Chris

Show Me the Benefits

10 Years in, What Have Marine Protected Areas Accomplished?

By **Ray Hilborn**
Tue Oct 01, 2024 | 4:49pm

More fish, more sustainable fisheries, and an ecosystem better protected from threats was the promise of the Marine Life Protection Act (MLPA) and the 124 MPAs now in place in California. Ten years on, what have they accomplished? The recently completed 10-year review by the California Department of Fish and Wildlife, as well as numerous scientific papers, suggest that our hopes were misplaced. The review concludes “statewide and regional trends across habitats showed no difference in biodiversity inside compared to outside MPAs.” As to the very real threats to California’s coastal ecosystems, climate change and recent marine heat waves, the review is decidedly not sanguine “analysis across habitats in the central coast revealed that MPAs did not provide strong resilience against the marine heatwave.” Ouch! Finally, there is not even evidence that there are any more fish in California state waters now, except for some of the areas that are closed to fishing. The only study to look at whether there were more fish overall suggests that the answer is no. Where fishing is intense, there are definitely more fish inside the closed area, but the fishing boats simply moved outside the boundary and caught them there.

The structure of the 10-year review alone squashes any expectations that the MPAs might be protecting our ocean from any threats. The review devotes 9 pages to governance and partnerships, 22 pages to research, 15 pages to outreach and education, and 14 pages to enforcement. A paltry 4 pages deal with how marine species have changed, and another 4 pages deal with climate resilience. The blatant absence of “good news” is spun into research, public engagement and enforcement as if those had been the goals the MPAs were meant to achieve.

Unsurprisingly, the only threat the MPAs do address is overfishing, and that is not a problem in state waters. The Marine Life Protection Act was conceived and implemented at a time of serious concerns about declines in many rockfish species in federal waters, but are not the focus of fisheries in state waters and are rarely found there. One should not

expect major benefits from no-fishing zones when there is no overfishing to begin with.

Make no mistake, California coastal ecosystems face many threats. These include climate change related warming, ocean acidification, storm severity and sea level rise. Moreover, the coasts face a wide range of terrestrial impacts from coastal development, sedimentation, land based runoff of sediments and pollutants, and water diversions. New exotic species and diseases have arrived, and ship traffic is increasing. California's MPA network provides no protection from any of these threats, and yet the MPA advocates are still claiming to have protected the ocean.

The Marine Life Protection Act was born in a research network of academics who formed a group call PISCO that published a report called "The Science of Marine Reserves" in 2007. The opening paragraph states "fish, shellfish, and other species are declining in many places. The changes are impairing the ocean's capacity to provide food, protect livelihoods, maintain water quality, and recover from environmental stress." Whatever happened to food and livelihoods? There is not a whisper or mention of those in the 10-year review.

Does California need even more marine reserves? The public should demand to know what the objectives are, how success is measured, what perceived threats are being addressed, and would the funds be better spent to address the real threats to California's coastal ecosystems. In a pinch, we could say that MPAs to some extent restrict fishing. But wait, we already have an agency that does that, the California Department of Fish and Wildlife (CDFW). Perhaps funding to implement more MPAs should be redirected to CDFW to do its job even better? Perhaps more importantly, the funds could be used to better regulate terrestrial impacts on the coastal ecosystem.

Ray Hilborn is a professor in the School of Aquatic and Fishery Sciences at the University of Washington and served on the Science Advisory Team during MLPA planning for Santa Barbara reserves. He has been awarded the World Fisheries Science Prize and the Volvo Environmental Prize.

Source: https://sbfreedivers.com/news/a-petition-to-expand-california-marine-protected-areas-contradicts-science-and-itself/

A Petition To Expand California Marine Protected Areas Contradicts Science And Itself

By Jason Johns, Conservation Scientist

Marine Management and Conservation

Conservation is a critical tool in maintaining the health of our ocean ecosystems. The kelp forests of California are important sources of ecological, cultural, and economic value. Their careful management is one of the highest priority initiatives for all of their stakeholders and stewards, including policy makers, tribes, fishers, divers, conservation biologists, and others.

Building marine management plans is a complex endeavor, and the success of any given initiative relies on its ability to consider multiple, sometimes conflicting perspectives. Each stakeholder group brings unique and important expertise, and each perspective has both assets and limitations. The asset that the scientific perspective brings to management is the ability to produce and analyze objective, tangible evidence.

Using science objectively, not selectively

While it's a no-brainer to use science in conservation decisions, it requires additional effort to use it objectively and comprehensively. Part of this objectivity is being sure to consult all of the science available on the issue at hand. We need to be wary of "using" any science to support a given initiative, especially when we have a personal stake in the outcome. Omitting relevant studies from the conversation undermines both the legitimacy and success of conservation initiatives.

Several organizations recently submitted a petition to the California Fish and Game Commission to protect kelp forests in Southern and Central California. The purpose of this letter is to address their incomplete and improper acknowledgement of the science around kelp health in California.

Let me first establish my biases. I'm fortunate to have a deep relationship with and respect for the ocean, which started in my childhood. I interact with the ocean by any means possible, whether it be riding waves, paddling various crafts, snorkeling, scuba diving, and occasionally sourcing food from it with various tools. I am also a scientist with a keen interest in learning more about the dynamics of the natural world, and a conservation biologist working to support its longevity. Accordingly, I approached this petition with an open mind, and multiple sources of both expertise and motivation.

I looked at the scientific papers and reports cited in the petition to examine the evidence myself. While sharing opinions is an important part of this process, the following are not my opinions - rather objective analyses of two fundamental errors in petition 2023-33MPA that either contradict the scientific literature and/or the petition itself.

Errors in the petition

The first major error that the petition makes is claiming that kelp density itself is positively influenced by MPAs. While we know that some California kelp dwelling species can be positively affected by MPAs, such as lobsters and sheephead (Kay et al., 2012; Hamilton & Caselle, 2015), kelp density has never been shown to be consistently higher in MPAs than outside them. In fact, the vast majority of published science on this topic from California demonstrated that that kelp density is unaffected by MPAs (Malakhoff & Miller, 2021; Smith et al., 2023). The second inconsistency is in the petition's description of the selection process for the sites chosen for MPA expansion or establishment. These two errors are fundamental to the petition, and their lack of rigor substantially undermines its legitimacy.

Error #1: MPAs improve kelp density and resilience to climate change

The petition is written with the intention of protecting kelp itself, which relies on the premise that MPAs enhance the health of kelp. It is true and relatively uncontroversial that MPAs protect many fish and invertebrate species - there are generally more fish and larger fish within MPAs than outside of them (Lester et al., 2009; Rolim at al., 2019). This has been demonstrated many times in various ecosystems around the world. Importantly, though, there is a lack of scientific evidence demonstrating that kelp itself is positively influenced by MPAs (Malakhoff & Miller, 2021; Smith et al., 2023).

However, the petition makes the following claim: "The Decadal Management Review of the statewide MPA network found that, while kelp species across the state experienced large-scale declines during the 2014-2016 marine heatwave, 'overall, kelp canopy was more stable and appeared to be more resilient inside MPAs' (CA MPA DMR 2022)."

The Decadal Management Review (DMR) does state this, but does not show any data to support it, which makes it an inappropriate citation in this context. A more appropriate citation would have been the 2021 report by Carr and colleagues that the DMR authors cited, entitled "Monitoring and Evaluation of Kelp Forest Ecosystems in the MLPA Marine Protected Area Network."

While the Carr et al. report did compare kelp resilience in MPAs and non-MPAs across California, there are multiple factors that make it a less than appropriate citation for this claim, especially considering there is much more directly relevant science to consult on this topic (Malakhoff & Miller, 2021; Smith et al., 2023). First, two out of three

comparisons had no visual difference between MPAs and their “reference” non-MPAs. In addition, when looking specifically at kelp resilience, the DMR lumped all MPAs across California into one analysis (Figure 25), rather than splitting them into Southern, Central, and Northern California regions, as they did with their other analyses. Given the many fundamental differences between these regions, including the species of kelp that dominate them, it is difficult to draw any region-specific conclusions from this analysis. The strong differences between California regions are emphasized elsewhere in the DMR, as well as in two other studies currently (Hall-Arber et al. 2021 and Kumagai et al).

Further, the DMR did not show any statistics in this particular analysis, which is a fundamental part of determining the confidence that any apparent trend is a true representation of the entire population. This is likely why they chose the language, “appeared to be more resilient.” Finally, the authors acknowledge the inherent difficulty in comparing MPAs with non-MPAs, as MPAs are often chosen *because* they are known or suspected to be especially resilient, even before their protection.

A more directly applicable study to the petition’s claim is Smith et al. (2023), which did split their analyses of kelp communities in California MPAs by region, and fortified the trends they found with statistics. They found that “for all habitats except the rocky intertidal, MPAs did not impart increased resistance or recovery from marine heatwave-driven community changes compared to sites outside of MPAs.”

Malakhoff & Miller (2021) would have also been an important study to consider, which found that “no significant effect of reserve status (MPA vs. non-MPA) or time period or the interaction between status and time was evident for kelp stipe density” (Figure 1). They also compared grazing and urchin density inside and outside MPAs, and found “no evidence, therefore, that increases in predators inside Channel Islands MPAs are causing, either through direct or indirect effects, a trophic cascade leading to positive effects on kelp forests via decreased sea urchin biomass and grazing.” They conclude that “urchin biomass overall has increased inside

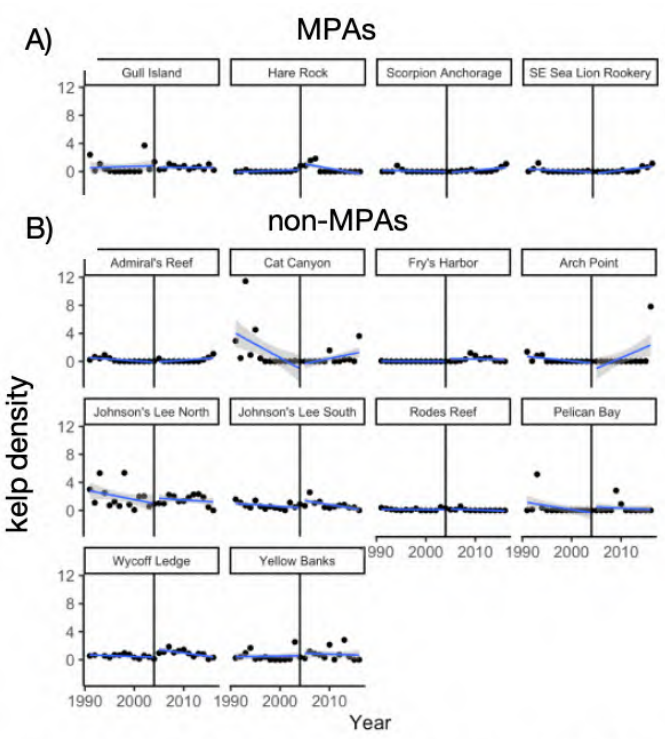


Figure 1. *Adapted from Malakhoff & Miller (2021) Figure S3. “Change in kelp stipe density over time with regression lines fit before and after the establishment of marine reserves in 2004 (vertical lines) at reserves (A) and control (B) sites.”

reserves, and we found no evidence that giant kelp is positively affected by reserves."

While it is not yet published, it is important to mention a recent study by Kumagai et al. which found that kelp resilience and recovery to the 2014-2016 marine heatwave was slightly more robust inside Southern California MPAs than outside (there was no effect of MPAs in Central California). They do, however, acknowledge that their measurements of kelp resilience and recovery are subject to some amount of error, as they were from satellite imagery. In contrast, both Malakhoff & Miller and Smith et al. measured kelp directly by counting the density of stipes (aka "stringers") on the reef, which is arguably a more thorough measure of kelp health. They also acknowledge the bias associated with the selection of MPA sites - "Taken together, these results could be biased if MPAs had been non-randomly placed in habitat more favorable to kelp recovery."

Importantly, this study is in preprint, meaning it has been submitted to a scientific journal and is currently under peer review. The petition does not cite this paper, nor should it, but the preprint is publicly available, thus it is mentioned here for thoroughness.

Another study not cited by the petition, but worth mentioning, is Eisaguirre et al. (2020). Like Kumagai et al., they did not examine the effects of non-random placement of MPAs, which likely could have affected their finding of higher kelp density in MPAs than outside in the Northern Channel Islands. This result contrasts that of Malakhoff & Miller, which found no effect of MPAs on kelp density. Notably, Malakhoff & Miller surveyed 33 sites and analyzed each site both individually and together, with statistics. Eisaguirre et al. surveyed 7 sites and lumped them all together, reporting no statistical hypothesis testing, but rather models that did not fit their data particularly well.

The above literature review demonstrates the objective failure of the petition authors to thoroughly examine the science relevant to their initiatives and claims, rendering the petition illegitimate.

Error #2: Sites were chosen because they were not listed as "high priority" by Giraldo-Ospina et al., 2023.

The second contradiction is in regard to the strategy used to select sites for MPA expansion. This error is not a contradiction or omission of the literature, but rather a contradiction of the petition itself.

The petition narrative states, "we did not focus on 'high priority' restoration sites identified by Giraldo-Ospina et al. 2023…" However, Table 1 of the petition suggests that they propose to expand the two MPAs on the Northern Channel Islands *because* they hold portions of high priority sites: "The Northern Channel Islands contain some of the largest remaining resilient kelp beds in state waters, although large portions of the

islands have experienced die-offs and are rated as ‘high priority’ sites by Ospina-Giraldo et al. 2023.”

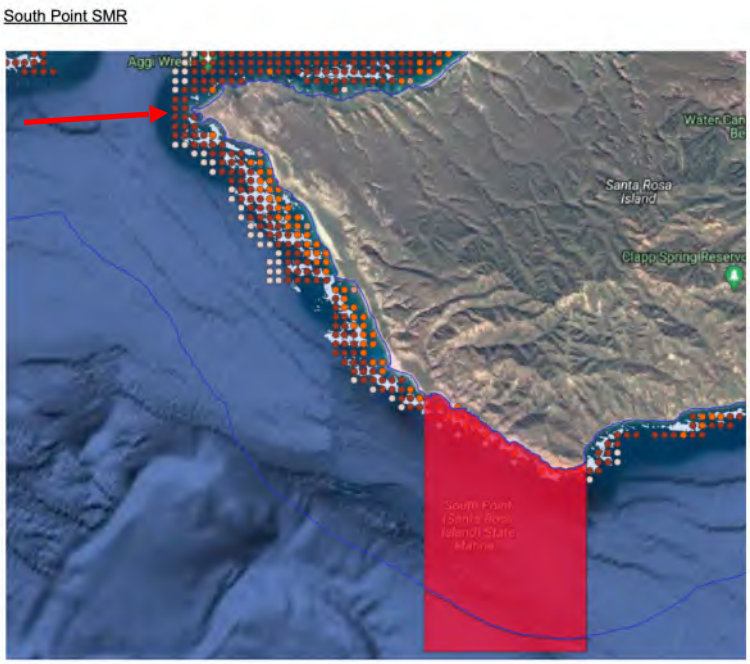


Figure 2. *Adapted from Petition 2023-33 MPA. The red polygon indicates the current South Point MPA on Santa Rosa Island. The red arrow indicates the point to which the MPA is being proposed to expand, 3nm out. Dark red circles indicate “high priority” zones.

Further, Giraldo-Ospina explicitly states that Santa Rosa has a concentration of high priority sites: “Sites in the south coast classified as high priority for giant kelp restoration are visibly clustered around San Miguel and Santa Rosa Islands.” This is clear from the map of Santa Rosa Island included on page 17 of the petition, which proposes to expand the current South Point MPA (red polygon) on the southwest side of Santa Rosa Island all the way to the west end of the island (red arrow; Figure 2). The dark red circles indicate “high priority” areas, which clearly constitute the majority of the proposed expansion area.

This is another egregious error that undermines the legitimacy and relevance of petition 2023-33MPA. The authors of this petition gathered thousands of signatures on a fundamentally flawed document, which is negligent at best.

Going forward

The intent of this letter is not to denigrate marine management and protection, nor any of the science cited in the petition, rather to expose the lack of foundation for this proposal. The errors identified here not only undermine the legitimacy of the petition itself and its signatures, but demonstrate a lack of regard for complete and objective due diligence for a potentially highly impactful initiative. My hope is that this previously ignored information will be considered in all discussions going forward.

Finally, I remind that the natural sciences, while crucial, are not the only factor to consider. There is also a robust body of social science research examining the effects of marine reserves on other tangible and intangible factors such as livelihoods, cultures (both indigenous and non-indigenous), healthy subsistence, and lifelong passions. These considerations should also be weighed heavily, yet were mostly ignored in this petition. Knowledge is power, and it is our duty to incorporate all of the relevant knowledge available to us in these significant decisions.

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From: David Clutts <[redacted]>
Sent: Monday, October 21, 2024 11:20 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Letter of Opposition to Swami's, Py Loma MPA expansion

Dear California Fish & Wildlife,

I am writing to express my opposition to the proposed expansions of both the Swami's Marine Protected Area (MPA) and the Point Loma MPA.

Swami's already experiences minimal recreational fishing pressure. Access to the current fishing area from the shore is critical, and the expansion would complicate enforcement due to the difficulty in determining the new boundary lines. Expanding the MPA further would significantly limit fishing opportunities in Solana Beach, which has been a vital fishing area for decades. Closing additional area makes little sense while the Army corps of engineers routinely covers much of the reef with the sand replenishment at Solana beach. Therefore, I respectfully urge the California Department of Fish & Wildlife to deny the proposed expansion of the Swami's MPA.

Similarly, I oppose the expansion of the Point Loma MPA. This area contains some of the last remaining healthy kelp beds that can support fishing activities in southern San Diego County. The argument presented by the organization petitioning for the expansion, claiming it is necessary to save the kelp, is unfounded. Fishermen have protected and sustained these kelp beds as valuable fishing grounds for over a century. Expanding the MPA will only displace fishing pressure to other areas, disrupting a balanced ecosystem and limiting sustainable fishing opportunities.

I strongly urge the Department to deny the expansion of the Point Loma MPA, as it will negatively impact both the environment and the fishing community.

Thank you for your consideration.

Sincerely,
David Clutts
Member: San Diego Freedivers, Norcal skindivers, Richmond Pelican Skindivers

Spear fisherman, Fisherman, Diver, Scuba Diver

DAVID CLUTTS

Broker Associate

C: [redacted] (San Diego) | C: [redacted] (Northern CA)

[redacted]

www.TeamClutts.com

1424 Camino Del Mar | Del Mar | CA | 92014

David Clutts]
[redacted]
10/21/2024

California Department of Fish and Wildlife
[Address if available]

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Sincerely,
David Clutts
Member: San Diego Freedivers, Norcal skindivers, Richmond Pelican Skindivers

Spear fisherman, Fisherman, Diver, Scuba Diver

From: Bill Shedd <[redacted]>
Sent: Tuesday, October 22, 2024 03:29 PM
To: FGC <FGC@fgc.ca.gov>
Cc: Wayne Kotow <[redacted]>; Marc Gorelnik <[redacted]>
Subject: Hilborn Editorial for Nov 6 MRC meeting

Dear Sirs:

See the attached editorial from Ray Hilborn. I am requesting this be discussed at the Nov 6 MRC meeting.

My name is Bill Shedd, and I am chairman of the board of CCA Cal. The science is far from settled on the actual value of no-fishing MPAs. Most marine scientists agree that fish populations inside a no-fishing MPA will grow. However, there is no consensus as to whether MPAs actually increase total fish populations as fishing effort simply moves outside the MPA. There are two sides on the issue regarding the value or lack of with no-fishing MPAs. Discussing the attached editorial from Ray Hilborn at the Nov 6 MRC will make it clear there remains serious debate within the marine science community on no-fishing MPAs and whether or not they provide any overall benefit. - Bill

Bill Shedd | Chairman/CEO

AFTCO | [redacted]

[redacted] | [redacted]

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From: Bill Shedd <[redacted]>
Sent: Wednesday, October 23, 2024 04:58 PM
To: FGC <FGC@fgc.ca.gov>
Cc: Wayne Kotow <[redacted]>; Marc Gorelnik <[redacted]>
Subject: MPA science papers for Nov 6

Dear Sirs

Please include the attached 2 papers for discussion during the Nov 6 MRC discussions.

– Bill

The Ceccarelli paper looks at the Great Barrier Reef Marine Park in Australia which has been in place since 1975 and has 33% closed to fishing since 2004, a closed area of 117,000 square km which is 50 times more than the MLPA. The key lessons that have been learned are that the MPAs have had a small impact on the fish communities, and significant effects have only been found for the most heavily fished species.

The Hopf paper is a review of the large literature on the impact of marine protected areas on the abundance of fish, and has two very important results relevant to the MLPA. They compare the estimated change in abundance inside MPAs using three methods, inside-outside comparison, before and after, and the statistical method called before-after-controlled-impact BACI. Almost all evaluation of the increase in fish abundance in MPAs has been done using before-after. This is true for the MLPA. Hopf et al. found that inside-outside comparisons suggested a much higher increase than the before-after or BACI -- roughly 35% increase compared to only 20%. Even more importantly, Hopf found that using before-after or BACI it was almost equally likely that there was no or a negative impact of the MPA closure on the density of fish. The bottom line is that even in the parts of the MLPA that appear to show an increase in fish abundance, it is likely that this increase has been overestimated.

Bill Shedd | Chairman/CEO

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RESEARCH ARTICLE

Regional-scale disturbances drive long-term decline of inshore coral reef fish assemblages in the Great Barrier Reef Marine Park

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[8]Great Barrier Reef Marine Park Authority, Townsville, Queensland, Australia

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Funding information
Department of Climate Change, Energy, the Environment and Water; Centre of Excellence for Coral Reef Studies, Australian Research Council

Abstract

Anthropogenic pressure is increasing the variety and frequency of environmental disturbance events, limiting recovery and leading to long-term declines in wild plant and animal populations. Coral reefs and associated fish assemblages are inherently dynamic due to their susceptibility to a host of disturbances, but regional-scale nuances in the drivers of long-term change frequently remain poorly resolved. Here, we examine the effects of multiple potential drivers of change in coral reef fish assemblages across 4 inshore regions of the Great Barrier Reef Marine Park (GBRMP), Australia, over 12–14 years (2007–2021). Each region had a unique disturbance history, in conjunction with long-term changes in physical and habitat variables. Phases of recovery were apparent in the years between disturbance events at all locations, but these were not long enough to prevent substantial declines in reef fish density (by 33%–72%) and species richness (by 41%–75%) throughout the study period. The main drivers of change in fish assemblages varied among regions; however, the most rapid changes followed cyclone and flood events. Limited recovery periods resulted in temporal shifts in fish species composition from typically coral-associated to algae-associated. Most trophic groups declined in density except farmers, grazers, omnivores and parrotfish. No-take marine reserves (NTMRs) had small and inconsistent effects on total fish assemblages, but delivered benefits for fishery-targeted piscivores. Our findings suggest that coral reef responses to local stressors and cumulative escalating climate change impacts are highly variable at regional scales, and that small NTMRs are unlikely to mitigate the impacts of increasingly frequent climatic disturbances. Nearshore coral reefs worldwide are high-value habitats that are either already degraded or vulnerable to degradation and the loss of important fish groups. Global efforts to reduce greenhouse gas emissions must be coupled with effective local management that can support the functioning and adaptive capacity of coral reefs.

KEYWORDS
coral reefs, cyclone, ecological drivers, habitat degradation, marine heatwave, temporal dynamics

1 | INTRODUCTION

Ecological communities are subject to natural intermittent disturbances followed by periods of recovery, resulting in fluctuations over time, both in terms of population abundance and assemblage composition (Dallas & Kramer, 2022; Dayton, 1971; Levin & Paine, 1974; Paine & Levin, 1981). Such disturbances are thought to play a major role in maintaining complex landscapes and promoting species diversity (Connell, 1978; Sousa, 1979, 1984). However, in the Anthropocene, disturbance regimes are changing because of human activities, such as extraction, habitat destruction and increasingly chaotic fluctuations in the weather as the climate changes (Micheli et al., 2016; Turner, 2010). The increasing severity, diversity and frequency of disturbances are combining to shrink the recovery window for many ecosystems (Hughes, Anderson, et al., 2018). Anthropogenic pressures and disturbances threaten the existence of foundation species, degrade landscapes, reduce population sizes and diminish biodiversity (Byrnes et al., 2011; Detmer et al., 2021; Seidl et al., 2022). The processes driving long-term change may be complex, depending on regional differences in disturbance regimes, the resistance of key foundation or habitat-forming species and their ability to recover (Jurgens & Gaylord, 2018; O'Leary et al., 2017; van der Heide et al., 2021). Management actions designed to protect communities from disturbance or promote recovery are urgently needed (Anthony et al., 2015; Pelletier et al., 2020). Additionally, more studies are needed on region-specific disturbance regimes, their long-term effects on community metrics, the biophysical factors that interact with periodic perturbations and the effectiveness of management actions to halt long-term degradation.

Coral reefs are dynamic ecosystems, subject to disturbances such as cyclones, crown-of-thorns starfish outbreaks and bleaching events (Moritz et al., 2021; Plass-Johnson et al., 2018). Unfortunately, coral reefs are also among the ecosystems most vulnerable to the increasing array of anthropogenic stressors, including increasing water temperatures and terrestrial run-off, all of which impact negatively on hard corals, the building blocks of coral reefs and essential habitat for most reef-associated organisms (Nyström et al., 2000). In a rapidly warming climate, coral reefs are the 'canaries in the coalmine' for the impacts of sea surface temperature (SST) increases (Henley et al., 2024). Different growth forms of hard corals vary in their ability to either resist these disturbances or recover rapidly during the intervening disturbance-free periods (Madin, 2005). Long-term studies are increasingly documenting severe degradation of coral reef habitats, declining biodiversity and, in some cases, persistent regime shifts from coral to algal-dominated states (Arias-González et al., 2017; Crisp et al., 2022; McManus & Polsenberg, 2004). However, the suite of anthropogenic stressors impacting reefs, the potential for assemblages to recover and the effectiveness of management actions in mitigating impacts or promoting recovery are still being documented.

Coral reef fishes are significant contributors to important ecological processes and trophic interactions in coral reef ecosystems (Polunin, 1996; Sale, 2002). Reef fishes link pelagic and benthic communities through larval dispersal, adult movement (Green et al., 2015; Jones et al., 2009) and planktivory (Hobson & Chess, 1978; Morais & Bellwood, 2019), exert top-down control through predation (Brandl et al., 2019; Hixon, 1991), influence the benthos through grazing and invertivory (Graham et al., 2015; Hatcher, 1988; Kramer et al., 2015) and even contribute to primary production by farming or gardening (Ceccarelli et al., 2005). They range from being versatile omnivores (e.g. Mendes et al., 2019), to occupying highly specialised niches such as corallivory (Pratchett et al., 2013), coprophagy (Robertson, 1982) and parasite-cleaning (Grutter, 1995). While affecting coral reef habitats, they also depend on the integrity of the habitat to support the full complement of species, processes and functions (Darling et al., 2017). This extends beyond living corals to the three-dimensional structure of the reef itself (Chong-Seng et al., 2012). Reef fishes also provide extensive socioeconomic benefits through fisheries and tourism revenue (Cinner et al., 2016). Understanding spatial and temporal patterns in reef fish abundance, diversity and species composition, and their key drivers, is fundamental to the design, implementation and evaluation of conservation and management actions to support persistence and productivity (Eggertsen et al., 2019; Sale et al., 2005).

Reef fish assemblages are highly dynamic and subject to changes in abundance, species richness and composition due to a variety of extrinsic (e.g. disturbance events) and intrinsic (e.g. recruitment) factors. Changes to reef fish assemblages over time have been measured in response to fishing (Zgliczynski & Sandin, 2017), marine reserve protection (Hadj-Hammou et al., 2021; Olivier et al., 2022), changes in habitat structure (Lin et al., 2022; Nash et al., 2013), environmental conditions (Benthuysen et al., 2022; Feary et al., 2010), disturbance events (McClure et al., 2019) and stochastic factors such as recruitment pulses (Sale, 2004). Stuart-Smith et al. (2021) found that fish assemblages on tropical reefs are undergoing a shift towards more generalist species in response to climate change, while on temperate reefs there is a distinct 'reshuffling' of fish assemblages towards more warm-adapted species. General declines in abundance and species richness, as well as local extinctions, have been documented following marine heatwaves and other climatic disturbance events (Edgar et al., 2023; Pratchett et al., 2011; Wilson et al., 2006). Global reef fish diversity declines are expected with habitat loss, especially loss of corals (Strona et al., 2021). Other studies have found reef fish assemblages to be remarkably stable, even after repeated disturbance events resulting in profound habitat changes. (Cheal et al., 2008; Sano, 2000; Wilson et al., 2009). However, the perception of stability may depend on the taxonomic resolution of the study (Lamy et al., 2015), as concurrent species-level increases or declines may be masked within families, trophic or functional groups (Ceccarelli et al., 2016; Wilson et al., 2006).

It is well known that the physical disturbances that destroy habitat (e.g. temperature stress, cyclones and destructive fishing), indirectly affect fishes that rely on those habitats (Emslie et al., 2014; Graham & Nash, 2013; Pratchett et al., 2008), but do those physical forces also act on fish assemblages directly? With extreme SST anomalies, acute mortality events of fish are possible, and over time

this may alter the suite of species that occupy any given reef (Stuart-Smith et al., 2015; Stuart-Smith et al., 2018). Direct impact by cyclone waves and wave-born debris may kill some fishes, but the dominant impact of storm events is typically habitat loss (Munday, 2004; Munday et al., 2008; Triki & Bshary, 2019; Wilson et al., 2006). Management and conservation measures superimposed upon these large-scale, dynamic processes may or may not mitigate disturbance impacts on populations, assemblages and habitat structure (Mellin et al., 2019). Teasing apart the forces that act on fish assemblages may not be possible without dedicated experimental research, although advances in statistical techniques that partition the relative importance of a given set of predictor variables is allowing increased insight into drivers of coral reef communities (Samoilys et al., 2019; Zinke et al., 2018).

No-take marine reserves (NTMRs) are a widely used marine conservation tool, with proven benefits for populations of target species (Allard et al., 2022; Emslie et al., 2015; Graham et al., 2011; Mellin et al., 2016). Effects on non-target species, habitats and processes are more equivocal, especially in regions where fisheries target a few select species with non-destructive fishing practices (Emslie et al., 2015). There is some evidence that NTMR reefs can be more resilient (McClure et al., 2020; McCook et al., 2010; Mellin et al., 2016), but this may not hold under a regime of increasing disturbance frequency and intensity. In fact, there is increasing evidence that NTMRs have a limited ability to protect reef habitats from extreme disturbances, leading to similar changes in fish assemblage structure in both NTMRs and fished areas (Graham et al., 2011; Jones et al., 2004; Williamson, Ceccarelli, Evans, Jones, & Russ, 2014).

In seeking to understand temporal dynamics of coral reef fish assemblages, and the ability of NTMRs to support resilience under environmental change, it is important to quantify key drivers of abundance, diversity and species composition. Fish assemblages can be shaped by a combination of interacting physical drivers, which include environmental factors such as temperature, depth or wave exposure (Floeter et al., 2005; Friedlander et al., 2003; Fulton et al., 2005; Jouffray et al., 2015; Maia et al., 2018; Roff et al., 2019), slope steepness, three-dimensional reef habitat structure (Chabanet et al., 1997; Graham & Nash, 2013; Luckhurst & Luckhurst, 1978) and biological drivers such as food availability, recruitment, competition and predation (Roff et al., 2019). The composition of the benthic community also affects the fish assemblage (Chong-Seng et al., 2012; Done, 1992; Gratwicke & Speight, 2005; Halford et al., 2004; Williams, 1982). Changing conditions due to disturbances (e.g. increased wave exposure and turbidity during/after storms) and resulting changes to benthic organisms all have an influence on the temporal dynamics of reef fishes (Pratchett et al., 2011). Superimposed on biophysical drivers are human factors such as exploitation, habitat destruction through coastal development, dredging and destructive fishing, and spatial management such as NTMRs (Pinca et al., 2012).

Multiple-use zoning management was first introduced to the Great Barrier Reef Marine Park (GBRMP, Marine Park) in the late 1980s. Networks of NTMRs were expanded throughout the Marine Park in 2004 and since that time approximately 33% of the Marine Park area (and 33% of the coral reef habitats) have been protected within NTMRs. Inshore GBR coral reefs are no exception to the alarming rates of global ecosystem degradation caused by the cumulative and escalating effects of global warming (Ceccarelli et al., 2020; Hughes, Kerry, & Simpson, 2018). The proximity to human populations means that pressure from extractive activities like recreational fishing is significant on inshore fringing reefs around islands near the coast (Williamson, Ceccarelli, Evans, Hill, & Russ, 2014; Williamson, Ceccarelli, Evans, Jones, & Russ, 2014). Furthermore, inshore reefs of the GBR are subject to the pressures typical of coastal and inshore reefs worldwide, despite active management of stressors and relatively low human population densities compared with other tropical coastal nations. In this sense, the response of the GBR inshore reefs to these pressures could serve both as a benchmark for thresholds of pressure these systems can withstand, and an example of what a reduction in pressure could result in for marine ecosystems that are much more heavily used and degraded.

In this study, we quantify regional and local differences in the key physical and biological drivers of fish assemblages and the ability of NTMRs to mitigate against multiple cumulative stressors. The primary aim was to examine long-term trends in the abundance, diversity and species composition of fish assemblages on inshore coral reefs within NTMRs and fished zones across four regions of the GBRMP: the Palm Islands, Magnetic Island, the Whitsunday Islands and the Keppel Islands. Specifically, we (1) quantify changes in fish density, species richness, species composition and the abundance of trophic groups over 12–14 years, (2) determine whether NTMRs reduced or halted any long-term declines in the summary metrics and (3) investigate the relative importance of 20 potential predictor variables in explaining the temporal variability of fish assemblages using boosted regression tree (BRT) models.

2 | METHODS

2.1 | Study locations, management zoning and reef survey protocols

The four inshore island regions are located 10–30 km from the mainland coast and span 4.5 degrees of latitude, from 18.603S to 23.19S (Figure 1). Inshore reefs of the GBR are high use and high value, and exist in waters with higher sediment, pesticide and nutrient loads than offshore reefs (Fabricius et al., 2008; Hughes, Kerry, & Simpson, 2018; Negri et al., 2011; Negri & Hoogenboom, 2011), particularly in sheltered (predominantly west-oriented) locations (Fabricius et al., 2008). Coastal waters with a terrestrial influence are often associated with reduced fish biomass and species richness, and a range of water quality parameters may affect fishes both directly and indirectly (Letourneur et al., 1998). Benthic communities on these reefs typically consist of a combination of hard corals, soft corals and macroalgae that are adapted to conditions of high turbidity, nutrients and suspended sediment (Ceccarelli

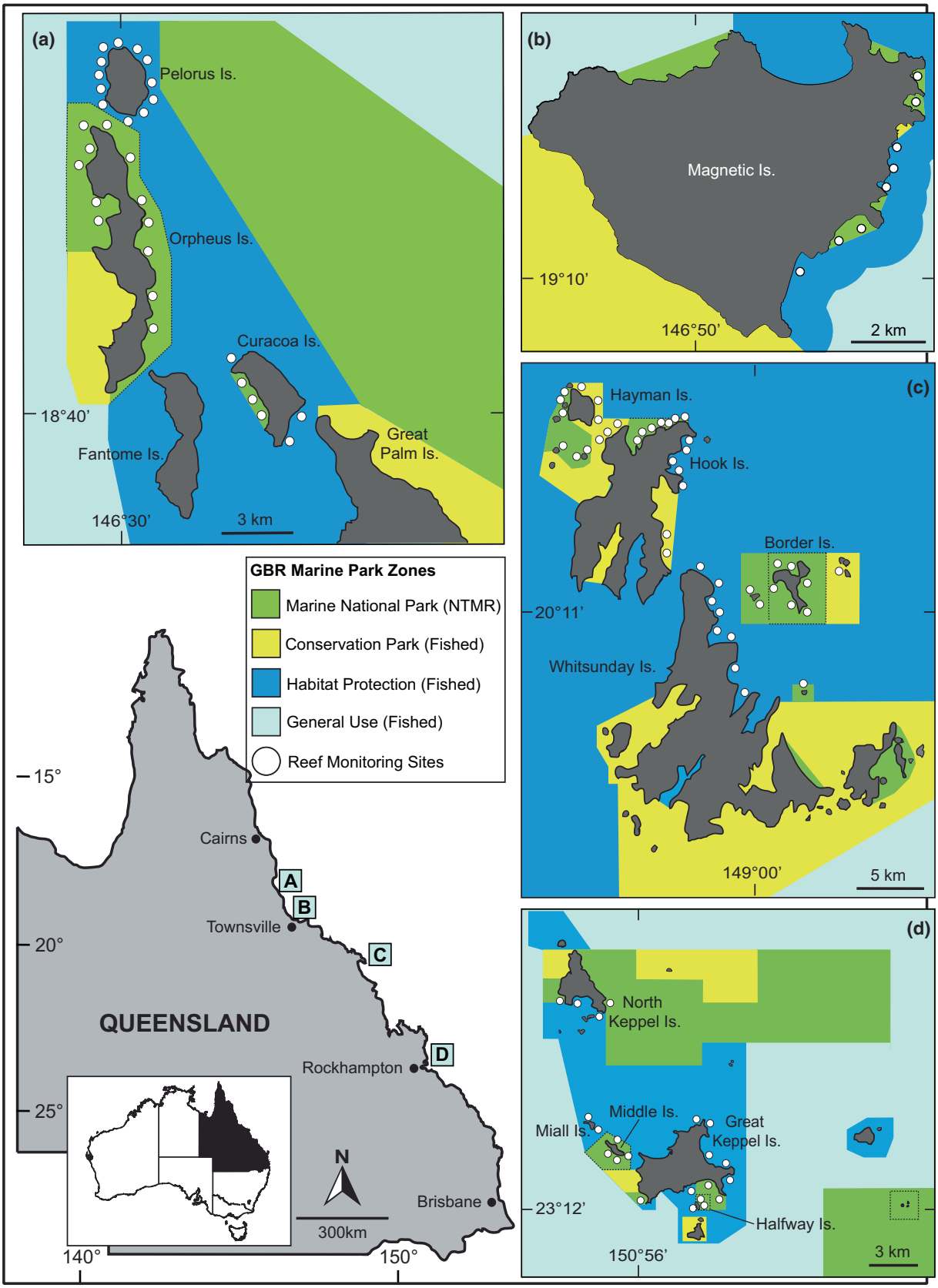

FIGURE 1 Composite map of coral reef monitoring sites in the Palm (a), Magnetic (b), Whitsunday (c) and Keppel (d) Island groups. White dots indicate the approximate position of monitoring sites within each island group. Colour-shaded areas represent the configuration of post-2004 Great Barrier Reef Marine Park (GBRMP) management zones. Light blue, dark blue and yellow zones are open to recreational fishing. Green zones are no-take marine reserves (NTMRs). NTMRs that were established in 1987 are bordered with black dashed lines. All other NTMRs were established in July 2004.

et al., 2020; Flores et al., 2012). Around the islands, reef flats are often exposed to the air on spring low tides, and the reef slopes vary from shallow, gentle inclines on the sheltered (western) sides of the islands to steeper formations and greater depths on the windward (eastern) sides. The reefs are often close to mangroves and seagrass beds, and sediment on inshore reefs has a high terrigenous component, unlike the biogenic carbonate sediments on reefs further offshore. These inshore reefs also tend to occur in shallower waters than those further offshore, with the base of the reef slope rarely exceeding 10 m in depth. Fish assemblages on these inshore reefs are composed of a subset of species that occur on mid-shelf and outer shelf reefs, with a few inshore specialists (Emslie et al., 2017; Emslie et al., 2019; Hoey et al., 2013; Russ, 1984; Williams, 1982).

Standardised underwater visual census protocols were used to survey benthic and fish assemblages at long-term monitoring sites on fringing reefs of the Palm Islands (30 sites), Magnetic Island (8 sites), Whitsunday Islands (42 sites) and Keppel Islands (20 sites) (Figure 1) between four and eight times during the period 2007–2021. The Palm and Whitsunday Islands were surveyed in 2007, 2008, 2009, 2012, 2014, 2016 and 2018, with an additional survey in 2017 at the Whitsunday Islands; the Keppel Islands were surveyed in 2007, 2008, 2009, 2011, 2013, 2015, 2017 and 2021, and Magnetic Island reefs were surveyed just four times due to weather constraints, in 2007, 2012, 2016 and 2019 (Table S1). Within each island group, monitoring sites were evenly distributed among reefs that are open to fishing (General Use, Habitat Protection and Conservation Park Zones) and NTMRs that were closed to fishing in either 1987 or 2004 (Figure 1).

At each of the 100 sites, five 50 m transects were deployed on the reef slope along a single depth contour between 4 and 12 m, depending on the reef slope depth and topography at each site. Fish and benthic surveys were conducted by trained and experienced observers on SCUBA, and all species of diurnal, non-cryptic reef fish were recorded. Large-bodied, mobile fishes were surveyed using a transect width of 6 m (i.e. 300 m^2 survey area) by two divers swimming side by side, with a third diver laying out the transect tape behind them. Small-bodied fishes (family Pomacentridae and small Labridae) were surveyed by one diver during the return swim along each transect, using a transect width of 2 m (i.e. 100 m^2 survey area). The same three observers conducted all fish surveys throughout the monitoring period (DHW, DMC and RDE). All recorded fish species were assigned to trophic groups (Table S2; parrotfish include scrapers and excavators), and counts were converted to density (individuals per 1000 m^2) for all analyses except the generalised linear mixed model, where individuals per 300 m^2 were used to satisfy the requirement of integers for the preferred negative binomial distribution (see below).

Benthic communities were surveyed using a standard point-intercept survey method (Williamson, Ceccarelli, Evans, Jones, & Russ, 2014) by one diver during the return swim along each transect. A single benthic point sample was recorded at every 1 m graduation mark along each transect tape (i.e. 50 samples per transect). Benthic biota and substrata were classified into the following categories: live and dead hard coral with further subdivision into morphological categories (branching, tabular, digitate, solitary, massive, foliose and encrusting), soft coral, sponge, clams (*Tridacna* spp.), other invertebrates (such as ascidians and anemones), macroalgae, coral reef pavement (covered in turf algae), rock, rubble and sand. Additionally, for the live hard coral categories (branching, tabular and digitate), each colony was further classified as either *Acropora* spp. or 'other'. The structural complexity of the reef habitat at each site was estimated using a simple method that gave a rank (1–5) to both the angle of the reef slope and the rugosity of the benthos for each 10-metre section of each transect (see Wilson et al., 2007).

2.2 | Physical predictor variables

2.2.1 | Cyclone wave exposure

We generated quantitative estimates of relative wave exposure at each monitoring site during each relevant cyclone (identified from a dataset described in Puotinen et al. 2016) from 1998 to 2021. We used modelled wave height and direction data from NOAA WAVEWATCH III and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to identify which cyclones generated significant wave heights (Hs = average of top 1/3 of wave heights) of 3.5 m or more at each monitoring site. For each cyclone at each site, the distance to the nearest wave-blocking obstacle was measured every 7.5 degrees around each site (fetch). These measures were weighted by the relative frequency at which cyclone-generated waves approached the site and their average magnitude. These distances were then summed and normalised to create a dimensionless index of relative cyclone wave exposure, as per previous studies (e.g., Gilmour et al. 2022; Table 1).

2.2.2 | Turbidity exposure

Daily Moderate Resolution Imaging Spectroradiometer (MODIS) Level-0 data were acquired from the NASA Ocean Colour website (https://oceancolour.gsfc.nasa.gov) and converted into RGB colour images with a spatial resolution of 500 × 500 m using the SeaWiFS Data Analysis System (SeaDAS; Baith et al., 2001). The images were then (i) spectrally enhanced to transform them from RGB to the Hue-Saturation-Intensity (HSI) colour system and (ii) classified into three distinct water colour categories corresponding to the three optical water types (primary, secondary and tertiary) commonly found in the GBR during the austral wet season (Devlin et al., 2015; Petus et al., 2014; Waterhouse et al., 2018; Wenger et al., 2016). For full detail on the water quality classification, see Appendix S1.

We used the primary water type characterisation to quantify the frequency of exposure of the monitoring sites to highly turbid water from flood plumes and subsequent sediment re-suspension during the 2003–2017 Queensland summer wet seasons

TABLE 1 Predictor variables tested with boosted regression trees, divided into physical forces acting directly on the fish community, habitat variables, prey density and a management variable (zoning). Units of measurement are provided in brackets for each driver.

Type	Driver	Justification
Physical	Cyclone exposure (index)	Different species show different susceptibilities to storms and cyclones (Gerlach et al., 2021)
	Exposure to primary flood-water (weeks)	Strong fluctuations in salinity and turbidity can affect reef fish communities (Johansen & Jones, 2013)
	Kd490 (m)	Changes in turbidity affect abundance, composition and behaviour of reef fishes (Johansen & Jones, 2013)
	Chlorophyll-*a* (mg L^{-1})	Nutrient loads affect the abundance and composition of reef fish assemblages (Sartori et al., 2021)
	Degree heating weeks (°C-weeks)	Thermal stress has lethal and sublethal effects on fishes (Stuart-Smith et al., 2018)
	SST mean (°C)	Reef fishes respond to temperature (Lloyd et al., 2012)
	SST anomaly (°C)	Thermal stress has lethal and sublethal effects on fishes (Pearce & Feng, 2013)
Habitat	Live hard coral (% cover)	Loss of live coral means a loss of food, shelter and recruitment habitat (Russ et al., 2021)
	Soft coral (% cover)	Loss of soft coral means a loss of food and shelter (Epstein & Kingsford, 2019)
	Turf (% cover)	Turf is the preferred food source for several groups of reef fish species (Tootell & Steele, 2016)
	Macroalgae (% cover)	Macroalgae can be food and recruitment habitat for some species, but many reef fishes avoid areas of macroalgal dominance (McClure et al., 2019)
	Unconsolidated substratum (% cover)	Has low structural complexity, but hosts specific types of fishes (Wolfe et al., 2021)
	Coral morphological diversity (index)	Is a measure of the complexity the three-dimensional structure of the habitat Higher habitat complexity tends to lead to higher abundance and species richness (Graham & Nash, 2013)
	Benthic richness (index)	Is a measure of the complexity the three-dimensional structure of the habitat, and the diversity of food sources. Higher habitat complexity tends to lead to higher abundance and species richness (Graham & Nash, 2013)
	Rugosity (score)	Is a measure of the complexity the three-dimensional structure of the habitat. Higher habitat complexity tends to lead to higher abundance and species richness (Graham & Nash, 2013)
	Slope (score)	Is a measure of the steepness of the reef slope, which can influence the species composition of reef fishes (Graham & Nash, 2013)
	Structural complexity index (index)	Is a measure of the complexity the three-dimensional structure of the habitat. Higher habitat complexity tends to lead to higher abundance and species richness (Graham & Nash, 2013)
Other	Prey density (individuals 1000 m^{-2})	Higher prey density means more food for carnivores and piscivores (Hixon, 1991)
	Prey biomass (kg 1000 m^{-2})	Higher prey biomass means more food for carnivores and piscivores (Hixon, 1991)
	Zoning (NTMR status: Fished, NTMR)	Fishery target species are usually larger and more abundant in NTMR zones (Emslie et al., 2015)

Note: Prey density and biomass were included in the models for carnivores and piscivores only.

(December–April inclusive). The primary water type represents high turbidity (Devlin et al., 2015), and high values of coloured dissolved organic matter (CDOM) and total suspended sediment (TSS) (Devlin et al., 2013). TSS and Secchi disc depth (SDD) in the primary water type are typically around 18.3 ± 45.7 mg L-1 and 1.8 ± 1.8 m (mean ± 1SD), respectively (Waterhouse et al., 2021). The primary water type is often associated with low salinity from flood plumes, but not always, as high turbidity can also reflect re-suspended sediment from wind and tides (Devlin et al., 2012). We created 22 weekly composites of daily images from 1 December to 30 April per wet season, to minimise the amount of area without data per image due to masking of clouds and sun glint (Alvarez-Romero et al., 2013). We assigned each weekly composite a presence/absence (0/1) value of primary water type in each pixel (500 × 500 m resolution; Table 1).

2.2.3 | Water quality

Two measures of water quality were used: remotely sensed Chlorophyll-a, which provides an estimate of phytoplankton biomass and can act as a proxy for seawater nutrient concentrations (Otero & Carbery, 2005), and Diffuse Kd490 (the Diffuse Attenuation Coefficient at 490 nm), which provides an estimate of turbidity (Lee et al., 2005). Chlorophyll-a (Hu et al., 2012) and Kd490 composite monthly 4 km data, collected using a

MODIS satellite, from 2003 to 2017 were downloaded from the ERDDAP website. (Chlorophyll-a—https://coastwatch.pfeg.noaa.gov/erddap/griddap/erdMH1chlamday; Kd490—https://coastwatch.pfeg.noaa.gov/erddap/griddap/erdMH1kd490mday). In situ measurements of these variables are preferred as there is increased uncertainty in turbid waters, however in their absence, remotely sensed measurements can and have been used in a number of other studies (Moustaka et al., 2018; Olsen et al., 2018; Zinke et al., 2018) (Table 1). The Whitsunday Islands data for both Chlorophyll-a and Kd490 were anomalous, so they were excluded from the Whitsundays BRT analyses (see below).

2.2.4 | Degree heating weeks

Degree heating week (DHW) values represent the accumulated thermal stress over the previous 12 weeks at a given pixel. DHW is calculated as the number of degrees above the coral bleaching threshold multiplied by the number of weeks that the elevated temperature persists (Skirving et al., 2020). Coral bleaching is likely at 4 DHW, and this is routinely used to estimate thermal stress on coral reefs (Hajime, 2017). Daily 5 km data from 1998 to 2016 were provided by NOAA Coral Reef Watch (2018). The maximum DHW reported between sequential surveys was used for each year; however, if the period between surveys exceeded 1 year, the maximum DHW within the two previous years was used in the following year of the study (Table 1).

2.2.5 | Mean sea surface temperature and SST anomaly

Annual average SST and SST anomalies were calculated from multi-scale, ultra-high resolution (MUR), SST and sea surface temperature anomaly (SSTA) data (Table 1). Monthly 1 km data from 2002 to 2017 were downloaded from the NOAA ERDDAP website (https://coastwatch.pfeg.noaa.gov/erddap/griddap/jplMURSST41mday.html and https://coastwatch.pfeg.noaa.gov/erddap/griddap/jplMURSST41anommday.html).

2.3 | Habitat-based predictor variables

The 11 habitat-based predictor variables included per cent cover of live hard coral, soft coral, algal turf, macroalgae and unconsolidated substratum (generally sand or rubble), two measures of benthic diversity (benthic richness: the sum of all broad benthic categories, and hard coral morphological diversity: the sum of all hard coral morphologies), three measures of overall complexity of the habitat (slope, rugosity and a combined structural complexity index) and prey density (specifically to account for variability in carnivores and piscivores) (Table 1).

2.4 | Data analysis

The temporal dynamics of total fish density and species richness were tested for each island group using a generalised linear mixed model with the glmmTMB package in R (Brooks et al., 2017). Pairwise comparisons were made between years and between NTMR and fished zones within each year. The analysis was repeated on the total density and species richness of reef fish, excluding the numerically dominant and species-rich Pomacentridae (damselfishes). This family has the potential to dominate temporal changes of the fish assemblage and to mask estimates of NTMR effects on inshore reefs, since Pomacentridae are not fished (Williamson, Ceccarelli, Evans, Jones, & Russ, 2014). Consistent spatial differences in fish assemblage structure among island groups and among locations within island groups during the monitoring period were explored using non-metric multidimensional scaling (MDS), using fish densities averaged across all sites for each year-zone combination at each island group. The contributions of individual species to the dissimilarities between years and NTR groups were tested with ANOSIM and SIMPER. The analyses were based on the Bray–Curtis similarity of fourth-root transformed density data with Primer-e Version 7.

Temporal trends in total fish density and hard coral cover were also explored graphically, using *ggplot2*. Third-order polynomials were fitted to fish density and hard coral cover to emphasise trends over time at each island group and zone, in particular to highlight where major changes to hard coral cover were associated with major changes in fish density.

Drivers of fish density and species richness were explored using gradient BRT models (Elith et al., 2008; Hastie et al., 2011). A total of 10,000 trees were fit using a binomial distribution (modified from a Bernoulli) to an interaction depth of 5, with a bag fraction of 0.5 and a shrinkage rate of 0.001. All the trees apply out of bag and cross-validation to minimise overfitting. The optimum number of trees to retain was determined by cross-validation from a total of 10-fold. All continuous covariates were centred, and monotonic forms were imposed when simple scatterplots suggested monotonic forms were appropriate, to increase the stability of the outcomes. All BRTs were fitted using the gbm package (Ridgeway, 2017) within the R statistical and graphical environment (R Core Team, 2024). Variable importance was calculated as the frequency of tree splits involving each covariate weighted by the associated square improvement in the model-averaged over all trees and scaled out of 100 such that larger values signify stronger influence. Variable importance values that exceed 1/p (where p is the number of covariates included in the model), were considered substantial. Missing data (e.g. where the timescales differ between response and predictor variables) were handled with surrogate splits (Elith et al., 2008).

The partial effects of each substantially important covariate were estimated by back-fitting a vector of covariate levels (1000 evenly spaced values) against the BRT model. For tree splits that do not involve the focal covariate, both branches are traversed in

their entirety and averaged together to form a partial prediction. For each covariate, the covariate value that corresponded to the maximum partial effect was used as an estimate of the value associated with optimum (maximum) cover. A *quasi-*R^2 for each covariate was calculated as the simple square of correlation between the observed and partial predicted response. The partial effects, optimum and *quasi-*R^2 values were aggregated over the 10 cross-validation folds so as to yield mean trends along with 95% confidence intervals.

The predictor variables were separated into 7 physical drivers, 11 habitat-based drivers, 2 measures of prey abundance and 1 management driver (NTMR status) that may affect fish density, species richness or species composition (Table 1). The predictor variables identified by the BRT models to be most influential for each fish metric were assigned to physical or habitat drivers and the proportion of each type of driver was calculated for fish density, species richness and the abundance of each fish trophic group. To test the effects of different drivers on reef fish species composition, the BRT models were run on the eigenvalues of PC1 of a principal components analysis for the individual island groups. When running the full analyses, the substantially influential predictors for any single analysis are identified. These predictors are then expressed as their temporal components by centring them against their respective temporal means for each location. The analyses are then repeated using just the important temporal versions of the influential predictors. This second analysis was used to identify which predictors should feature in temporally focussed analyses, as opposed to a spatial focus, and the analysis repeated with those predictors. As with the GLMM analysis, BRT analyses were repeated for total reef fish density, species richness and species composition (PC1) excluding the Pomacentridae (damselfishes), to explore the effects of drivers on the fish community, without the potentially overwhelming effects of this abundant and species-rich family. Furthermore, the fish assemblage was divided into trophic groups, and the BRT models repeated for each individual trophic group. Data and code are available through the Australian Institute of Marine Science Data Repository (AIMS, 2024).

3 | RESULTS

3.1 | Temporal dynamics in fish density, species richness and composition

Acute environmental disturbances led to several periods of decline and subsequent recovery in fish density and species richness that were unique to each island group, but recovery periods were insufficient to prevent an overall decline in both density and species richness over time in all regions (Figure 2, Table 2). Declines in density of between 39% and 72% were recorded on fished reefs, while declines of 33%–60% were recorded on NTMR reefs. Species richness also declined by up to 75% on fished reefs, and up to 63% on NTMR reefs. Despite similar temporal trajectories in total density and species richness without the Pomacentridae, the declines were not as pronounced (Figure S1, Table S3).

Each major decline followed an acute disturbance, especially cyclones and floods, and to a lesser extent, coral bleaching events. Major declines in fish density and species richness were recorded on reefs at the Palm Islands following Cyclone Yasi in 2011 (Figure 2a,b). There was some recovery in both fish density and species richness between 2012 and 2014 in the Palm Islands; however, there was a further decline in density between 2014 and 2018 following a flood plume in 2014 and coral bleaching in 2016 and 2017, while species richness declined between 2014 and 2016, and then recovered between 2016 and 2018 (Figure 2a,b). There were no significant differences in fish density between fished and NTMR reefs in the Palm Islands throughout the monitoring period, but species richness was significantly lower on NTMR reefs both before and after the disturbance events (Figure 2b). The analysis without the Pomacentridae resulted in lower density and species richness in the Palm Island NTMRs that were significant in several years (Figure S1a,b).

On Magnetic Island, there was no significant change in fish density and species richness between 2012 (after Cyclone Yasi, Figure S2.1) and 2019 in fished zones, but a significant increase in both occurred at NTMR reefs (Figure 2c,d). This pattern was not significant when the Pomacentridae were removed (Figure S1c,d). Overall, there were no differences in fish density and species richness detected between fished and NTMR reefs at Magnetic Island.

In the Whitsunday Islands, total fish density declined between 2009 and 2014, with a small recovery in 2016 (Figure S2.1), followed by a precipitous decline after Cyclone Debbie in 2017 (Figure 2e; Figure S2.1). Cyclone Ului did not appear to affect species richness, and Cyclone Debbie had a much smaller effect on fish species richness than on fish density (Figure 2f). There were no significant differences in fish density and species richness between fished and NTMR reefs (Figure 2e,f), with or without the Pomacentridae (Figure S1e,f).

Reefs in the Keppel Islands experienced a dramatic and significant loss of fish density and species richness following major flood plumes in 2011 and 2013 (Figures 2g, h, S2.2, S2.3). Fish density declined to almost an order of magnitude lower in 2013 compared with 2007–2009, and although it increased between 2013 and 2017, it did not reach the pre-flood levels of 2007–2009 (Figure 2g). Species richness in 2013 was half that in 2007–2009, remained low in 2015, increased between 2015 and 2017, and then declined in 2021 after successive bleaching events in 2017 and 2020 (Figure 2h; Figure S2.5–S2.7). Without the Pomacentridae, fish density and species richness recovered more rapidly in the later survey years (Figure S1g,h).

Species composition shifted over time at all four island groups and, in all cases, was different at the last survey period compared with the beginning of the monitoring programme (Figure 3). Species composition differed between fished and NTMR reefs at the Palm (Figure 3a), Keppel (Figure 3c) and Whitsunday Islands (Figure 3d), but the changes in composition over time occurred in parallel in the two zones. In the Palm and Whitsunday Islands, the

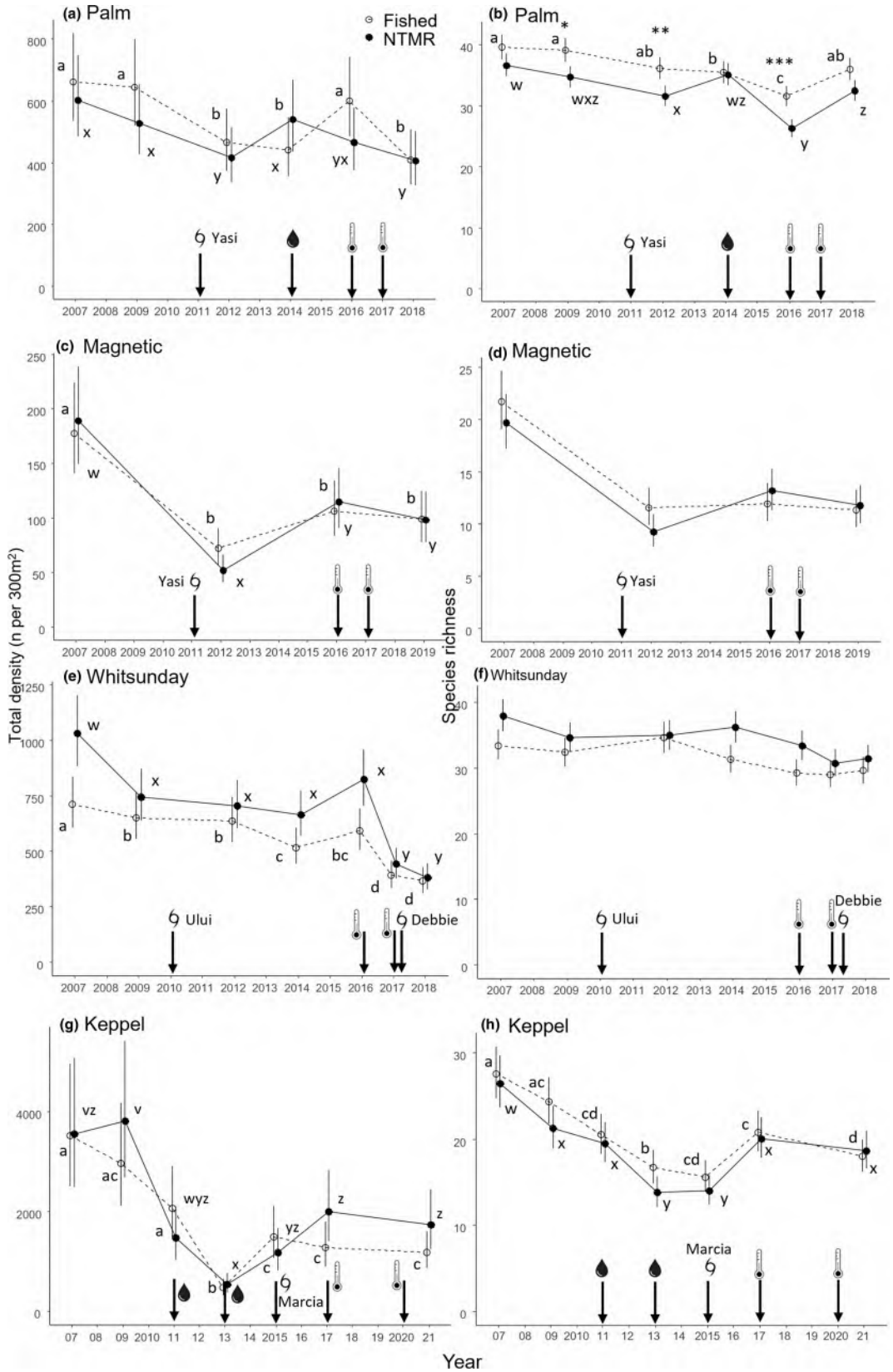

FIGURE 2 Temporal trends in the density (individuals 300 m^{-2}, a, c, e, g) and species richness (number of species per transect, b, d, f, h) of inshore reef fishes in the Palm (a, b), Magnetic (c, d), Whitsunday (e, f) and Keppel Islands (g, h). Arrows show the years of major disturbance events: spinning wheel: cyclones (named); thermometer: bleaching event; and water drop: flood. Open circles are fished zones and closed circles are no-take marine reserves (NTMRs). Letters mark significant differences among years (years that do not differ share the same letters) for each zone, and asterisks mark significant differences between fished and NTMR zones. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. Error bars are standard errors; note the differences in scale among the *y*-axes in each panel.

TABLE 2 Results of generalised linear mixed models comparing fish density and species richness across years and zones in each island group.

	Estimate	Std. Error	*z* Value	Pr (>|z|)	Estimate	Std. Error	*z* Value	Pr (>|z|)
	Palm Islands–density				Palm Islands–species richness			
(Intercept)	6.50	0.11	59.39	**<0.001**	3.72	0.03	145.20	**<0.001**
2009	−0.03	0.06	−0.41	0.681	−0.01	0.03	−0.31	0.760
2012	−0.35	0.06	−5.61	**<0.001**	−0.08	0.03	−3.03	**0.002**
2014	−0.40	0.06	−6.39	**<0.001**	−0.10	0.03	−3.90	**<0.001**
2016	−0.10	0.06	−1.55	0.121	−0.22	0.03	−7.99	**<0.001**
2018	−0.48	0.06	−7.65	**<0.001**	−0.08	0.03	−3.05	**0.002**
Zoning	−0.09	0.15	−0.60	0.547	−0.09	0.04	−2.40	**0.016**
2009 × Zoning	−0.11	0.09	−1.19	0.235	−0.04	0.04	−1.11	0.269
2012 × Zoning	−0.02	0.09	−0.18	0.861	−0.06	0.04	−1.60	0.109
2014 × Zoning	0.29	0.09	3.29	**0.001**	0.07	0.04	1.82	0.069
2016 × Zoning	−0.16	0.09	−1.79	0.073	−0.10	0.04	−2.50	**0.012**
2018 × Zoning	0.09	0.09	0.98	0.327	−0.02	0.04	−0.64	0.523
	Magnetic Island–density				Magnetic Island–species richness			
(Intercept)	5.18	0.12	43.67	**<0.001**	3.10	0.07	45.87	**<0.001**
2012	−0.90	0.15	−6.19	**<0.001**	−0.65	0.09	−6.95	**<0.001**
2016	−0.51	0.15	−3.55	**<0.001**	−0.61	0.09	−6.60	**<0.001**
2019	−0.59	0.15	−4.05	**<0.001**	−0.66	0.09	−7.07	**<0.001**
Zoning	0.06	0.17	0.36	0.717	−0.11	0.09	−1.15	0.252
2012 × Zoning	−0.38	0.21	−1.83	0.068	−0.09	0.14	−0.70	0.484
2016 × Zoning	0.02	0.21	0.08	0.933	0.21	0.13	1.61	0.107
2019 × Zoning	−0.06	0.21	−0.31	0.754	0.14	0.13	1.05	0.295
	Whitsunday Islands–density				Whitsunday Islands–species richness			
(Intercept)	6.57	0.08	81.18	**<0.001**	3.54	0.04	97.20	**<0.001**
2009	−0.09	0.06	−1.48	0.139	−0.02	0.03	−0.73	0.464
2012	−0.11	0.06	−1.89	0.058	0.06	0.03	2.37	**0.017**
2014	−0.32	0.06	−5.28	**<0.001**	−0.04	0.03	−1.42	0.157
2016	−0.19	0.06	−3.08	**<0.001**	−0.10	0.03	−3.84	**<0.001**
2017	−0.60	0.06	−9.90	**<0.001**	−0.13	0.03	−4.90	**<0.001**
2018	−0.67	0.06	−11.00	**<0.001**	−0.10	0.03	−3.74	**<0.001**
Zoning	0.37	0.11	3.26	**0.001**	0.15	0.05	2.94	**<0.001**
2009 × Zoning	−0.23	0.08	−2.76	**0.006**	−0.07	0.04	−2.03	**0.043**
2012 × Zoning	−0.27	0.08	−3.15	**0.002**	−0.13	0.04	−3.62	**<0.001**
2014 × Zoning	−0.12	0.08	−1.40	0.160	0.02	0.04	0.53	0.597
2016 × Zoning	−0.04	0.08	−0.45	0.651	−0.02	0.04	−0.53	0.598
2017 × Zoning	−0.24	0.08	−2.89	**0.004**	−0.09	0.04	−2.36	**0.018**
2018 × Zoning	−0.32	0.08	−3.80	**<0.001**	−0.09	0.04	−2.47	**0.013**
	Keppel Islands–density				Keppel Islands–species richness			
(Intercept)	8.17	0.17	46.99	**<0.001**	3.35	0.06	58.58	**<0.001**
2009	−0.17	0.17	−1.01	0.312	−0.14	0.05	−3.06	**0.002**
2011	−0.54	0.17	−3.12	**0.002**	−0.32	0.05	−6.78	**<0.001**
2013	−2.02	0.18	−11.5	**<0.001**	−0.51	0.05	−10.50	**<0.001**
2015	−0.86	0.17	−4.99	**<0.001**	−0.57	0.05	−11.46	**<0.001**
2017	−1.02	0.17	−5.96	**<0.001**	−0.27	0.05	−5.90	**<0.001**

TABLE 2 (Continued)

	Estimate	Std. Error	z Value	Pr (>|z|)	Estimate	Std. Error	z Value	Pr (>|z|)
2021	−1.09	0.17	−6.61	**<0.001**	−0.45	0.05	−9.55	**<0.001**
Zoning	0.01	0.25	0.03	**<0.001**	−0.06	0.08	−0.69	0.488
2009 × Zoning	0.24	0.24	0.99	0.321	−0.09	0.07	−1.36	0.175
2011 × Zoning	−0.34	0.25	−1.40	0.163	0.01	0.07	0.22	0.829
2013 × Zoning	0.13	0.25	0.52	0.605	−0.12	0.07	−1.67	0.095
2015 × Zoning	−0.25	0.24	−1.04	0.230	−0.04	0.07	−0.61	0.544
2017 × Zoning	0.44	0.24	1.78	0.074	0.02	0.07	0.24	0.809
2021 × Zoning	0.38	0.24	1.59	0.111	0.11	0.07	1.59	0.112

Note: Significant differences are highlighted in bold. Site and Transect were included as random factors, and a negative binomial distribution was used.

separation between zones was clearly driven by a higher proportion of *Plectropomus maculatus* and *P. leopardus*, the primary fishery target species, in NTMRs (Figure 3a,c). In the Palm Islands, the greatest dissimilarity in species composition occurred between 2016 and all other years, but no one species contributed more than 2.3% to the overall change, suggesting subtle shifts in the abundances of numerous species. There was less separation between zones at Magnetic Island (Figure 3b) and the Keppel Islands (Figure 3d). The largest shift on Magnetic Island occurred in 2012 (after Cyclone Yasi), driven by a decline in the carnivore *Lutjanus fulviflamma*, coral-dependent *Pomacentrus moluccensis*, and small changes in the abundance of omnivorous and planktivorous damselfishes (Figure 3b). Similarly, changes between years in the Whitsunday and Keppel Islands were driven by highly abundant planktivorous damselfish species such as *Chromis nitida* (Figure 3c,d), but individual species contributions were never greater than 3.6% in the Whitsunday Islands and 9% in the Keppel Islands (Appendix S2).

3.2 | Regional differences in temporal drivers

3.2.1 | Potential drivers

Temporal changes in the drivers of fish assemblages were unique to each island group and sometimes varied among management zones (Figure S2.1–S2.19). Changes in cyclone exposure reflected the timing of major cyclones in each region. They reached higher index values in NTMRs in the Palm Islands (Cyclone Yasi, in 2011) and in fished zones in the Whitsunday Islands (Cyclone Ului, in 2010). Highly turbid water was measured in all island groups and zones at the beginning of the study, but kd490 and Chlorophyll-a values reflected this only in the Keppel and Palm Islands, and were higher in NTMRs (Figure S2.2,3,4). In contrast, the temperature-related variables (SST mean, SST anomaly, DHW) increased over the study period (Figures S2.5,6,7).

Over the 12–14 years of the study, the island groups experienced a loss and subsequent recovery of hard coral cover, coral morphological diversity and benthic richness (Ceccarelli et al., 2020). Turf, macroalgae and unconsolidated substratum followed the opposite trajectory to hard coral cover to some degree (Figure S2.8–14). Measures of structural complexity declined in the Keppel Islands, with the most recent estimate half of what it had been at the start of the study (Figure S2.5–7). In the Keppel Islands and on Magnetic Island, the cover of hard and soft corals, benthic diversity and structural complexity metrics were lower in NTMRs. The Whitsunday Islands experienced a relatively stable benthic community until Cyclone Debbie (2017) caused a dramatic loss of hard coral and benthic richness, with a concomitant increase in macroalgal cover (Figure S2.8–S2.19). Prey density and biomass followed the hard coral cover trajectory in the Keppel Islands, and declined at Magnetic Island, in the Palm Islands (with a recent recovery in biomass) and in the Whitsunday Islands (Figure S2.20–2.21).

3.2.2 | Trends in fish density and hard coral cover

Overlaying smoothed trends in live hard coral cover and total fish density shows that the responses to disturbance events occurred in parallel for most combinations of island group and zone (Figure 4). Despite disparate fluctuations in the Palm Islands, both fish and coral showed a downward trend; this decline was steeper in the Whitsunday Islands. On Magnetic Island and in the Keppel Islands, there were signs of recovery for both fish and corals towards the end of the study period (Figure 4).

3.2.3 | Regional drivers of fish assemblages

Across all island groups, the strongest relationships in the temporal dynamics of total fish density were with the cover of unconsolidated substrata, living hard corals, turf and macroalgae, and changes in temperature (mean SST, Figure 5a, Table S4). The strongest positive relationship was with the cover of living hard corals, with fish density rising rapidly to 2500 individuals per 1000 m^2 at 30% coral cover. Relationships with all other influential variables were negative

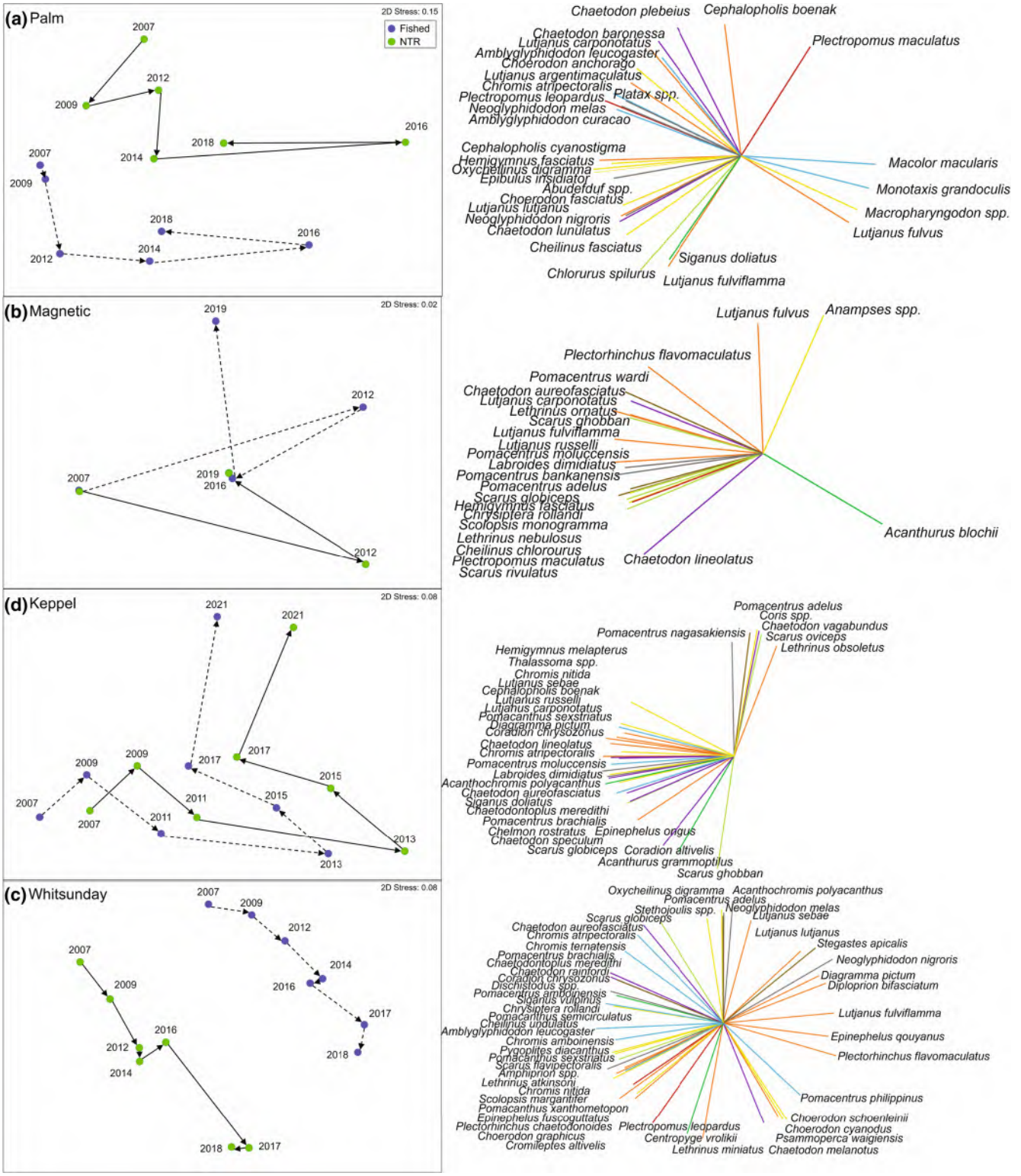

FIGURE 3 Non-metric multidimensional scaling plot (MDS) of temporal trends in fish species composition, performed on the Bray–Curtis dissimilarity matrix of zone-averaged, square-root transformed fish density data for each island group. Blue dots: fished zones and green dots: NTMRs. Vectors are coloured by trophic group: yellow: benthic invertivores; orange: carnivores; purple: corallivores; brown: farmers; dark green: grazers; grey: omnivores; light green: parrotfish; red: piscivores; and blue: planktivores.

(Figure 5a). Without the Pomacentridae, live coral cover was no longer among the most influential predictors (Figure S3a, Table S5). The total density of the remaining fish assemblage declined steeply with increasing mean SST, and had a positive relationship with the cover of turf and unconsolidated substrata (Figure S3a). Changes in fish species richness over time were positively correlated with

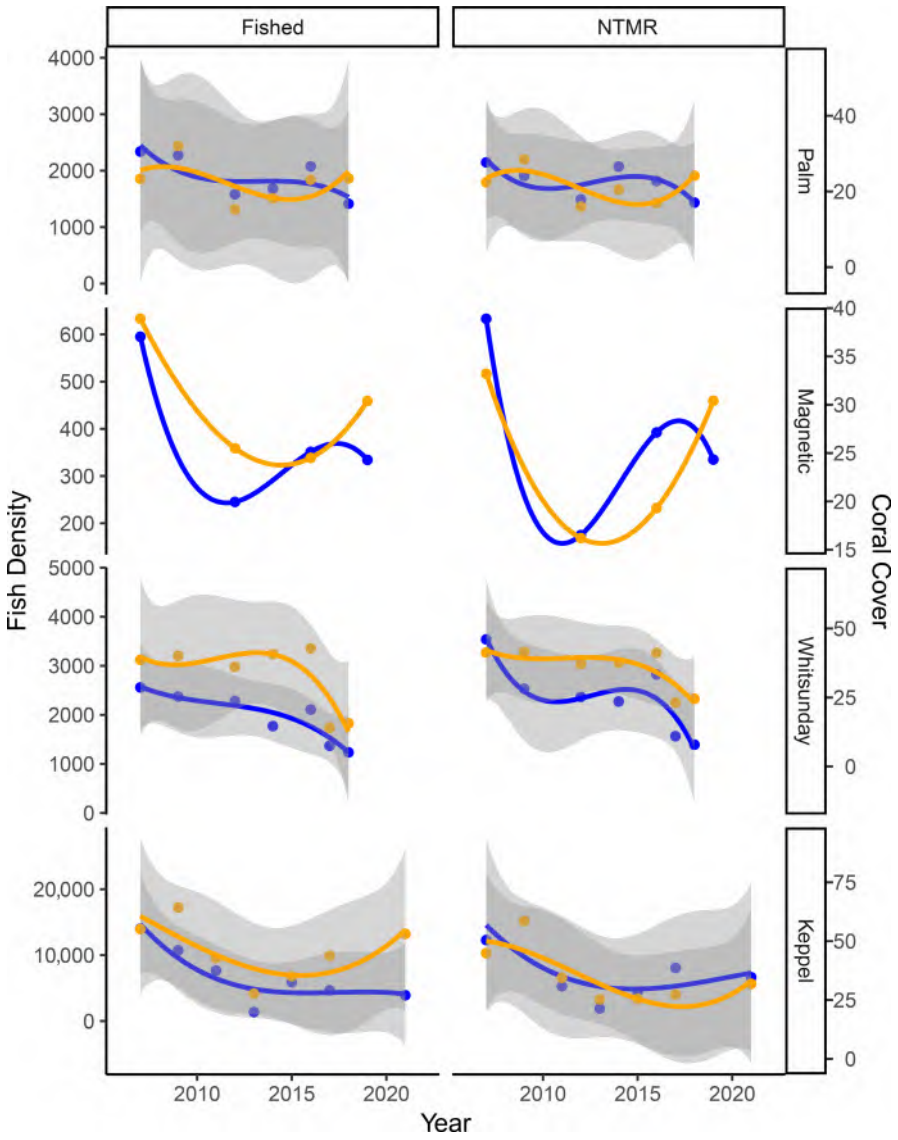

FIGURE 4 Summary trends (2007–2019) of total fish density (blue line) and live hard coral cover (orange line) for each island group and zone. Data points are year-level means across all sites at each island group, trend lines are third-order polynomials, and shading represents 95% confidence intervals. Magnetic Island's small number of sites did not allow the production of confidence intervals.

increases in benthic richness and negatively correlated with increases in mean SST and SST anomaly (Figure 5b). DHW had a weak positive relationship with overall species richness. Excluding the Pomacentridae revealed a positive effect of soft coral cover and mean SST on species richness, and a negative effect of SST anomaly (Figure S3b).

Across all island groups, temporal change in species composition was most strongly correlated with the cover of soft corals ($R^2 = 0.58$; Figure 5c). Soft coral cover above 5% was associated with a profound shift in species composition of reef fish; in the Palm and Whitsunday Islands, soft coral cover reached 30% at times. Mean SST was by far the most important driver of species composition once the Pomacentridae were removed; assemblage structure changed dramatically at approximately 25°C (Figure S3c). Overall, most trophic groups declined, except farmers, grazers, omnivores and parrotfish. However, the relationships between fish metrics and biophysical drivers varied between island groups.

3.3 | Local drivers of temporal dynamics

3.3.1 | Palm Islands

In the Palm Islands, the total density of reef fishes increased with increasing hard coral cover and had a negative relationship with the relative cover of unconsolidated substrata and changes in DHW (Figure 6a). Fish density decreased rapidly once unconsolidated substrata covered 10% or more of the benthos, but DHW was positively correlated at a value of 2.5, after which fish density plateaued (Figure S4.1, Table S4). Removing Pomacentridae from the model resulted in turf and unconsolidated substrata having a stronger, and positive, relationship with total fish density (Figure S5a, Table S5). DHW also had a positive relationship with species richness, together with the cover of soft corals and higher coral morphological diversity values (Figure 6a, Figure S4.2). Mean SST had a negative relationship with species richness, with richness declining rapidly even with small increases in mean SST

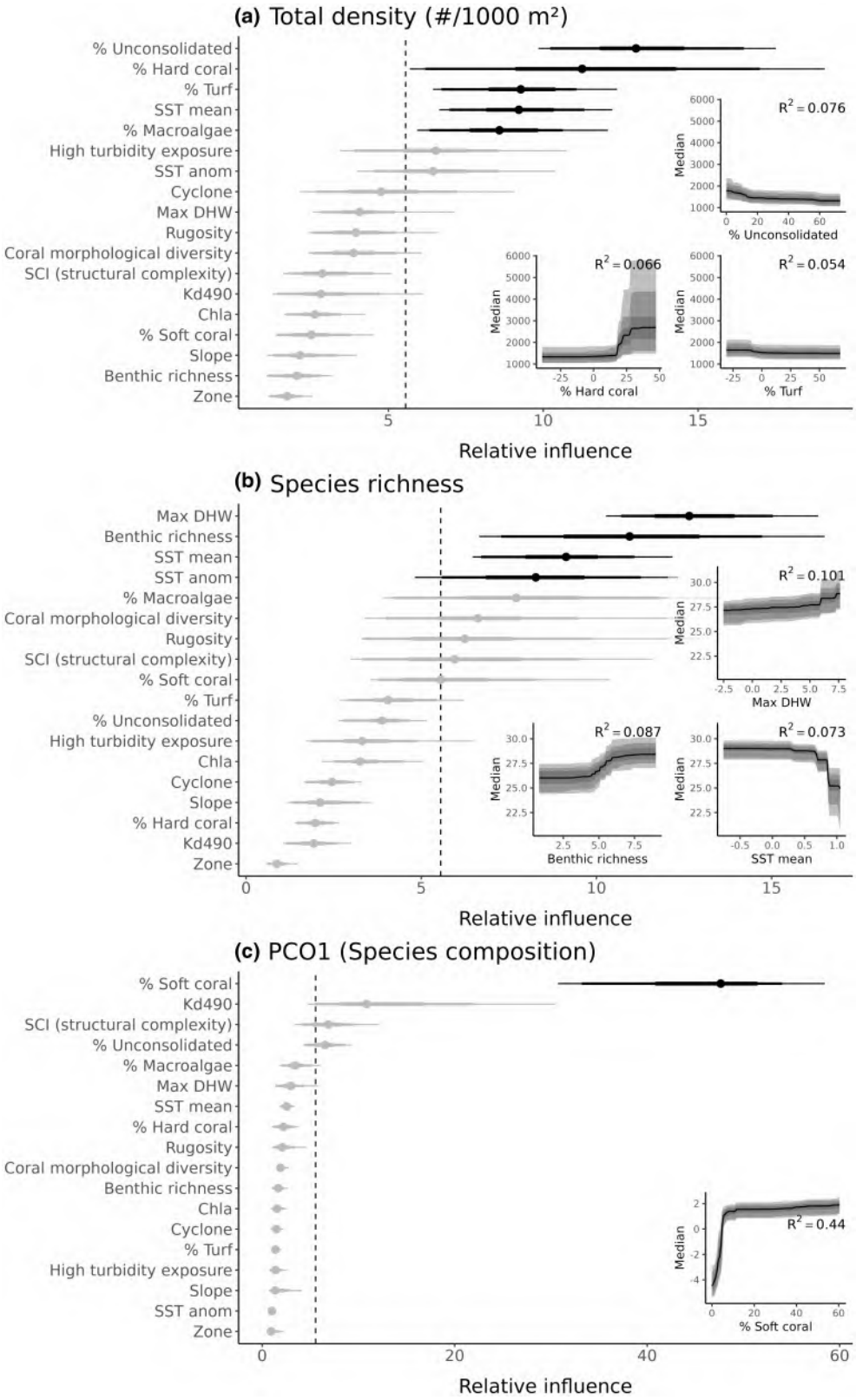

FIGURE 5 Relative importance plot for all predictors of (a) total fish density (individuals 1000 m^{-2}), (b) total fish species richness and (c) fish species composition as defined by the first axis of a principle coordinates analysis (PCO1), and partial plots of the most influential predictors across all island groups. Predictors that performed best (i.e. they were disproportionately represented in trees) are highlighted in bold. Confidence bands represent 95% quantiles on bootstrapped estimates; note the differences in the *y*-axes of the partial plots. The dashed vertical line represents a reference point of relative influence that would be expected if all predictors were equally influential. Values above (to the right of) this reference (black symbols) are therefore considered to exhibit a higher degree of influence than expected by chance.

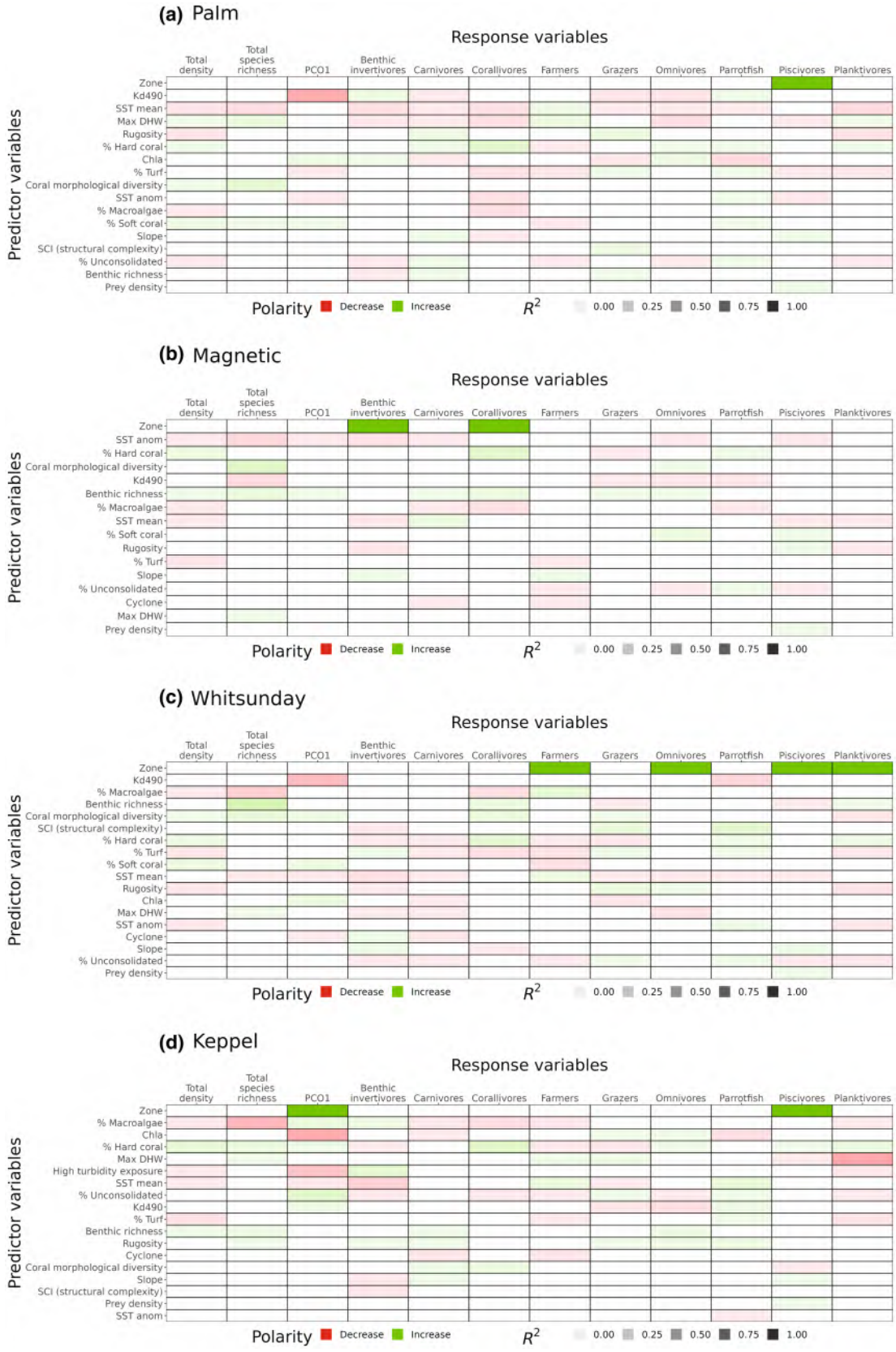

FIGURE 6 Heat map of the level of influence of each predictor variable with fish metrics (total fish density, fish species richness, species composition and density of each trophic group), as expressed by the R^2 value of the relationship, for (a) the Palm Islands, (b) Magnetic Island, (c) the Whitsunday Islands and (d) the Keppel Islands. The quasi-R^2 was calculated as the simple square of the correlation coefficient between the observed and partial predicted response. Warm colours are predictors that had a negative effect on fish metrics, green colours are predictors that had a positive effect on fish metrics. Only predictors that had an effect on at least one response variable are shown.

(Figure S4.2). Removing the Pomacentridae revealed a stronger relationship between species richness and SST anomaly, where there was a stepwise decline in species richness with increasing SST anomaly (Figure S5b). Increased turbidity and SST anomaly were correlated with higher values of PCO1 (Figure 6a), which were associated with a relatively depauperate, post-disturbance composition of fish species in the Palm Islands (Figure 4a; Figure S4.3). This depauperate assemblage was also correlated with higher DHW once Pomacentridae were removed, while higher structural complexity was indicative of a species-rich assemblage (Figure S5c).

All trophic groups except farmers had a negative or no relationship with mean SST, and all groups except farmers had a positive or no relationship with live hard and soft coral cover (Figure 6a, Table S6). Benthic invertivores showed a negative correlation with benthic richness and DHW and a positive correlation with Chlorophyll-a and turbidity (kd490) (Figure S6.1). Carnivores were negatively influenced by DHW (Figure S6.2). Corallivore densities showed neutral or negative relationships with all predictors except hard coral cover, to which they were positively correlated (Figure S6.3). Contrary to expectations, farmers were negatively correlated with soft coral cover and turf cover, and positive associations were found between farmers and mean SST and DHW (Figure S6.4). Grazers responded negatively to increasing turbidity (kd490) and DHW, and positively to increasing turf cover and rugosity (Figure S6.5). Although omnivores increased over time, they responded negatively to turbidity (kd490) (Figure S6.6). Parrotfish densities decreased with increasing Chlorophyll-a and mean SST but had positive or no relationships with all other predictors, including kd490 and hard coral cover (Figure S6.7). Piscivores were the only group that had a strong positive relationship with zoning, and their densities increased with NTMR protection, prey density and slope steepness (Figure S6.8). Planktivores had a negative relationship with turf cover, the cover of unconsolidated substrata and mean SST (Figure S6.9). Planktivores, omnivores and farmers, dominated by small-bodied species of Pomacentridae, nevertheless had different patterns in their associations with biophysical variables. For example, farmers had a negative association with hard coral cover, while planktivores and omnivores had a positive relationship with hard coral cover (Figure 6a). All three groups, however, had a negative relationship with unconsolidated substrata (Figure 6a), but farmers and planktivores appeared to have a threshold at approximately 20% unconsolidated substrata, after which they declined, whereas the threshold for omnivores was between 40% and 60% (Figure S6.6).

3.3.2 | Magnetic Island

At Magnetic Island, temporal changes in total fish density were strongly and positively associated with the cover of live hard corals (Figure 6b). Even small increases in hard coral cover, from 0% to 10%, were associated with steep gains in fish density (Figure S3.4, Table S4). Species richness increased rapidly with increasing benthic richness, but declined dramatically with SST anomaly (Figure S3.5). Similarly, species composition was correlated with the same two drivers as density, but with weak relationships (R^2 of 0.004 and 0.007, respectively, Figure S3.6). Without Pomacentridae, benthic richness was a more important positive driver of total density (Figure S3d, Table S5), and SST anomaly was the most important driver of species composition (Figure 5f).

Among the trophic groups, management zoning on Magnetic Island had a strong positive relationship with the density of benthic invertivores and corallivores (Figure 6b, Figure S4.10–S4.18, Table S6). SST anomaly, turbidity (kd490) and the cover of macroalgae had a neutral or negative effect on all trophic groups, while benthic richness was a positive driver for many trophic groups (Figure 6b). Carnivores, which included several target species of the recreational fishery, responded positively to benthic richness and mean SST, but had a negative relationship with SST anomaly, cyclone exposure and macroalgal cover (Figure S4.11). Farmers also had negative relationships with cyclone exposure and also responded negatively to the cover of turf and unconsolidated substrata, but increased with increasing slope, albeit at very low slope index values (Figure S4.13). There was a positive correlation between corallivores and parrotfish and hard coral cover (Figure S4.12,16). Piscivores were positively correlated with increasing prey density, but not NTMR protection (Figure S4.17). Planktivores were present in low abundance, and negatively associated with mean SST and rugosity.

3.3.3 | Whitsunday Islands

In the Whitsunday Islands, fish density was strongly positively correlated with increasing per cent cover of hard coral, and negatively correlated with increasing turf and macroalgae (Figure 6c; Figure S3.7, Table S4). Species richness increased with coral morphological diversity and declined with mean SST (Figure S3.8). Years with higher SST, higher turbidity and lower Chlorophyll-a also had higher proportions of planktivores and corallivores, while carnivorous species predominated during times of lower temperatures and turbidity and higher Chlorophyll-a (Figures 4d, 6c; Figure S3.9). Removing the Pomacentridae changed these relationships, whereby total density was positively associated with the cover of turf, unconsolidated substrata and soft coral (Figure S5g, Table S5). The relationship between species richness and mean SST became positive, and there was a stronger positive relationship with the cover of unconsolidated substrata, but SST anomaly had a negative effect on Compared species richness (Figure S5h). Macroalgae had a much greater influence on species composition with Pomacentridae removed, as well as mean SST and SST anomaly (Figure S5i).

NTMR protection was positively correlated with piscivores, but also with the Pomacentridae-dominated farmers, omnivores and planktivores, affecting more trophic groups than in the other three regions (Figure 6c; Figure S4.19–S4.27, Table S6). Benthic invertivores showed a negative correlation with mean SST and a positive correlation with cyclone exposure (Figure S4.19). Carnivores were

negatively correlated with hard coral cover, turf cover, cover of unconsolidated substrata and mean SST; there was no discernible effect of zoning on carnivores (Figure S4.20). Corallivores were positively correlated with live hard coral cover and benthic richness, and negatively correlated with slope steepness, macroalgal cover and turf cover (Figure S4.21). Farmers had a negative relationship with hard coral cover and turf cover, and positive associations were found between farmers and mean SST (Figure S4.22). Grazers responded negatively to increasing benthic richness and mean SST, and positively to increasing coral morphological diversity (Figure S4.23). Although omnivores increased over time, they responded negatively to SST anomaly and DHW (Figure S4.24). Parrotfish densities increased with increasing unconsolidated substrata, and declined with turbidity (kd490), mean SST and SST anomaly (Figure S4.25). However, turf cover had a positive relationship with parrotfish density (Figure S4.25). Piscivores declined with increasing benthic richness and were positively correlated with cyclone exposure (Figure S4.26). Planktivores responded positively to increases in hard coral cover and benthic richness, but had a negative association with coral morphological diversity, the cover of algal turf and unconsolidated substrata, rugosity and SST anomaly (Figure S4.27).

3.3.4 | Keppel Islands

Hard coral cover had a strong positive relationship with the temporal dynamics in fish density in the Keppel Islands, while turf cover and mean SST had a negative effect (Figure 6d; Figure S3.10, Table S4). Fish species richness had a positive association with DHW (Figure S3.11). Changes in species composition over time were governed by zoning, macroalgal cover, turbidity and mean SST, with periods in which the fish assemblage was relatively depauperate (higher values of PCO1) associated with periods of higher macroalgal cover and turbidity, and lower temperatures (Figure 4c, Figure 3.12). Without the Pomacentridae, the cover of unconsolidated substrata had a positive effect on total density (Figure S5, Table S5), species richness increased with rugosity and meant SST (Figure S5), and rugosity was the most influential driver of species composition (Figure S5).

The relationships between predictor variables and trophic groups were mixed, except for benthic richness and rugosity, which had only positive relationships with fish groups (Figure 5d, Figure S4.28–S4.36, Table S6). Benthic invertivores were associated with lower hard coral cover, but had (weak) positive relationships with cyclone exposure and slope (Figure 6a; Figure S4.28). Carnivores were most strongly correlated with rugosity, with which they had a positive relationship, and also showed a tendency to increase with increasing benthic richness, coral morphological diversity and slope, but to decline with increasing Chlorophyll-a, cover of macroalgae and cyclone exposure (Figure 6a; Figure S4.29). Coral morphological diversity had the strongest (positive) effect on corallivores, more so than hard coral cover, and even small increases in macroalgal cover had a negative effect on corallivore densities (Figure 6a; Figure S4.30). Cyclones and higher turf cover led to declines in farmers, but DHW had a positive relationship with farmer density (Figure S4.31). Grazers appeared to benefit from higher DHW and rugosity but declined with increasing hard coral cover and SST (Figure S4.32). Omnivores also preferred higher hard coral cover and rugosity but declined with increasing unconsolidated substratum (Figure S4.33). Parrotfish preferred higher turbidity (Figure S4.34), piscivores responded positively to NTMR protection, higher prey density and hard coral cover (Figure S4.35), and planktivores increased with increasing hard coral and declined with higher cover of turf and macroalgae (Figure S4.36). Similarly to the Palm Islands, hard coral cover affected farmers negatively, but omnivores and planktivores positively, while unconsolidated substrata were negatively correlated with all three Pomacentridae-dominated groups (Figure 6a).

4 | DISCUSSION

Coral reef fish assemblages on inshore GBR fringing reefs showed strong responses to regionally specific disturbance events, with periodic declines over 12–14 years. While increases were observed during disturbance-free years, an overall decline in density (by 33%–72%) and species richness (by 41%–75%) was seen over the study period, driven to a large extent by small-bodied fishes of the family Pomacentridae. Similar declines were observed on both NTMRs and fished reefs, suggesting that inshore NTMR networks provided only a marginal benefit against environmental disturbance events (but see Williamson, Ceccarelli, Evans, Jones, & Russ, 2014) beyond fishery target species. Key drivers of temporal change in fish assemblages most common across regions and trophic groups were living hard coral cover, temperature-related variables (mean SST, DHW), turbidity and the cover of algal turf. Therefore, while changes in fish assemblages over time were influenced by changes in their habitat, the BRT models indicate that they were also affected directly by physical variables such as temperature and water quality. Predicted increases in ocean temperatures (IPCC, 2021) and expected declines in water quality with increasing flooding caused by extreme weather events (Devlin et al., 2012) raise concerns for these inshore reefs and their fish assemblages. These assemblages typically consist of lower numbers of species at lower densities than those further offshore, making the inshore assemblages potentially more vulnerable to disturbances (McClure et al., 2019).

4.1 | Temporal dynamics and disturbance events

Environmental disturbance events over the last 12–14 years were usually followed by a decline in density and species richness of coral reef fish, as well as shifts in species composition. None of these metrics returned to their pre-disturbance state within the study period. Additionally, the phases of recovery were not long enough to

prevent an overall decline in fish total density and species richness over the monitoring period. The smallest overall decline occurred at the Palm Islands, where total density and species richness reached similar levels to the early years by the end of the study. The largest periodic declines occurred in the aftermath of cyclones at the Palm and Whitsunday Islands, and Magnetic Island, and severe floods causing mass coral mortality at the southernmost island location, the Keppel Islands. While cyclones and floods produced the greatest response in fish abundance and richness, our analyses indicate that it was not the direct effect of these events that were the most important drivers of change in fish communities, but rather the indirect effects of habitat loss in the form of hard coral declines. This was further corroborated by the close relationship between the fluctuation in coral cover and total fish density, which was driven by the numerically dominant Pomacentridae and therefore the bulk of the planktivorous, omnivorous and farmer trophic groups.

Compared with storms and floods, fish assemblages responded less to bleaching events that reduced the cover of living corals, likely due to the remaining skeletons continuing to provide structure, at least in the short term (Gerlach et al., 2021; Pratchett et al., 2011). Generally, the physical destruction of the complex structure of reefs has greater consequences for fish than coral mortality events that leave the structure intact (Emslie et al., 2014; Gerlach et al., 2021); structural complexity decline can cause losses in abundance of up to 75% and make local extirpations likely (Emslie et al., 2014). In addition, although many species will have been adversely affected by coral mortality, for example corallivores and some of the planktivores that rely on live corals for shelter, other trophic groups such as grazers increased in abundance (Russ, Questel, et al., 2015), offsetting losses and thereby reducing the decline in total density. In this way, 'winners and losers' alternate in cycles. Fish density and species richness recovered during concurrent periods of coral recovery (usually lasting at least 5 years) documented in Ceccarelli et al. (2020), indicating a period that was conducive to general reef recovery, and that both coral and fish assemblages on the GBR retain the capacity to recover during disturbance-free periods (Emslie et al., 2024; Plass-Johnson et al., 2018).

The species composition of fish assemblages shifted over the duration of the study at all four island groups, with the largest changes occurring after disturbance events. Importantly, species composition at all four island groups did not 'bounce back' to pre-disturbance configurations, remaining different from the 2007 assemblage at the end of the monitoring period. The Palm Islands demonstrated the greatest propensity to return towards the composition of the early years, possibly due to its wide range of different habitat types, exposure levels and high connectivity between them. Magnetic Island and the Keppel Islands had phases where the post-disturbance assemblage was generally depauperate, with losses across the entire fish assemblage, as is common when hard coral loss exceeds 50% (Pratchett et al., 2011). Magnetic Island is unique among the locations in this study in that it is a solitary island, rather than an interconnected group of islands, with a smaller area of available coral reef habitat than the other island groups. Turbidity is typically higher (Fabricius et al., 2005), and anthropogenic pressure through visitation and recreational fishing is high due to the close proximity of Magnetic Island to the mainland (Ceccarelli et al., 2023). Much of the shallow coral reef habitat around Magnetic Island is seasonally overgrown with brown macroalgae (e.g. *Sargassum* spp.), and habitat complexity of the benthos is lower than at other island groups (Ceccarelli et al., 2020). The trajectory of change in the Whitsunday Island group followed a near-linear pathway. Generally, assemblages shifted towards omnivorous, carnivorous and grazing species, while coral-dependent species declined. Such mixed responses, both taxonomically and geographically, appear typical in studies of disturbance impacts to reef fish assemblages (Fukunaga et al., 2022; Wilson et al., 2006). The changes to fish assemblages due to disturbance measured here are likely to differ from the changes in fish assemblages on reefs further offshore. McClure et al. (2019) suggested that inshore reefs are the most vulnerable to loss of species, traits and functional roles after disturbance events, because of their lower species richness and exposure to chronic environmental stresses near the coast.

Other studies also documented 'winners and losers' after cumulative disturbances, and in many cases, summary metrics such as total density and species richness masked changes in the proportional abundance of different species (Cheal et al., 2008, Wilson et al. 2009, Lamy et al., 2015, Ceccarelli et al., 2016, Triki & Bshary, 2019). As reefs degrade under chronic anthropogenic pressures, there is concern that the highly diverse coral reef fish assemblages of the past will become dominated by generalists, reflecting a decline in the diversity of benthic communities and habitats (Stuart-Smith, 2021). In other studies, species reshuffling occurred, but trophic characteristics and traits, and therefore functional redundancy, were retained despite repeated and chronic stress, maintaining the processes, if not the exact species composition, of coastal reefs (Cook et al., 2022). It is therefore concerning that the reefs in our study did display such significant declines in coarse summary metrics such as total density and species richness.

4.2 | Drivers

Disturbance-induced coral loss, regime shifts to macroalgal dominance and the decline in overall structural complexity are repeatedly correlated with declines in fish density, biomass and diversity (Graham & Nash, 2013; Pratchett et al., 2008; Wilson et al., 2006). In contrast, certain groups of fishes have been shown to increase after coral mortality, such as parrotfish that can benefit from the sudden increase in carbonate substratum covered in turf and blue-green algae (Clements et al., 2017, Nicholson & Clements, 2023, Russ et al. 2021). Here, we show that benthic habitat was certainly a driver for temporal changes in coral reef fish assemblages on inshore reefs of the GBR, but that physical forces also acted directly upon reef fish assemblages. Where the relationships we explored were weak (in the form of low R^2 values), we acknowledge that forces other than those we tested are also important drivers of change in reef fish assemblages, such as recruitment patterns (Sale, 2004),

connectivity (Gerlach et al., 2021), historical biogeographical and geomorphological factors (Bennett et al., 2018; Samoilys et al., 2019) or reef size (Dames et al., 2020). Furthermore, we offer any generalisations with caution, given that the temporal dynamics and drivers that affect inshore reefs are likely to be different from those that influence mid-shelf or outer shelf reefs, both on the GBR and elsewhere (Dubuc et al., 2023; Emslie et al., 2017; Emslie et al., 2019; Malcolm et al., 2010). However, GBR inshore reefs do serve as useful representatives for a large proportion of coastal reefs worldwide. Over 75% of the world's coral reefs occur within 20 km of the coast (UNEP-WCMC et al., 2021) and are therefore similarly vulnerable to overexploitation, land-based run-off and the impacts of environmental disturbance events exacerbated by climate change.

4.2.1 | Physical variables

Temperature variables were the most consistently influential physical drivers of temporal change in fish assemblages. Of these, mean SST and DHW were most frequently among the key drivers of change, with mostly negative effects, indicating thermal stress in coral reef fishes. These results therefore show that predicted climate change-driven increases in global ocean temperatures will not only have devastating effects on reef-building corals (Frieler et al., 2013), but will directly affect reef fish assemblages. However, in the Palm, Keppel and Whitsunday Islands, increasing SST had positive effects on farming damselfish. This trophic group also responded positively to DHW in the Palm Islands, while in the Keppel Islands, DHW was positively correlated with species richness and the density of farming damselfish and grazing fishes.

Water temperature can be positively correlated with fish species richness due to increased metabolic potential of many species (Allen et al., 2002; Parravicini et al., 2013). In our study, small-bodied fishes of the family Pomacentridae tended to respond positively to increasing mean temperature, but were negatively affected by SST anomalies. Fishes also have an upper-temperature threshold above which they experience sublethal and perhaps even lethal stress (Shultz et al. 2016). SST increases and changes in the upper limits of temperature anomalies with climate change have already altered the distribution and community interactions of marine species (Poloczanska et al., 2013).

Temperature tolerance can be species- or even size-dependent, potentially resulting in the re-assembly of fish communities over time (Clark et al., 2017). However, declines in density or biomass following heat stress can simply be due to vertical movements to deeper waters, rather than mortality; in such cases, repeated monitoring usually finds a rapid return to previous population abundance (Magel et al., 2020). Mellin et al. (2016) found a strong decline in the density of large-bodied species and those with small geographic ranges when certain temperature thresholds were exceeded. On the inshore GBR, where the maximum depth is 12 m and fish have no escape from shallow warming, this study suggests that with increasing water temperatures and recurrent bouts of heat stress, we may lose density of all fish groups except grazing and farming species. In some parts of the world, an increase, or a dominance, in farming damselfish is viewed as a sign of reef degradation (Han et al., 2016).

After temperature, fish assemblages were influenced most by water quality variables and the exposure to cyclones. Turbidity, as measured by kd490, was a key driver of species composition in all island groups except Magnetic Island, which was the most uniformly turbid region throughout the study period. Generally, highly turbid reefs are thought to be associated with lower habitat quality and lower richness and abundance of reef fishes (Bejarano & Appeldoorn, 2013). On the inshore GBR, periods of greater turbidity can be associated with the aftermath of disturbance events (Luter et al., 2021), which, in the Keppel Islands, led to a low-diversity fish assemblage and an increase in parrotfish numbers taking advantage of the additional bare substratum. However, the more equivocal results (e.g. higher diversity in the Whitsunday Islands) may be due to the nature of these inshore reefs, where even periods of high wind speeds can resuspend the terrigenous sediment from the shallow seafloor (Ceccarelli et al., 2020). Similar cautions can be made for the interpretation of the effects of primary water, which is highly turbid and usually associated with freshwater flood plumes, but can also be the result of periods of high wind. Physical impacts on fish from being thrown around by cyclone waves are the most likely direct effect from cyclones, the other possibility (which is beyond this paper's scope) is fish response to cyclone cooling. Changes in abundance could occur due to emigration to calmer areas (Bacheler et al., 2019), or mortality (Gavriel et al., 2023). Further research is needed to disentangle the relative importance of cyclonic waves and cooling from the effects of habitat loss.

While turbid water may help hide prey from predators (Hess et al., 2019) and lead to more detritus for detritivores and omnivores (Brown et al., 2017), it also blocks visual cues (Newport et al., 2021), reduces the feeding efficiency and productivity (Tebbett et al., 2023) of some species directly or through sediment deposition (Goatley et al., 2016) and smothers the benthic habitats of some species (Cook et al., 2022). Furthermore, when turbidity is increased in the wake of disturbance events, it may be the effects of these same disturbances, rather than the turbidity itself, that elicits a response. High nutrients and turbidity have been a feature of these inshore reefs for decades or perhaps centuries, and most coral reef fish are likely to have acclimated to the conditions before our study began. Furthermore, short-term turbidity changes may not be captured in our data because fish surveys were not conducted in visibility below ~5 m, and surveys were conducted over annual or multi-year scales.

Productivity gradients as measured by Chlorophyll-*a* can also explain variability in fish assemblages (Samoilys et al., 2019). Across the Pacific, productivity was associated with higher biomass not only of predators but also of planktivores (Williams et al., 2015). Here, Chlorophyll-*a* was not a universally positive driver of fish density, with negative (albeit weak) relationships with carnivores and parrotfish in the Keppel and Palm Islands, and grazers in the Whitsunday and Palm Islands.

4.2.2 | Habitat-based variables

The most important habitat-based drivers of change in coral reef fish assemblages were the cover of live hard coral, macroalgae, turf and unconsolidated substratum. Additionally, some fish groups responded to changes in habitat complexity. Overall, the total density of coral reef fish, and that of coral-dependent species, increased with increasing hard coral cover; this was highlighted by the almost ubiquitously parallel trajectories of hard coral cover and fish density, and confirmed by the results of the BRT models. Periods of higher hard coral cover in these regions occurred in the absence of disturbance events (Ceccarelli et al., 2020), and these were the periods in which fish density also recovered. Additional analyses to partition out the influence of small-bodied Pomacentridae revealed that these small-bodied planktivorous and omnivorous species are especially vulnerable to reductions in live coral cover. However, groups such as grazers and farmers, as well as carnivores and benthic invertivores, were negatively affected by higher hard coral cover in some instances. When hard coral cover is very high, the habitat can be relatively uniform, such as when reef slopes are dominated by monotypic stands of branching *Acropora* spp. (Diaz-Pulido et al., 2009). Previous studies have shown negative relationships between parrotfish and live hard corals (Russ, Questel, et al., 2015) and highlighted that certain families, such as goatfishes, wrasses and detritivorous surgeonfishes respond to different elements of the benthos, such as rubble and sand patches, soft corals or carbonate pavement covered in turf (Lowe et al., 2019; Russ et al., 2017; Russ et al., 2018; Russ, Bergseth, et al., 2015).

Reef fish recovery to pre-disturbance assemblage structure can be closely linked to coral recovery (Williamson, Ceccarelli, Evans, Jones, & Russ, 2014), or a new suite of macroalgal associated fish species may replace them if coral recovery fails (Evans et al., 2014; Robinson et al., 2019). Macroalgal dominance benefits certain species, such as some wrasse species (Fulton et al., 2019; Lowe et al., 2019), and macroalgal beds are known to play a positive role in the recruitment of lethrinids, siganids and *Choerodon* spp. (Evans et al., 2014; Wilson et al., 2008). Therefore, although a shift to macroalgal dominance can reduce overall fish diversity, it can bring some benefits to important fisheries species. However, our study showed that an increase in macroalgae caused declines in almost all trophic groups of fishes, whether this effect was among the most influential or not.

We found a negative association between the cover of unconsolidated substratum (sand, rubble) and fish density, which was often reversed towards a positive association in the absence of small-bodied Pomacentridae, likely due to the shift in dominance to Labridae and their subfamily Scarinae (parrotfish). This is also consistent with the observed declines in fish abundance after disturbance events that cause coral mortality and produce rubble. A spatial analysis of the same sites found some positive effects of increasing unconsolidated substratum, whereby a disturbance-mediated benthic shift towards patches of coral, macroalgae and rubble at small scales could increase the overall patchiness of the habitat, providing opportunities for species other than those that prefer live corals, and therefore increasing species richness overall (Ceccarelli et al., 2023). This pattern was corroborated by removing small-bodied fishes from the analysis. However, this temporal analysis suggests that over time, more rubble leads to an eventual erosion of the positive effect on species richness as overall fish density declines (Wilson et al., 2006), and it would appear that this is driven by the response of small-bodied species. Habitat degradation in the form of coral loss and a flattening of habitat complexity has been shown to benefit only few trophic groups, such as farmers, some benthic invertivores and parrotfish (Graham, 2014).

Living hard coral is most important for species that directly rely on it for food and shelter. At a whole-assemblage level, live coral is rarely found to be among the most important drivers; a global meta-analysis found that associations between fish and corals are generally positive but weak (Muruga et al., 2024). However, every time a major disturbance impacted the inshore GBR, coral reef fish density (and to a lesser extent, species richness) declined, due to either mortality or, most likely, temporary movement. The link between live coral and the species that depend on it can also break down when those species are capable of broadening their habitat and dietary choices following coral loss (Semmler et al., 2022). Furthermore, the relationship between fish species richness and coral cover varies with increasing or declining coral cover, with a suggested threshold at around 10% coral cover, below which the relationship is strongly positive and above which it asymptotes (see also Beldade et al., 2015). At global scales, it has been projected that a hypothetical loss of all coral would result in a halving of fish diversity (Strona et al., 2021).

Structural complexity was generally not one of the most important drivers in this study, although it is known to be a strong driver of reef fish assemblage structure and abundance (Bell & Galzin, 1984; Chabanet et al., 1997; Emslie et al., 2014; Graham & Nash, 2013; Messmer et al., 2011; Sabater & Tofaeono, 2007; Samoilys et al., 2019). This is true not just for overall three-dimensional habitat structure but also for the variety of growth forms of corals and other benthos (Gratwicke & Speight, 2005), as we found in this study. In their review, Graham and Nash (2013) found overwhelmingly positive associations between reef fishes and structural complexity, but, once broken down into family groups, the associations were not universally significant. Higher structural complexity can provide more niche space to mediate density-dependent competition, refuge for prey and therefore more predators, hiding places for ambush predators and shelter from high water flow rates (Gratwicke & Speight, 2005). Different trophic groups of coral reef fishes tend to respond differently to changes in their structural environment, based on their resource and habitat requirements and interactions with other organisms (Graham et al., 2017; Jennings & Polunin, 1996; Ruppert et al., 2017; Russ & Alcala, 1989).

4.3 | No-take marine reserves

Temporal changes in total density and species richness in NTMR and fished zones were generally similar. The Whitsunday Islands was

the only region where density and species richness were generally higher in NTMRs; in the Palm Islands, species richness was higher in fished zones. This is not necessarily surprising in an ecosystem where fisheries only target a small number of largely piscivorous species, and it is highly likely that the differences in fish metrics are due to other attributes of those particular sites, and not due to management zoning (but see below). For example, a spatial analysis of the fish assemblages at these sites found that routine wave exposure was one of the key structuring forces of species composition, along with benthic habitat variables such as coral, macroalgae and rubble (Ceccarelli et al., 2023). NTMRs did have different species composition from fished zones in the Palm, Keppel and Whitsunday Island groups, but the changes in composition over time largely occurred in parallel in the two zones. In the Palm and Whitsunday Islands, the separation between zones was clearly driven by a higher proportion of *Plectropomus maculatus* and *P. leopardus*, the primary fishery target species, in NTMRs. Here, the density of target species remained higher in NTMRs than in fished zones throughout the study period.

Management zoning was an important driver of density only for piscivores, which was expected for a system in which the main commercial and recreational fishery targets a small number of predatory species such as *Plectropomus* spp. and large snappers and emperors (Emslie et al., 2015; Williamson et al., 2004). In fact, the NTMR effect in the BRT models was somewhat diluted by the fact that *Plectropomus* spp. were combined with some snappers, emperors and other groupers, some of which are not as strongly targeted by fisheries as *Plectropomus* spp. alone. Studies of NTMR effects on *Plectropomus* spp. alone on inshore GBR coral reefs often show strong, positive NTMR effects on density, biomass and reproductive output, sometimes despite evidence of poaching (Emslie et al., 2015, Evans et al., 2008, Harrison et al., 2012, Williamson et al., 2004, Williamson, Ceccarelli, Evans, Hill, & Russ, 2014, Williamson, Ceccarelli, Evans, Jones, & Russ, 2014). In other systems, fishing, or the absence of successful management, can be an important driver of overall coral reef fish density and biomass (McClanahan & Arthur, 2001; Russ & Alcala, 1989; Sandin et al., 2008).

There are a number of necessary design principles that facilitate the achievement of common NTMR goals (Edgar et al., 2014), such as the recovery of exploited populations (Graham et al., 2011), biodiversity conservation and improving ecosystem resilience. It is widely agreed that NTMRS are most effective when they are no-take, effectively enforced and managed, old (>10 years), large (>100 km^2) and isolated from other areas by sand or deep water. The NTMR networks in the inshore island groups were up to 14 years old at the time of writing (Fernandes et al., 2005), but most of them are small, shallow and there is evidence that compliance is poor (Bergseth et al., 2015). For example, of the total reef slope area around Magnetic Island only 17% of this is protected within a series of six NTMRS that measure between 0.002 and 24 hectares (Williamson et al., unpubl. data). The Whitsunday Islands, where a larger effect of NTMRs was measured, has 24 NTMRs ranging up to over 200 hectares, protecting 20% of the reef slope habitats (Williamson et al., unpubl. data). While the NTMRS studied here are enough to protect target species (Williamson et al., 2004), their small effect of the fish assemblages as a whole may be due to their small size, imperfect compliance and largely shallow habitats. More research could explore the influence of regional NTRM network design within the GBR on their abilities to buffer fish assemblages from disturbance.

5 | CONCLUSIONS

Anthropogenically driven climate change is already causing changes in ocean temperatures, acidity and environmental disturbance regimes worldwide (Henley et al., 2024; Hughes et al., 2017). Increasing temperatures are leading to range shifts of species and communities from tropical to subtropical and temperate marine habitats (Horta e Costa et al., 2014), and repeated heatwaves have caused global coral bleaching events of increasing spatial extent, frequency and intensity (Hoegh-Guldberg et al., 2023). Acidification is reducing growth rates and stability in organisms that rely on, or produce, calcium carbonate structures (Wei et al., 2009). On the GBR, the past decade has seen an unprecedented frequency and intensity of disturbance events, and coral populations—the primary ecosystem engineers—have become increasingly erratic and unstable (Emslie et al., 2024). It is against this backdrop that we present the concerning decline of a reef fish assemblage that is, in addition, subject to the chronic anthropogenic pressures typical of the coastal setting of 75% of the world's coral reefs.

This study revealed long-term declines in total reef fish density (up to 72%) and species richness (up to 75%), as frequent acute disturbances subjected coral habitats to multiple successive shocks that eroded abundance and biodiversity, and limited recovery. Our findings are concerning and at odds with previous GBR studies that have generally shown stability in these metrics in the face of environmental disturbances, albeit on reefs further from the coast (Cheal et al., 2008, Ceccarelli et al., 2016, Wilson et al. 2009). It is possible that we are witnessing a step change in benthic and reef fish community dynamics in the face of increasingly frequent disturbances. Additionally, our removal of the Pomacentridae from the Whole assemblage points to a risk of losing the numerically dominant and species-rich, small-bodied fish planktivores and omnivores. Such fish make up a large part of the food of piscivores and omnivores, and their small body size makes them highly productive, and they are thus an important part of the food web. Small-bodied prey fish species can affect the abundances of carnivorous species, and their decline may lead to losses of commercially and recreationally important predatory species (Carbone et al., 2011; Graham et al., 2003; Williamson, Ceccarelli, Evans, Jones, & Russ, 2014).

Environmental disturbances can reduce fish density and richness quickly, but recovery is typically slower in coral reef systems. We show that long-term decline in the quality of benthic habitat and physical environmental conditions led to demonstrable shifts in reef fish assemblage structure. NTMRs had little effect on total fish density, and in fact, species richness was higher on fished reefs than on NTMR reefs at three of four island groups. This result is

not surprising, considering the fishery predominantly targets larger piscivorous species and top-down predation pressure can drive prey fish species abundance and assemblage structure (Graham et al., 2003). In fact, our results do show NTMR benefits to target species (piscivores), but on reefs that experience high levels of acute and chronic pressure, small NTMRs in shallow habitats may not be as effective as they could be, given that their primary purpose on the GBR is the conservation of biodiversity (Fernandes et al., 2005). Studies that specifically quantify NTMR effects on fishery target species, on the GBR and elsewhere, confirm their efficacy in boosting populations of these species (Rodríguez-Rodríguez & Martínez-Vega, 2022; Russ et al., 2008; Williamson, Ceccarelli, Evans, Jones, & Russ, 2014). There is also evidence of indirect effects of NTMRs on assemblage structure, trophic dynamics, ecosystem recovery potential and pest outbreaks (Allard et al., 2022; Kroon et al., 2021; Topor et al., 2019). NTMRs remain one of the only large-scale tools for protecting marine environments, but there is increasing evidence that without global action on climate change, spatial protection and management alone are not sufficient for safeguarding coral reefs in the Anthropocene.

AUTHOR CONTRIBUTIONS

Daniela M. Ceccarelli: Conceptualization; data curation; formal analysis; methodology; visualization; writing – original draft; writing – review and editing. **Murray Logan:** Data curation; formal analysis. **Richard D. Evans:** Conceptualization; data curation; formal analysis; investigation; methodology; project administration; writing – review and editing. **Geoffrey P. Jones:** Conceptualization; funding acquisition; investigation; methodology; project administration; resources; supervision; writing – review and editing. **Marji Puotinen:** Resources; writing – review and editing. **Caroline Petus:** Methodology; resources. **Garry R. Russ:** Conceptualization; funding acquisition; investigation; methodology; project administration; supervision; writing – review and editing. **Tane Sinclair-Taylor:** Visualization. **Maya Srinivasan:** Investigation; writing – review and editing. **David H. Williamson:** Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors state that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in Dryad at https://doi.org/10.5061/dryad.jsxksn0k6The code that supports the findings of this study are openly available in Zenodo at https://doi.org/10.5281/zenodo.3441725.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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ARTICLE

ECOLOGICAL APPLICATIONS
ECOLOGICAL SOCIETY OF AMERICA

Ecological success of no-take marine protected areas: Using population dynamics theory to inform a global meta-analysis

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Abstract

Adaptively managing marine protected areas (MPAs) requires accurately assessing whether established MPAs are achieving their goals of protecting and conserving biomass, especially for harvested populations. Ecological MPA assessments commonly compare inside of the MPA to a reference point outside of and/or before implementation (i.e., calculating "response ratios"). Yet, MPAs are not simple ecological experiments; by design, protected populations interact with those outside, and population dynamic responses can be nonlinear. This complicates assessment interpretations. Here, we used a two-patch population model to explore how MPA response ratios (outside–inside, before–after, and before–after-control-impact [BACI]) for fished populations behave under different conditions, like whether the population is receiving a sustainable larval supply or if it is declining despite protection from harvest. We then conducted a Bayesian evaluation of MPA effects on fish and invertebrate populations based on data collected from 82 published studies on 264 no-take MPAs worldwide, using the results of an earlier global meta-analysis as priors. We considered the effects of calculating different summary metrics on these results, drawing on the theoretical insights from our population model as a comparative framework. We demonstrate that not all response ratio comparison types provide the same information: For example, outside–inside and BACI comparisons can fail to detect population decline within MPAs, whereas before–after comparisons likely detect that pattern. Considering these

limitations, we nonetheless found that MPAs globally are producing positive outcomes, with on average greater biomass, density, and organism size within their boundaries than reference sites. However, only a small portion of studies (18 of 82) provided the temporal data necessary to determine that protection, on average, has led to increased abundance of populations within MPAs over time. These findings demonstrate the importance of considering the underlying system dynamics when assessing MPA effects. Assuming that large outside–inside or BACI response ratios always reflect large and net positive conservation effects may lead to misleading conclusions, we recommend that: (1) when assessing specific MPA effects, empirical findings be considered alongside theoretical knowledge relevant to that MPA system, and (2) management should respond to the local conditions and outcomes, rather than a blanket expectation for positive MPA effects.

KEYWORDS
adaptive management, before–after-impact-control, marine protected area, marine reserves, meta-analysis, modeling, population dynamics

INTRODUCTION

Marine protected areas (MPAs) are important tools for managing and conserving marine ecosystems globally. In particular, no-take MPAs in which all extractive and destructive activities are banned are typically established to conserve biomass and protect species from direct human activities (Grorud-Colvert et al., 2021; Horta e Costa et al., 2016). The global coverage of MPAs is rapidly increasing (UNEP-WCMC, IUCN, and NGS, 2018), and likely to continue in the future due to recent international commitments to protect biodiversity (IPBES, 2019). The last two decades have consequently seen a rise in the number of studies evaluating the effects of MPAs on marine ecosystems, as well as meta-analyses synthesizing these studies (Appendix S1: Table S1; Woodcock et al., 2017). Long term, large-scale monitoring and assessments are also underway for multiple MPA networks globally (e.g., CDFW, 2022; Emslie et al., 2020). As these studies and monitoring programs inform the adaptive management of current MPAs, and decision making about future MPAs, accurate assessments of the ecological effects of MPAs relative to their stated goals and objectives are critical.

Through spatial closure, MPAs are expected to protect and conserve species within their boundaries that have been impacted directly by human activity (IUCN WCPA, 2018). Indeed, numerous studies have demonstrated that MPAs increase local densities and biomass, average individual size, species richness, and benthic cover of habitat-forming species, and that these effects are especially strong for harvested species (Appendix S1: Table S1 summarizes a non-exhaustive list of such prior work). In some cases, these species-level recoveries may also lead to local ecosystem recovery and larger-scale population effects through spillover and larval export (Di Lorenzo et al., 2020; Kerwath et al., 2013). There is also a rich empirical and theoretical literature documenting how ecological responses inside of MPAs are affected by features of the system, such as MPA characteristics, species and ecosystem traits, and local fisheries management (e.g., White et al., 2011, 2024). However, there has been little consideration of how the estimated magnitude and direction of those ecological responses may be impacted by the *assessment approach* used.

Practical assessments of the formal goals of MPAs—to protect and conserve species and ecosystems—require evaluation metrics that reflect achieving those goals. Two such metrics of MPA success are (1) that increases in ecological variables (e.g., local population density or biomass) are observed within the MPA relative to a reference point and (2) that ecological measures, at a minimum, do not decline within the MPA following implementation. The first metric indicates that protection is occurring, relative to any larger-scale factors affecting both the MPA and the reference point, and the second metric indicates that there is successful long-term conservation of the local population. While more complex approaches can be used (e.g., Osenberg et al., 2011; Ovando et al., 2021), the effects of MPAs are often distilled into a *response ratio* value, typically calculated as the logarithm of the ratio of the response variable (e.g., population density) inside of the MPA to a reference site outside, to data collected before MPA implementation, or both. Positive log

response ratios are typically taken to indicate success in achieving an MPA's conservation goals. The use of response ratios is particularly common in meta-analyses, which require comparisons across studies with different sampling approaches and techniques (Hedges et al., 1999). Previous meta-analyses demonstrate that empirical studies overwhelmingly use spatial comparisons between the MPA and a relevant reference site (outside–inside), compared with comparisons across time (before–after) or both (before–after-control-impact, aka "BACI") (Halpern, 2003; Lester et al., 2009). Reflecting this, meta-analyses tend to focus on calculating outside–inside comparisons, sometimes intentionally excluding temporal data (Appendix S1: Table S1). While this outside–inside focus is often unavoidable (e.g., funding or logistics dictate that sampling begins after MPA implementation), it may create biases in MPA assessments (Claudet, 2018; Osenberg et al., 2011). Furthermore, as a summary metric, response ratios can provide little, and sometimes erroneous, insight into the underlying system dynamics and whether the MPA is achieving longer-term conservation goals (Moffitt et al., 2013).

The comparison approach used by MPA studies is based on the concept of detecting ecological impacts, such as the effects of a localized habitat disturbance (Schmitt & Osenberg, 1996). However, MPAs are not simple ecological experiments; by design, they have effects outside of their boundaries (Di Lorenzo et al., 2020; Grorud-Colvert et al., 2014; Ovando et al., 2021), are impacted by external factors (e.g., increased fishing pressure outside; Hopf et al., 2016b), and the dynamic responses can be nonlinear (Hopf et al., 2016a; White et al., 2013). For example, non-protected (reference) areas may be better off than expected due to larval export or adult spill-over from MPAs (e.g., Le Port et al., 2017), worse due to displaced fishing effort (e.g., Suuronen et al., 2010), or one may also off-set the other (Halpern et al., 2004). This confounds the use of these areas as independent controls. Indeed, ecological theory demonstrates that outside–inside and before–after response ratios are smaller for species with longer larval dispersal distances or larger adult home ranges, all else being equal (Moffitt et al., 2013).

The dynamics of a system also affect comparison metrics differently: Outside–inside MPA comparisons are more robust to high larval recruitment variability and acute disturbance events (Hopf et al., 2022; Hopf & White, 2023), but are unlikely to detect that a local population is declining despite protection (Hopf et al., 2022; Moffitt et al., 2013). Conversely, comparisons calculated over time can detect a population trajectory, but are more influenced by population fluctuations unrelated to protection. BACI-style designs are considered more robust to system heterogeneity (Halpern et al., 2004; Schmitt & Osenberg, 1996; Stewart-Oaten et al., 1986), yet they can be sensitive to periodic variations in the system (Hopf et al., 2022), reflecting a tendency to have higher false-positive detections with population dynamics that are autocorrelated (Rassweiler et al., 2021). As different comparison types are likely to reflect different characteristics of a system, it is therefore important to understand the theoretical benefits and limitations of each type.

To help inform the synthesis of observed ecological MPA effects, we used a two-patch population model of a harvested species to demonstrate how the magnitude and build-up of MPA effects—measured as log-response ratios (logRR; Hedges et al., 1999)—can vary when calculated using different comparison types (outside–inside, before–after, and BACI) and biological response variables (biomass density, abundance density, and mean individual size). Importantly, we also show how logRR values can vary under different scenarios, such as whether the population is demographically open or closed, if fishing is reallocated at the time of implementation, or if the population is declining despite no-take protection (indicating that conservation goals may not be fully met). We focus on MPA effects on single species (as opposed to community-scale or indirect effects), as there is the clearest mechanistic link between the cessation of fishing and the increase in abundance and size at the level of individual populations. Using these model insights as a comparative framework, we then evaluate MPA effects for single species based on a meta-analysis of data collected from published studies on no-take MPAs from around the world. Overall, we propose that assessing MPA effects requires considering the interplay between context dynamics (MPA, environmental, and population traits), sampling approach (comparison and variable types), and the criterion being used to assess effectiveness. By considering the strengths and challenges of different comparison types and measurement variables, we make a more conservative and informed estimate of the effectiveness of no-take MPAs to protect and conserve populations within their boundaries.

METHODS

Population model

To demonstrate how logRR can vary by comparison types, measurement variables, and under different environmental or management scenarios, we used an age-structured, density-dependent, two-patch (one fished local population and one protected) model of Blue Rockfish (*Sebastes mystinus*; Sebastidae), a common, harvested, nearshore rocky reef and kelp forest fish on the US west

coast. Throughout this paper, we refer to the groups of individuals within an MPA patch as the "local population," "MPA population," or "protected population," as distinct from a population that spans across MPAs and fished areas. We assume the spatial scale of the patches is large enough that adult fish do not move between them. The overall structure of the baseline model follows recent work examining the effect of environmental variability on MPA monitoring (Hopf et al., 2022; Kaplan et al., 2019; Nickols et al., 2019). Parameter descriptions and values can also be found in Appendix S1: Table S2.

Population dynamics over time tracked the state variables abundance ($N_{a,i,t}$) and biomass ($B_{a,i,t}$), of fish age a, in patch i, in year t. Recruitment to patch i at time t ($N_{1,i,t}$), is a product of larvae arriving ($L_{i,t}$), and recruit survival ($s_{1,i,t}$):

$$N_{1,i,t} = s_{1,i,t} L_{i,t}.$$

Our baseline scenario considered the case where patches have stable abundances prior to MPA establishment. Then, following implementation, fishing pressure is removed from the protected patch, allowing biomass to increase within MPA boundaries. This reflects the case where protection is successful and long-term conservation of harvested species is occurring within the MPA.

As the broader population consequences of increasing biomass within MPAs depend on scale, we consider both open and closed population scenarios. In the demographically open population, patches received an equal, constant, sustainable supply of arriving larvae ($L_{i,t}$). The parameter value for $L_{i,t}$ is arbitrary as our model is dimensionless with outcomes measured relative to $t = 0$ (initial conditions). This open scenario reflects a case where an MPA and a reference site are embedded within a larger metapopulation, with most larval production occurring outside of the two study sites (e.g., some portions of the California Channel Islands; Watson et al., 2010). Here, MPA effects are expected to be seen within the MPA, but not outside. At the other extreme, the closed population scenario, where larval production is a function of total adult biomass across both sites, reflects the case where an MPA contributes substantially to broader metapopulation dynamics through larval export (e.g., Harrison et al., 2012). In the closed population scenario, larval arrival ($L_{i,t}$) from a well-mixed larval pool was the summed product of fecundity of all fish age a (f_a) that was distributed proportional to the area in patch i (A_i):

$$L_{i,t} = A_i \sum_{i=1}^{2} \sum_{a=a_{\text{mat}}}^{a_{\max}} f_a N_{a,i,t-1},$$

where a_{mat} and $a_{\max}$ are the age of maturity and maximum age, respectively.

In all scenarios, post-settlement density-dependent survival ($s_{1,i,t}$) followed the Beverton–Holt functional form:

$$s_{1,i,t} = \frac{\alpha}{1 + \frac{\alpha L_{i,t}}{\beta}}.$$

We (1) set the slope at origin (α) so that the population collapses if fishing decreases the average lifetime egg production to below 25% of the unfished maximum (Botsford et al., 2019) and (2) set the theoretical maximum density of recruits (β) set to a constant value (1000). As with $L_{i,t}$ from the open scenario, the parameter value for β is arbitrary.

Once recruited, we assumed that fish remained within their local patch. Post-recruitment yearly survival depended on natural mortality rate M and, in non-MPA patches, fishing mortality rate F for fish over the minimum capture age (a_c), with units of years^{-1} for both mortality rates:

$$s_{a,i,t} = \begin{cases} e^{-M}, & a \in [2, a_c) \\ e^{-(M+F)}, & a \geq a_c \end{cases}.$$

Prior to MPA implementation F was identical in both patches. We used a medium fishing pressure estimated for Blue Rockfish in the Channel Islands, California, USA (Nickols et al., 2019). Following MPA implementation, F was set to zero in the MPA patch and left unchanged in the fished patch (but see the alternative scenarios below).

We included process error as "pink," or $1/f$, noise, common in many natural systems (Denny et al., 2004; Vasseur & Yodzis, 2004). Noise from randomly generated pink noise time-series, $\epsilon(t)$, were applied independently to each patch in each time step, reflecting spatial–temporal variability between patches (but see the alternative scenarios below).

Total patch abundance density (accounting for area) at time t was, therefore,

$$N_{T,i,t} = \frac{1}{A_i} \epsilon_{i,t} \sum_{1}^{a_{\max}} s_{a,i,t} N_{a-1,i,t-1},$$

and biomass density was

$$B_{T,i,t} = \frac{1}{A_i} \epsilon_{i,t} \sum_{1}^{a_{\max}} w_a s_{a,i,t} N_{a-1,i,t-1},$$

where w_a is fish biomass at age a, as a function of length at age $a(L_a)$. L_a was used to calculate average individual size for local populations in each patch.

Because field sampling rarely captures the true population density, we also included measurement error in our model, where the sampled population abundances were drawn from a negative binomial distribution with a mean equal to the modeled density; this distribution was used because the variance in blue rockfish densities is greater than the mean (Hopf & White, 2023). We estimated the negative binomial distribution shape parameter (aggregation parameter: k) using publicly available blue rockfish data (Hopf & White, 2023).

In addition to the baseline, we also considered three alternative scenarios that are representative of some of the conditions that could confound the detection of increases in biological variables during ecological monitoring:

1. A *fishery squeeze scenario* in which fishing pressure (F) following MPA establishment was increased proportional to the area that remains open to fishing.
2. A *declining population scenario* where the density of incoming recruits linearly declines 50% over 50 years, reflecting a moderate decline in the population due to extrinsic factors (e.g., environmental degradation). The declining scenario represents a scenario where protection is occurring, but the MPA is not achieving the goal of conserving the local population long term.
3. A *correlated noise scenario* where the same pink noise time-series was applied to both patches, which assumes all patches experience similar environmental fluctuations (results presented in Appendix S1).

We simulated 2000 replicates of each scenario, and all scenarios had a 200-year burn-in period prior to MPA implementation, long enough to reach a stable distribution of abundance.

We calculated modeled response ratios over time for abundance density, biomass density, and mean fish size ("biological variables") for all scenarios by comparing inside of the MPA to outside at the same point in time ($t \geq 0$; "*outside–inside*"), inside of the MPA before implementation ($t = 0$) to after ($t > 0$; "*before–after*"), and the ratio after-inside/before-inside to after-outside/before-outside (BACI). Simulated response ratios were then natural log transformed to calculate logRR values.

All population model simulations were implemented in MATLAB 2022b (The MathWorks Inc., 2022).

Literature meta-analysis

We undertook a comprehensive meta-analysis of the peer-reviewed scientific literature documenting ecological effects of designated no-take MPAs published between 2006 and June 2020 (i.e., the literature spanning the period after the Lester et al. (2009) meta-analysis, up to the time we began our analysis). We were unable to include the data from the Lester et al. (2009) meta-analysis as those data were aggregated across taxa rather than analyzed at the species level. As such, we took a Bayesian approach, using the Lester et al. (2009) results as priors and updating the posterior estimates of MPA effects using data collected since then (see details below).

In December 2020, we searched the Web-of-Science database for articles that included "marine protected area" and associated search terms (see Appendix S1 for further details). Our initial search resulted in 7213 studies, of which 490 were manually selected based on title and abstract context. These studies were then read in detail to assess if they matched our selection criteria. Our filtering approach largely followed Lester et al. (2009): We only included studies that measured variables before–after, outside–inside, or both, for fully protected, individual no-take MPAs with suitable paired-reference sites. "Before" data was classified as before the MPA was enforced or during the first year of enforcement. "After" data was the most recent data available in the study, representing the longest duration of protection. Whether the study included time-series data was also noted. Studies must have measured at least one of three biological variables: abundance density, biomass density, and average organism size. While studies may have collected data at higher taxonomic levels, for the final analysis we only included species-level data. As population dynamics depend on species-specific demographic time lags, there is no simple way to scale model results to higher taxonomic levels. Studies that selectively presented only positive MPA effects, as declared in the studies' methods or elsewhere, were not included.

The resulting database used in our analysis consisted of 708 "entries" (data points at the level of unique combinations of location—species—state variable—comparison type) from 82 studies, for which we extracted the relevant data. Where data were only available in plots, we extracted values using an online plot digitizer (WebPlotDigitizer v4.6; https://automeris.io/WebPlotDigitizer.html). We then calculated the logRR value (Hedges et al., 1999) as per the comparison used in the study (i.e., outside–inside, before–after, or BACI). Since zero-valued data points result in undefined or infinite logRR values, entries containing zeros were not included (this was 121 of the 728 entries). For each species we assigned harvest status (harvested or not), based on the status provided in the study. If no status was provided, we assigned status based on expert opinion and primary literature searches. Further details of the meta-analysis criteria and data collected are in Appendix S1, and datasets are available in JKHopf (2024) at https://doi.org/10.5281/zenodo.12697206.

To provide updated estimates of literature-based MPA effects, we took a Bayesian approach using effect estimates (measured as percentage change) from Appendix S1: Table S1 in Lester et al., 2009 as priors to estimate mean logRR values for the three biological variables. As Lester et al. (2009) pooled data by biological variable, we used these data as priors for estimates of the mean (μ) in all models, with weakly informative priors for interaction terms ($\beta_0, \beta_1, \beta_2, \beta_3$) and SD (σ) (Table 1). For each of the biological variables, we estimated (1) overall logRR, (2) logRR as predicted by the categorical predictors Harvest Status (harvested or not) and Comparison Type (outside–inside, before–after, or BACI), and (3) logRR as predicted by Harvest Status and MPA age (Table 1). To avoid bias toward more frequently studied MPAs, we averaged logRR values across individual MPAs at the relevant level of analysis. Sample sizes were low for entries that had only collected before–after data, especially those measuring biomass density and size (Appendix S1: Figure S34). Therefore, we supplemented the before–after dataset with before–after data extracted from BACI entries when testing for the effects of Harvest Status × Comparison Type. There were too few data to test for the effects of MPA age at the level of comparison type (Appendix S1: Figure S35).

For each model, we estimated posterior distributions using Markov chain Monte Carlo (No-U-Turn sampler variant) with four chains of 5000 iterations each and a burn-in of 5000 iterations. We confirmed model convergence using visual inspections of chain convergence (trace, density, and autocorrelation plots; Appendix S1: Figures S1–S27), following best practices (Johnson et al., 2022). All Bayesian analyses were done in R (R Core Team, 2022) using the "rstan" (Stan Development Team, 2022) and "rstanarm" (Goodrich et al., 2023) packages.

All code is publicly available in JKHopf (2024) at https://doi.org/10.5281/zenodo.12697206.

RESULTS

Modeled response ratios

Our open-population, baseline model scenario for a harvested species—where patches received a sustainable larval supply, fishing pressure was not reallocated, and patches were stable prior to MPA establishment—represented a case in which the predicted logRR was not affected by the comparison type used (Figure 1). In this scenario, all three biological metrics (abundance, age structure, size) used in calculating logRR captured patch dynamics well: Local population density remained constant outside of the MPA while increasing steadily inside of the MPA (Figure 1). Consequently, logRR increased asymptotically over time. Response ratio magnitudes, however, depended on the biological variable measured: logRR of biomass density was largest, followed by abundance density, and then average individual size (Figure 1). Note that the magnitude of the response ratio for individual size was limited in our model by the asymptotic maximum size fish can reach, which reflects the decelerating growth in size with age that most fishes exhibit.

TABLE 1 Model and prior distributions (by biological variable) used in Bayesian estimation of log-response ratios (logRR) for marine protected area (MPA) effects.

Model name	Model	Prior distributions
Basic	$\text{LogRR}_i \mid \mu, \sigma \sim N(\mu, \sigma^2)$	Biomass density: $\mu \sim N(0.567, 0.371)$[a] Abundance density: $\mu \sim N(0.282, 0.324)$[a] Size: $\mu \sim N(0.096, 0.097)$[a] All: $\sigma \sim \text{Exp}(1)$[b]
Harvested × Comparison type	$\text{LogRR}_i \mid \mu, \sigma \sim N(\mu_i, \sigma^2)$ with $\mu_i = \beta_0 + \beta_1 \text{HarvestStatus}_i + \beta_2 \text{ComparisonType}_i$	Biomass density: $\beta_0 \sim N(0.567, 0.371)$[a] Abundance density: $\beta_0 \sim N(0.282, 0.324)$[a] Size: $\beta_0 \sim N(0.096, 0.097)$[a] All: $\beta_1, \beta_2, \beta_3 \sim N(0, 2.5)$[b] $\sigma \sim \text{Exp}(1)$[b]
MPA age × Harvested	$\text{LogRR}_i \mid \mu, \sigma \sim N(\mu_i, \sigma^2)$ with $\mu_i = \beta_0 + \beta_1 \text{MPAage}_i + \beta_2 \text{HarvestStatus}_i + \beta_3 \text{MPAage}_i \text{HarvestStatus}_i$	Biomass density: $\beta_0 \sim N(0.567, 0.371)$[a] Abundance density: $\beta_0 \sim N(0.282, 0.324)$[a] Size: $\beta_0 \sim N(0.096, 0.097)$[a] All: $\beta_1, \beta_2, \beta_3 \sim N(0, 2.5)$[b] $\sigma \sim \text{Exp}(1)$[b]

[a]Calculated from mean and SD of data in Appendix S1: Table S1 in Lester et al. (2009).
[b]Weakly informative prior.

When patch dynamics differed from those in our baseline scenario, the response ratios were affected. Importantly, logRR values sometimes described different temporal trends depending on how they were calculated, and the different comparisons did not always capture both of the metrics of MPA conservation success we described in the introduction: higher values inside of the MPA relative to outside, and non-decreasing values inside of the MPA (Figure 2). We demonstrated this with our example alternative scenarios, focusing on

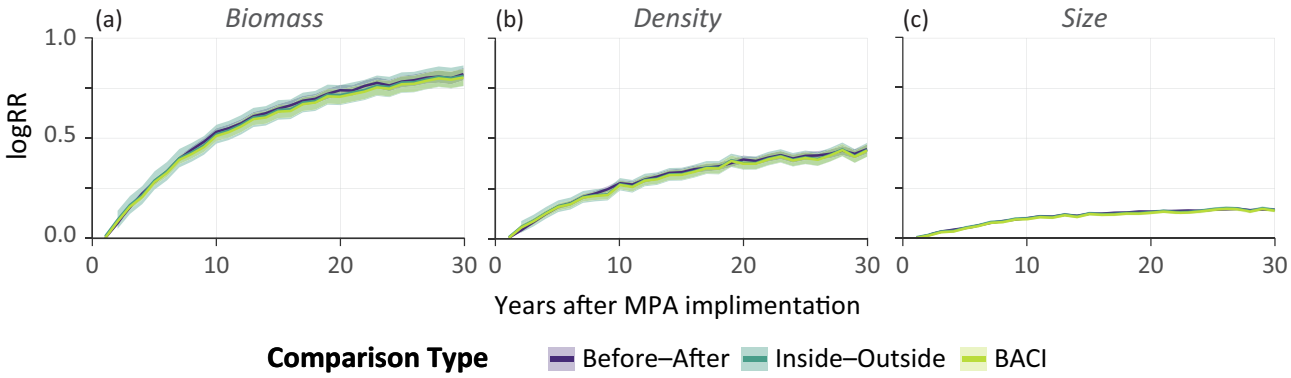

FIGURE 1 Modeled log response ratios (logRR) of a harvested species over time using different comparison ratios (colors), and biological measurement metrics (biomass density, abundance density, individual size). Baseline scenario: Open population, no correlation in variance, and no fishery squeeze. BACI, before–after-control-impact; MPA, marine protected areas.

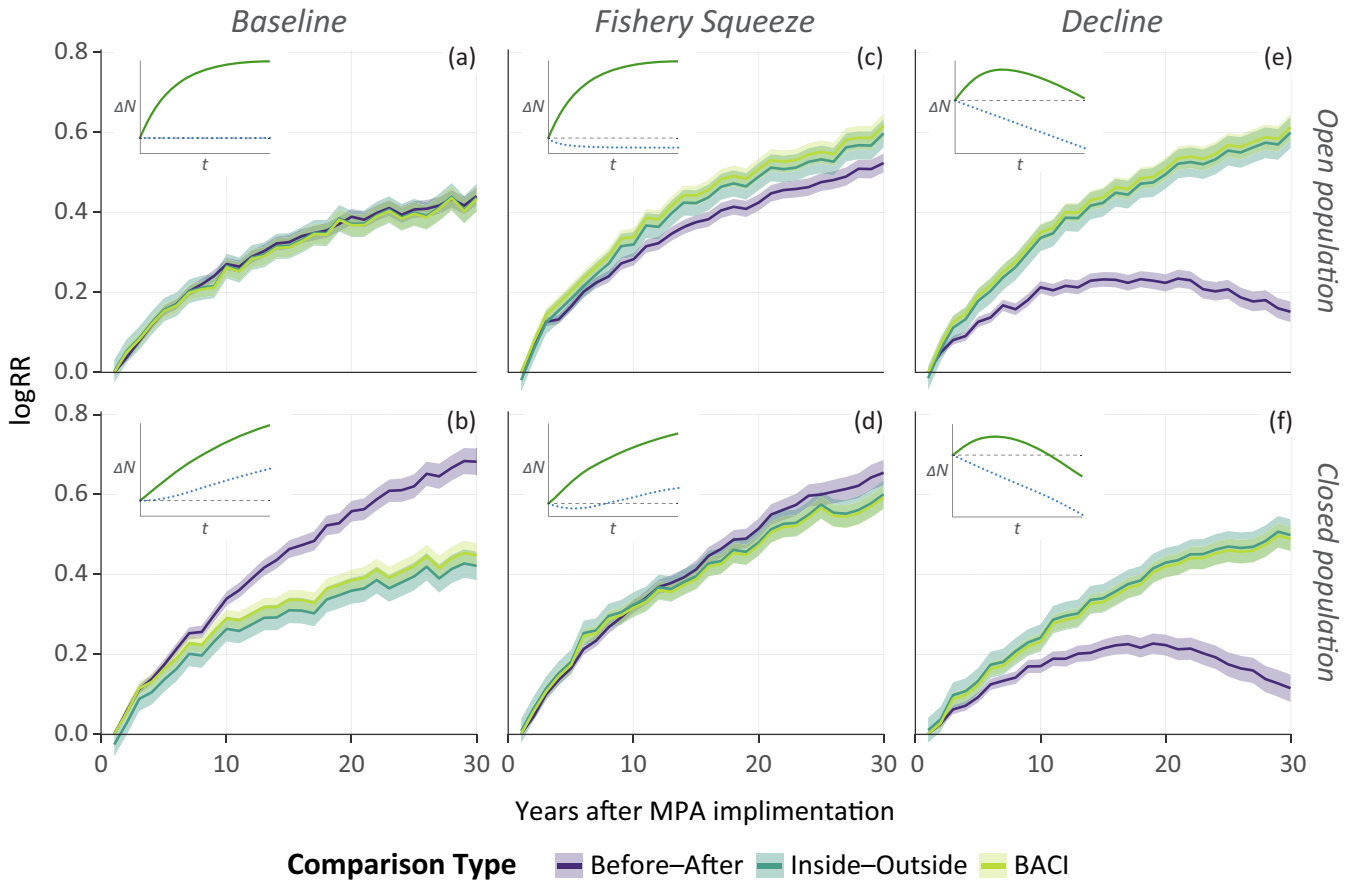

FIGURE 2 Modeled log-response ratio (logRR) of the *abundance density* of a harvested species over time using different comparison ratios (colors), for a range of scenarios. Solid lines indicate the mean with SE envelopes (shading) for 2000 replicate runs. In all scenarios, both patches experience independent pink noise. Inset plots show average modeled trends of patch abundance densities (ΔN) over time (t), relative to the time of marine protected areas (MPA) implementation (dashed horizontal line) for the MPA (green solid line) and fished (blue dotted line) patches. BACI, before–after-control-impact.

abundance density only (see Appendix S1: Figures S28 and S29 for biomass density and size results, which have similar trends). When interpreting the trajectories in Figure 2, a manager may not have access to the full time-series of observations depicted in the figure, but instead may only be able to sample one point in time along the trajectory, and must make adaptive management decisions accordingly.

In all scenarios considered, before–after comparisons most accurately reflected the true local population trajectory within the MPA (Figure 2). Scenarios that increased the difference between the protected and fished populations led to higher logRR values with outside–inside and BACI comparisons, than with before–after comparisons. This was exemplified by our open population, fishery squeeze scenario, where reallocated fishing pressure resulted in an initial decline (at the minimum) in biomass density outside of the MPA, enhancing the difference between the two patches (Figure 2c). This difference, however, was offset by net larval export in the closed population scenario, which led to densities in the fished area recovering over time due to larval export from the MPA (Figure 2d). Except for before–after comparisons, which are not affected by outside densities, logRR increased marginally slower in the closed population, reflecting the decreased difference between patch densities (Figure 2b,d,f).

Patterns of overall population decline (despite protection) were only captured with before–after comparisons, at least in the first 30 years (Figure 2e,f). Critically, BACI performed similarly to outside–inside in the declining scenario: The difference between patches was greater than the rate of decline over the 30-year simulation period (insets in Figure 2e,f).

Our modeled results were also true when patches experienced correlated pink noise (Appendix S1: Figures S30–S32). CIs, however, were smaller for outside–inside and BACI comparisons when noise was correlated, as patches fluctuated synchronously over time.

Meta-analysis: MPA studies

In our meta-analysis of MPA studies from 2006 to 2020, we found that most studies (86.6%) were focused on, or included, outside–inside comparisons, followed by BACI (18.3%) and before–after (3.8%) (Figure 3). Almost half of the studies (45.1%) also included some time-series data. Notably, 36.6% of studies with outside–inside data also included time-series data; these data were unable to be used in a true BACI comparison, however, as data collection began after the

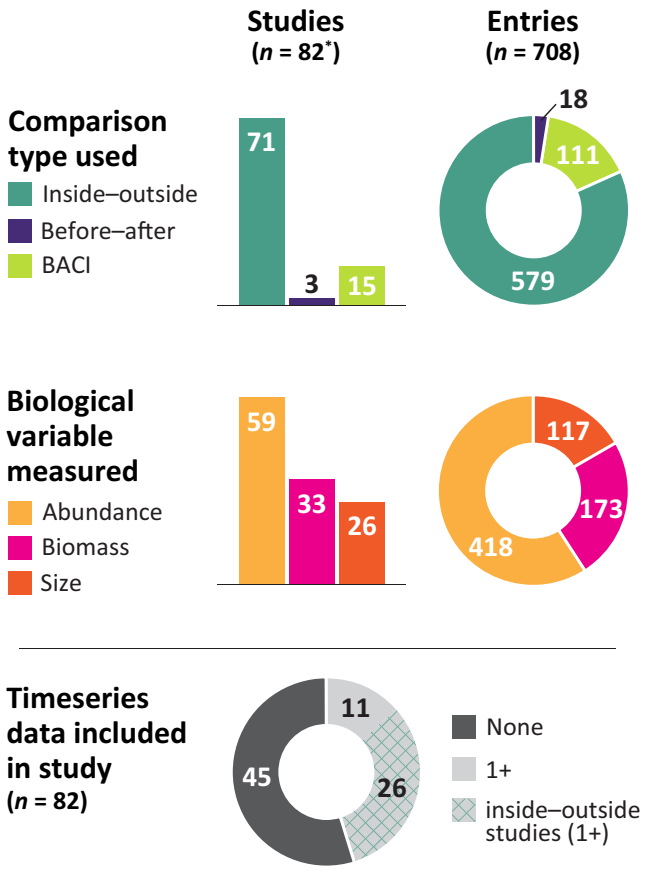

FIGURE 3 Number of studies and number of entries from the meta-analysis that included a given comparison type and biological (response) variable, and the number of entries that did or did not include time-series data. Note that the total number of studies is less than plot totals as some studies included multiple comparison types. BACI, before–after-control-impact.

MPA was established. Most studies included abundance density data (71.2%), followed by biomass density (40.2%) and then organism size (31.7%).

Reflecting the study bias toward outside–inside, most entries (data points) were collected on outside–inside comparisons (81.8%), followed by BACI (24.4%) and before–after (2.5%) (Figure 3). Likewise, most entries used abundance data (59%), followed by biomass (24.4%) and size data (16.5%) (Figure 3).

Meta-analysis: MPA effects

In general, we found a positive MPA effect for all three response variables. The estimated posterior mean logRR values were positive across all metrics, when not accounting for comparison type (Figure 4, Appendix S1: Figures S36–S39). Biomass density had the largest effect, followed by abundance density and then size, as predicted by our baseline population model.

The overall positive MPA effect was driven by harvested species, with posterior predicted distribution of logRR values consistently higher for harvested species than non-harvested species across all biological variables and comparison types (Figure 5, Appendix S1: Figures S40–S45). Posterior mean logRR values for non-harvested species were close to zero except for biomass outside–inside and BACI comparisons, both of which had low sample sizes ($n \leq 2$; Appendix S1: Figure S34). For abundance and size, outside–inside had the highest predicted posterior logRR, followed by BACI and then before–after. Conversely, outside–inside had the lowest mean logRR for biomass. Despite positive posterior means, all posterior-predicted logRR distributions had considerable density below zero (30.1% for biomass, 37.4% for abundance, and 39.9% for size). Additionally, there was greater confidence in the mean logRR values for size than for biomass or abundance, as indicated by the widths of the posterior distributions (Figure 5).

We found little evidence for an effect of MPA age on logRR, for any of the three biological variables considered (Figure 6, Appendix S1: Figures S46–S48). Estimated posterior mean slope values for fitted linear models were close to zero, with non-harvested species having marginally higher, but less confident, slope estimates than harvested species (Figure 6). Intercept values were estimated with low confidence, with estimated posterior density spanning across zero for all biological variables: Intercepts greater than zero were consistently estimated for harvested species, and less than zero for non-harvested species.

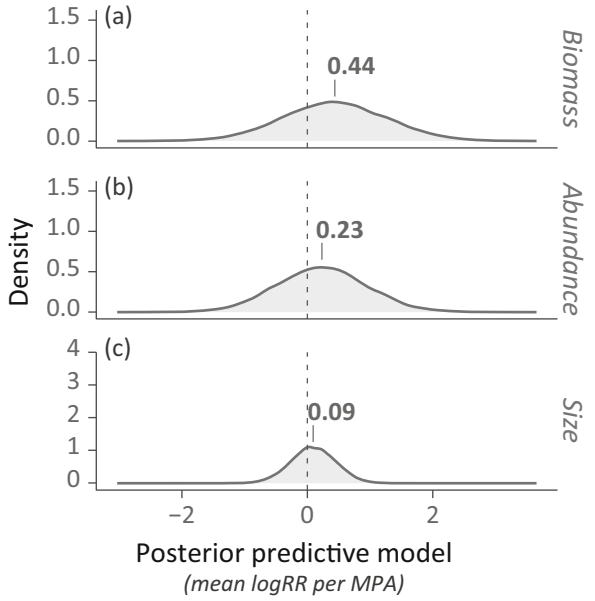

FIGURE 4 Predicted overall marine protected area (MPA) effects. Posterior predictive distributions of log response ratio (logRR) by biological (response) variable (rows). Text annotations indicate estimated posterior means.

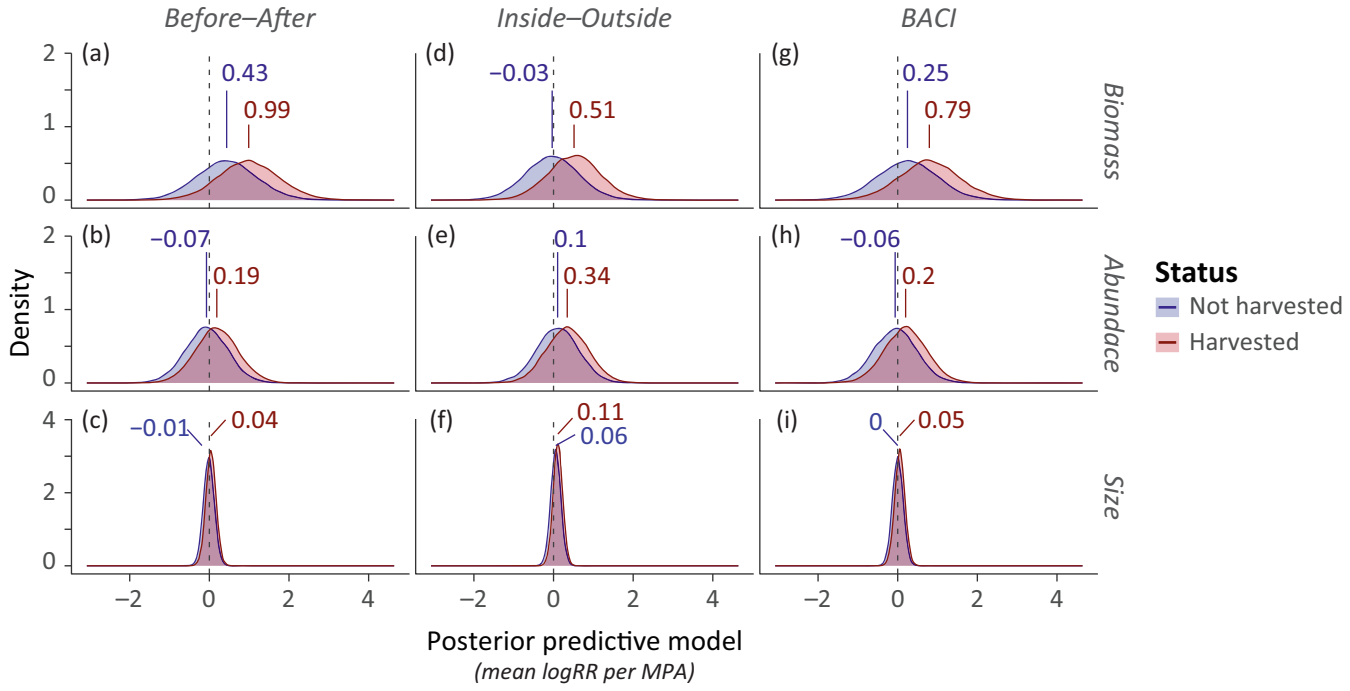

FIGURE 5 Predicted marine protected area (MPA) effects. Posterior predictive distributions of log response ratio (logRR) by harvest status (colors), comparison type (columns) and biological (response) variable (rows). Text annotations indicate estimated posterior means. Note that before–after data for all biological variables has been supplemented with before–after data extracted from before–after-control-impact (BACI) studies (see *Methods* for further details).

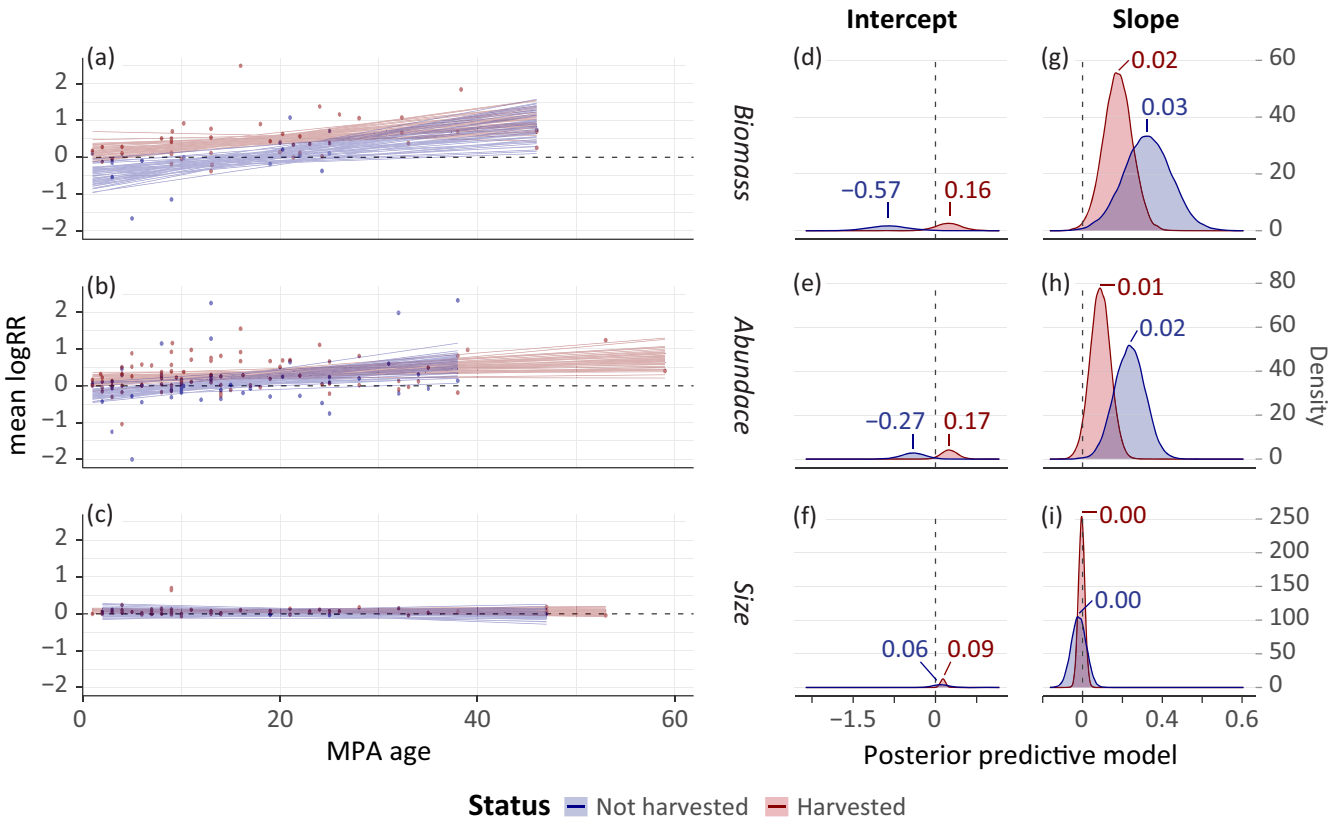

FIGURE 6 Estimated effects of marine protected areas (MPA) age on biological responses. (a–c) Mean log response ratio (logRR) for biomass, abundance, or size versus MPA age, with separate models for harvested (red) and non-harvested species (blue). Points indicate collected meta-analysis data (MPA × age average), and lines indicate sampled posterior model fits for a linear regression ($n = 50$ samples). (d–i) The corresponding posterior predictive distributions of coefficients (d–f: Intercept; g–i: Slope), with text annotations indicating the mean of each posterior.

DISCUSSION

Accurate assessments of MPA effects are required to inform the adaptive management, and future planning, of MPAs. Here, we have focused on the MPA objectives to increase and conserve local populations. Reflecting previous meta-analyses (e.g., Giakoumi et al., 2017; Lester et al., 2009; Sciberras et al., 2013), we found that no-take MPAs globally are providing positive outcomes within their boundaries, especially for harvested species. However, we show that these benefits may be smaller and more uncertain than previously reported in Lester et al. (2009), particularly when considered in the context of how we expect observed effects to change under different dynamics (MPA, environmental, and population traits) and sampling approaches (comparison types and biological variables measured).

Through simulating sampling of MPAs under a range of ecological scenarios, we were able to demonstrate that not all response ratio comparison types provided the same information. Critically, both outside–inside and BACI approaches failed to reflect patterns of long-term population decline within the MPA (Figure 2). The implications of this depend on the question being addressed: If the goal is to evaluate whether an MPA only achieved greater density, biomass, or average individual size than fished areas (i.e., protection is achieved), then all comparison metrics reflected that information accurately. However, as MPAs typically aim to also conserve populations over the long term (Grorud-Colvert et al., 2021; IUCN WCPA, 2018), it is also important to assess whether local populations are not declining (i.e., they are preserved or being restored). When addressing this question, we showed how BACI or outside–inside comparisons failed to provide insight into whether an MPA may be preventing decline. Furthermore, due to stochasticity and disturbances, a positive before–after effect is not absolute evidence of local population growth, only long-term time-series data can clarify this. However, before–after comparisons are more likely to provide insight into population trends.

In our global meta-analysis of empirical data, all three of the response ratios had positive posterior means for all three biological variables (at least for harvested species).

Our simulation results allow us to interpret the before–after results as evidence for where MPA protection is likely associated with an overall increase in the local population following implementation, while the other two types of response ratios reflect scenarios where biomass is greater inside of the MPA than outside but provide no evidence that those MPAs are preserving or restoring local populations. Thus, assuming that large outside–inside or BACI response ratios always reflect large and net positive MPA effects may lead to misleading conclusions about MPAs and possibly poor adaptive management. This is especially important as the majority of empirical studies use outside–inside data to evaluate MPA success (Appendix S1: Table S1; Figure 3; Lester et al., 2009).

Additionally, our simulated response ratios calculated using biomass density had notably larger increases in magnitude over time than abundance density or size. This is to be expected, as biomass increases reflect both changes in numerical abundance and the population size distribution after protection. Changes in average size, however, are limited by the maximum size for species with determinate or asymptotic growth and could be muted if there is an increase in the recruitment of smaller individuals that balances out the growth of larger individuals due to greater longevity. These patterns were reflected in our meta-analysis: The posterior estimate of MPA effects was highest overall for data that measured biomass, regardless of comparison type or harvest status, and the posterior mean response ratios were all near zero for size.

It is important to note that though the posterior mean response ratios for all three biological variables were positive for fished species, indicating a positive MPA effect, the posterior predictive distributions all had considerable (>30%) probability density below zero, reflecting large uncertainty that any given MPA would be expected to have a positive effect. In fact, our posteriors had a central tendency very similar to the corresponding priors, but much wider uncertainty bounds (Appendix S1: Figures S36–S48). There are a few potential explanations for this. First, the data from Lester et al. (2009) that we used for our priors were only available aggregated across taxa, not species, and may have had lower variability by virtue of that averaging process. Second, this could be an example of the repeatability crisis observed in some scientific fields, in which repeated studies of the same phenomenon produce results with weaker effect sizes and less statistical confidence (Filazzola & Cahill, 2021). We argue that this is unlikely as different MPAs are not true replicates of one another, and the actual "MPA effect" would be expected to differ because of differing ecological and management contexts. Rather, we suggest that the greater uncertainty could reflect the placement of more MPAs in more places, possibly with poorer management, or more studies reporting results on a broader suite of species (as opposed to a few species of specific interest to fisheries), leading to a broader array of outcomes. Publication bias toward positive MPA results may also contribute to more certainty in previous positive MPA assessments (Woodcock et al., 2017), and we did not include any study that acknowledged reporting only positive MPA effects. Nonetheless, our results highlight the need for localized adaptive management to respond to the local conditions and outcomes, rather than a blanket expectation for positive MPA effects.

The confounding effects of MPAs beyond their borders (through larval export, adult spillover, fishery displacement etc.) have long been recognized as a potential bias in quantifying MPA effects (e.g., Claudet et al., 2010; Lester et al., 2009; Osenberg et al., 2011; White et al., 2011), especially when considering outside–inside data. Positive MPA effects result in a self-contradictory approach to detecting those effects: MPAs are expected to perform better than the reference site, but they are also expected to produce spillover and larval export, which makes it harder to detect increasing MPA effects, as demonstrated by our modeled closed population scenario (Figure 2). How much and under what scenarios these biases are likely to happen has not been previously explored alongside empirical data. While we have taken steps toward resolving this, we have not considered the full gamut of scenarios possible. For example, we did not explore the implications of adult spillover, although it would likely lead to response ratios similar to those in our closed-population scenario (Moffitt et al., 2013). Likewise, we focused on a single species (blue rockfish) for our model. Numerous studies have demonstrated how MPA effects are likely to, and do, vary with MPA characteristics, species and ecosystem traits, local fisheries management, and stochasticity (e.g., reviewed in White et al., 2011). However, the tendency of outside–inside, and to a lesser extent BACI, to less faithfully reflect the underlying MPA trend is likely to be consistent across most cases, as previous modeling studies have demonstrated that outside–inside sampling is the least sensitive to temporal fluctuations in MPA dynamics (Hopf et al., 2022; Hopf & White, 2023). As the species and ecosystems protected, and the specific goals of each MPA are unique to each case, we recommend that modeling of expected trends and effect sizes be undertaken to accompany the analysis of monitoring data for a specific MPA (e.g., Kaplan et al., 2019) to ensure that MPA goals are properly quantified and met.

A surprising outcome from our modeling results is that BACI comparisons performed similarly to

outside–inside comparisons and did not always reflect the underlying temporal dynamics faithfully. By accounting for spatial and temporal variations, even simple BACI designs (which we have considered here) are expected to provide more reliable measures of MPA effects than outside–inside or before–after (Osenberg et al., 2011; Schmitt & Osenberg, 1996; Stewart-Oaten et al., 1986). This expectation implicitly assumes that changes over time due to management intervention will be on the same order of magnitude as, or greater than, changes occurring over space, since the BACI comparison calculates the ratio of changes at spatial and temporal scales. However, in our modeled scenarios, this condition did not hold: The outside–inside difference was notably greater than the before–after difference. To see this, compare the difference between the MPA (green line) and the fished population (blue line), to change within the MPA in the insets of Figure 2. This difference in magnitude of change between space and time resulted in BACI values following outside–inside more closely. This may not occur in scenarios where protected populations recover quickly, but to low densities (e.g., a lightly-fished fast-growing species). More work is required to elucidate this and may partly explain why predicted BACI logRR values were closer to before–after values in our empirical meta-analysis. A solution to this BACI challenge is to separately analyze the before–after data to gain insight into the possible population trends, if this is of importance to the MPA assessment.

It is important to emphasize that our conclusions about outside–inside versus before–after comparisons reflect the reality of many monitoring programs: Sampling is limited to only occasional snapshots of the system, rather than a continuous time-series. It is under those conditions that a large outside–inside response ratio could be deceptive when assessing longer-term conservation goals (Hopf et al., 2022; Moffitt et al., 2013; Rassweiler et al., 2021). If a time-series was used to calculate the outside–inside ratios, then population trends could also be detected. Thus, a key takeaway from our findings is that long-term time-series data, ideally from both MPA and reference area(s) and spanning implementation, are required to make robust and more complete assessments of MPA effects. Indeed, a large portion of the studies in our meta-analysis included at least one temporal data set longer than two time points. While the analysis of these data is outside of the scope of this study, it warrants further study.

The results of our analysis of the effect of MPA age did not match the general expectation that there would be a positive effect of MPA age on harvested species, and no effect on non-harvested species. Instead, there was a greater positive effect of age on non-harvested species, and overall high uncertainty in the slope of the regression, which explained little of the variation in the data. We propose this result arose because our dataset was sampling multiple different systems with different species traits and population dynamics, at different times in the post-implementation trajectory. For example, in some scenarios one would expect an initial decline in abundance post-implementation, prior to an increase in abundance or biomass, because of age-structured transient dynamics or fishery squeeze (Hopf et al., 2016b; Nickols et al., 2019; White et al., 2013). A better approach to understanding the effects of MPA age would be to compare different MPAs protecting the same or similar species, as Claudet et al. (2010) have done in the Mediterranean Sea. Given that limitation to our study, we do not make further inferences about MPA age effects in our dataset.

Our study demonstrates the importance of considering the assessment goals and the underlying system dynamics when assessing MPA effects and, importantly, demonstrates how they may affect summary metrics. Because it is unfeasible to model the expected dynamics for each unique system and scenario considered in our meta-analysis, we have considered the broader implications of our model findings; that MPA effects are likely to be smaller than suggested in previous meta-analyses that only considered outside–inside comparisons or did not separate analysis by comparison type. Furthermore, the failure to detect population declines using outside–inside comparisons has only been recognized theoretically (Hopf et al., 2022; Moffitt et al., 2013) and is typically overlooked when evaluating empirical data. This is problematic as a key indicator of successful MPA management is maintaining a persistent population (local or global; Botsford et al., 2001), which many studies may incorrectly assume is also occurring if positive increases are observed within MPAs compared with outside. When assessing specific MPAs, we recommend considering empirical findings in conjunction with theoretical knowledge relevant to the context of that MPA system, as previously called for by others (e.g., White et al., 2011; Woodcock et al., 2017).

AUTHOR CONTRIBUTIONS

Jess K. Hopf, Sarah Farnsworth Hayroyan, Sarah E. Lester, Kerry Nickols, and J. Wilson White conceived the ideas and designed methodology. Jess K. Hopf, Victoria Quennessen, Jacob Ridgway, Caren Barceló, Fabio Prior Caltabellotta, Sarah Farnsworth Hayroyan, Derek Garcia, and Montana McLeod collected the data. Jess K. Hopf and J. Wilson White analyzed the data. Jess K. Hopf and J. Wilson White led the writing of the manuscript. All authors contributed critically to the drafts and gave final approval for publication.

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We acknowledge the COVID-19 pandemic for fostering the desire for collaboration to ease the pain of social isolation. We thank Thon Chao for assistance with data collection, and Easton White, one anonymous referee, and editor Timothy Essington for thoughtful comments that improved the manuscript. Most of the work for this project was performed remotely across many countries, and we acknowledge and pay our respects to the traditional custodians of those lands. Specifically, we acknowledge that the White Lab offices at The Hatfield Marine Science Center in Newport, OR, are located within the traditional homelands of the Siletz tribe. Following the establishment of the Coast Reservation by Executive Order in 1855, Siletz people were violently removed from their traditional homelands. Today, living descendants of these people are a part of the Confederated Tribes of the Siletz Indians and the Confederated Tribes of Grand Ronde Community of Oregon. In the spirit of reconciliation, we commit to self-education and discussion. This is publication 537 of the Partnership for Interdisciplinary Study of Coastal Oceans (PISCO), funded primarily by the David and Lucile Packard Foundation.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data, script files, and model code (Hopf, 2024) are available in Zenodo at https://doi.org/10.5281/zenodo.12697206.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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From: cameron cribben <[redacted]>
Sent: Thursday, October 24, 2024 05:47 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Fwd: Opposition to Proposed Closure of Point Loma Ocean Waters – MPA Expansion

Begin forwarded message:

From: Paris Cribben <[redacted]>
Date: October 24, 2024 at 5:44:36 AM PDT
To: cameron cribben <[redacted]>
Subject: RE: Opposition to Proposed Closure of Point Loma Ocean Waters – MPA Expansion

Dear Members of the California Department of Fish and Wildlife,

I am writing to express my strong opposition to the proposed closure of Point Loma ocean waters as part of the Marine Protected Areas (MPA) expansion. As a San Diego-based fisherman with over 12 years of experience fishing for California spiny lobster, I believe that the proposed closure will negatively affect not only my livelihood but also the broader fishing community that depends on these waters.

The California spiny lobster fishery is one of the most sustainable and well-regulated in the state. I have been part of this fishery for more than a decade, working with local fishermen and adhering to strict regulations designed to ensure long-term sustainability. These include trap limits, size restrictions, and seasonal closures—all of which are enforced to maintain a healthy lobster population. The additional closure of Point Loma, an area vital to our operations, would unnecessarily restrict access to one of the most productive fishing grounds for this species.

Throughout my career, I have seen firsthand the positive impact of California's responsible fishery management practices. The spiny lobster population has remained stable, and our industry has been proactive in supporting conservation efforts. Closing Point Loma's waters to commercial and recreational lobster fishing is not only redundant but also harmful to the hardworking men and women who rely on these waters for their livelihood.

Additionally, the economic impact of this closure would be devastating to local businesses. Many of us have deep ties to the San Diego community, working with seafood distributors, restaurants, and markets that depend on a steady supply of local, sustainably caught spiny lobster. Limiting our access to these critical waters could force some of us out of business and disrupt the local seafood economy.

It is also important to consider that closures like this could lead to increased fishing pressure in other, less-regulated areas, potentially harming the very marine ecosystems we all seek to protect. A balanced approach is crucial to maintain both environmental conservation and economic sustainability, and I believe we already have that balance under the current regulations.

As someone who has spent countless hours on the water and has a deep respect for the ocean and its resources and would like to pass on his lobster permit to his young son in the future, I strongly urge the Department to reconsider this proposal. The closure of Point Loma waters is unnecessary and will disproportionately impact the livelihoods of responsible, local fishermen who have long been stewards of these waters.

Thank you for considering my comments. I hope you will consider the voices of the local fishing community when making your final decision.

Sincerely,

Cameron Cribben

California Spiny Lobster Fisherman, San Diego, CA

From: Brian Kiyohara <[redacted]>
Sent: Thursday, October 24, 2024 06:00 AM
To: FGC <FGC@fgc.ca.gov>
Subject: Fw: Opposition to Proposed MPA Expansion

Begin forwarded message:

On Thursday, October 24, 2024, 5:59 AM, Paris Cribben <[redacted]> wrote:

Dear California Fish and Game Commission,

I am writing to express my strong opposition to the proposed closure of the ocean waters off Point Loma as part of the California Marine Protected Areas initiative. As a California spiny lobster fisherman for over 33 years, I have seen firsthand the value of sustainable fishing practices that not only support our local economy but also feed our community.

Fishing is not just a job for many of us in Point Loma; it is a way of life. The ocean provides for us, our families, and our neighbors. The proposed closure threatens to disrupt the livelihoods of hardworking fishermen who rely on these waters to sustain their families and contribute to the local economy. Point Loma is a vibrant community that thrives on the fresh seafood we provide, and our spiny lobster catches are a key part of that.

Moreover, our fishing practices have evolved to prioritize sustainability and environmental stewardship. We work diligently to adhere to regulations that protect marine ecosystems while ensuring that our local community continues to have access to fresh, locally sourced seafood. Closing these waters does not guarantee better conservation; instead, it can create economic hardships and undermine the traditions and values that define our coastal way of life.

I urge the MPA to consider the voices of local fishermen and the importance of maintaining access to these waters. Instead of implementing blanket closures, we should explore collaborative management strategies that involve the local fishing community in decision-making processes. This approach would not only promote conservation but also support the livelihoods that depend on responsible fishing practices.

Thank you for considering my perspective as a lifelong fisherman dedicated to preserving both our marine resources and our community's way of life.

Sincerely,

Brian Kiyohara
California Spiny Lobster Fisherman
Point Loma, CA

From: Tracy <[redacted]>
Sent: Thursday, October 24, 2024 01:58 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Opposition to Proposed Closure of Point Loma Ocean Waters – MPA Expansion

RE: Opposition to Proposed Closure of Point Loma Ocean Waters – MPA Expansion

Dear Members of the California Department of Fish and Wildlife,

I am writing to formally oppose the proposed closure of Point Loma ocean waters as part of the Marine Protected Areas (MPA) expansion. As a commercial fisherman who has been fishing California spiny lobsters and other species in these waters for the past 35 years, I know firsthand the impact this closure will have not only on my livelihood but also on the local economy. I also own a local fish market and a fish processing operation, both of which will suffer significantly if this proposal moves forward.

The California spiny lobster fishery, along with the other fisheries I participate in, has been carefully regulated for years to ensure sustainability. We have strict seasonal limits, trap restrictions, and size regulations that ensure we are not overfishing and are leaving the ecosystem in a balanced state. We fishermen, processors, and market owners have long been partners in conservation efforts, and it's important to highlight that these existing measures are already achieving the goal of resource preservation. The proposed closure of Point Loma's waters is not necessary from a sustainability standpoint and would impose undue hardship on those of us who have invested decades in responsible fishing practices.

In addition, the closure will have no meaningful benefit for the state of California, either environmentally or economically. In fact, it will be detrimental. If Point Loma is closed off, it will force many fishermen, myself included, to scale back or cease operations. This means that California will lose out on substantial tax revenues from fish sales, licensing fees, and the economic activity generated by businesses like my market and processing operation. No income or benefit will be generated by the state from a closure that puts responsible fishermen out of work.

The ripple effect will be felt across the entire community. My market employs several local workers, and our processing operation supports even more jobs. We sell directly to restaurants, distributors, and consumers, all of whom want fresh, local seafood. If Point Loma's waters are closed, we will not be able to meet demand, and consumers will be forced to turn to imported or less sustainable options. This is a direct loss for the local seafood industry and for the state, which will lose revenue and jobs as a result.

In addition, closures such as this one could lead to increased fishing pressures in other, less regulated areas, potentially causing harm to fisheries and ecosystems that currently benefit from the sustainable practices of those fishing in Point Loma.

The fishing industry in San Diego has been a cornerstone of the local economy for generations, and we take pride in our role as stewards of the marine environment. The proposed closure of Point Loma will undermine decades of responsible fisheries management and hurt hardworking, local businesses without delivering the intended benefits.

I strongly urge you to reconsider this proposal and to take into account the full economic and environmental consequences before moving forward. The local fishing community, including myself, stands ready to collaborate on solutions that protect both the ocean and our livelihoods.

Thank you for your time and consideration.

Sincerely,

Randy Toussaint

From: Sarah Wallace <[redacted]>
Sent: Thursday, October 24, 2024 03:56 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Written public comment for November 6th MPA meeting

Thank you for your time in reading my comments.

Sarah Wallace

Dear members of the California Fish and Game commission; Marine Resources Committee

I would like you to imagine, a man who works every single day for his family, including weekends, with hopes that the amount of money he brings home is enough to pay for food, clothing, a home and safety for his family. This man is trying to run a small business in an unstable economy with rules that are constantly changing, law enforcement who can investigate him at anytime for any reason without a warrant, in one of the most dangerous and unexplored environments known. He is paying for permits, paying for VMS tracking, paying for fishing gear, vessel repairs and still trying to pay fair wages for those working with him. Now, knowing all this, imagine he is now told that he can no longer fish where he has for the last 20 years, in waters he knows like his own backyard. In waters where he befriends, sheep head, grass bass, seals and other marine life, he knows these ecosystems more intimately than most can claim.

The proposed MPA closures in Petition ID 2023 33 MPA is not founded on science nor was it discussed with those who are in and under those waters on a weekly basis and know them best. May I ask, why is this even an option for closure then? If I am not mistaken, these closures are being driven by the hope to rebuild kelp. With that said, fishing is not known to be detrimental to kelp growth, in fact the harvesting of red and purple sea urchin has been know to help boost kelp growth. Instead of closing the area why not look to other organizations such a NOAA a with their kelp restoration projects and see what can be done to support and help them. Knowing how detrimental it could be to human life by causing families who work hard for a living to potentially need to rely on government financial assistance because the waters they were once allowed to fish in they no longer can.

As I am sure you know the “man” I speak of theoretically consists of a group of upstanding commercial fishermen who have made it their life’s work to fish sustainably, and try to keep the food they catch available to Americans and those who care to purchase sustainably caught seafood.

By pushing these fishermen out of these areas, you are then forcing the American people to rely more heavily on international fishing. These other fisheries have no where near as strict laws or support for sustainability and ecosystem management

Additionally, the waters that then are left as “available” our fishermen will become much more crowded, the biodiversity could potentially dwindle and cause further issues. At this point there is a fair percentage of our waters considered marine protected and we see no further need in creating more unless it is done based on sound scientific evidence and in collaboration with these fishermen who know the waters best.

As a further thought, it would be interesting to see the public’s reaction to a fishing documentary. One where it shows our United States fishermen, who are following all laws and practicing sustainable fishing. Compared to those of other countries- countries we import our fish from, with their disregard for biodiversity, sustainability and lack of deep care of the fish they are selling. Our fishermen take pride in their catch and we as consumers should support them in these efforts and not make it more difficult.

I acknowledge the weight of your responsibility as decision makers for our state waters. Please consider that your decisions impact directly our ability to provide for our children. The ripple effect would not only impact the immediate fisherman and their families but will continue to create tremendous hardships that will be disastrous for many generations to come. Once an area becomes an MPA is rarely ever changes back to “fishable waters”, I urge you to please consider other options besides closing these waters and to please work collaboratively with the fishermen who know the waters best.

Thank you for your time,

Sarah Wallace

From: John Conniff <[redacted]>
Sent: Friday, October 25, 2024 03:09 PM
To: FGC <FGC@fgc.ca.gov>
Subject: Proposed MPA expansion in Point Loma

Dear Commission,

I am writing this letter in response to the proposed creation of an expanded MPA in Point Loma. I have been a commercial crab and lobster fisherman in Point Loma for the last 15 years and am also the president of the Point Loma Commercial Fishing Alliance. Additionally, I am a partner in Tunaville Market and Grocery, a brick and mortar fish market on the waterfront in Point Loma. This market started two years ago with the mission of providing locally and sustainably caught seafood to the local community, much of it based on lobster.

There are currently 22 lobster fishermen operating in the proposed reserve. Those who are not pushed out of business will be forced to travel to La Jolla, effectively tripling the pressure in this area. Additionally, VMTs and VHTs will dramatically increase for the fleet furthering the negative effect of carbon emissions in the region. It seems clear that this would only exacerbate the issue of global warming which seems to be the primary factor with regard to urchin proliferation and kelp deforestation. Additionally, our market will now be forced to source seafood from other, more distant sources which will result in more trucks (and planes), resulting in more VMTs. Closing Point Loma to all fishing will have a destructive effect on our local fishing economy and will primarily target small, family owned businesses.

I drive through the Cabrillo MPA on a daily basis. There is less kelp in the preserve boundaries than outside of it. I've found no scientific evidence that creating a no take zone improves kelp health within that boundary. It seems to me, this closure has the potential to create the opposite effect of what is intended.

Thank you for your time,

John Conniff
Owner/Captain
FV Juliet Leigh
[redacted]

From: Dave Stephens <[redacted]>
Sent: Tuesday, October 29, 2024 10:17 AM
To: FGC <FGC@fgc.ca.gov>
Subject: November 6 meeting/MPA petitions

DFW Commission

Please accept this letter as written comment for MPA petitions discussion and action items 2 on the Agenda.

RE: MPA Petitions October 29, 2024

DFW Commission,

I am writing to you with regard to public comment for the upcoming meeting November 6th, 2024. I want to address the use of petitions as a tool rather than scientific research and fisherman observations for data with regards to decision making for creating MPAs. Often petitions are based upon opinion and not fact. By allowing petitions to create new MPAs you are opening the door and allowing feelings and lobbying for rule making which uses politics (appeasing the 30x30 initiative) rather than science and true observable data to make decisions.

I am concerned because the proposal for the use of petitions will lead to creating an MPA in an area (Point Loma) in which I have 55 years of experience and observation. I was born and raised in Point Loma and my dad started taking me to the reefs when I was 2 years old. I have been fortunate to grow up with this coastal surrounding, on both sides of the Point, as my front and backyard. Over my lifetime I have had vast and extensive observation of the reefs and kelp forest. My observations come from many different perspectives, land based, boats surface based, in and underwater based. These observations are because I have walked, surfed, snorkeled, commercially dove and trap fished this region my entire life not to mention I was very blessed to have grown up in a house that was situated one block from stairs at the bottom of Ladera street at the end of Sunset Cliffs. Everyday I woke up and observed and watched the ocean from my windows and everywhere around the vicinity. That coastline was and still is my life. Today I still have two commercial fishing vessels in which I berth in Point Loma, San Diego Bay and harvest Lobster, Sea urchins and Sea Cucumbers throughout the year. This perspective leads me to my observations of the Kelp Forest.

Though some scientists may have been studying Point Loma's kelp forest for 5 to 10 years, I have more than 50 years studying it. I am also an educator and teach subjects like Climate Change to my 6th graders. My brother, who also grew alongside me in Point Loma, became a Marine Biologist who studied the intertidal zones and region of San Luis Obispo. I was fortunate to have amazing discourse about the marine coastline regions spanning between San Diego and Moss Landing with my brother which added to my knowledge of this topic. In my observations, I would say that not just in Point Loma but up and down the coast, the kelp forest has diminished because of pollution and climate change (not just cyclical swings) leading to water temp changes and more severe storm activity. Over the past 50 years the giant kelp forest was the healthiest when Kelco was allowed to harvest kelp. By their harvest of the canopy of the kelp forest, the roots and stalks grew healthier and more robust (I observed this from the sea floor) just as trimming trees and plants on land. Along

with favorable environmental conditions the kelp forest flourished. Recently, in the past year and a half I have been very pleased to see certain areas of Point Lomas kelp forest "coming back" growing and spreading over the reefs in the 30 to 90 ft zone. I feel that this is due to 2 cooler seasons which have given rise to more favorable temperature range for giant kelp to grow.

So, in conclusion, by allowing the use of petitions as a tool for creating MPAs is bad management practices. I am concerned that this will lead to unnecessary closures of marine regions which will have a negative effect on the health and economic viability of those regions. If you want to help the kelp forest then you need to address the overall cause of the global environmental changes, human activities that cause pollution and climate change not the day-to-day interactions within the kelp regions.

David Stephens

Commercial Fisherman 40+ years

K-12 Educator 26+ years

From: Jason Johns <[redacted]>
Sent: Tuesday, October 29, 2024 06:50 PM
To: FGC <FGC@fgc.ca.gov>
Subject: formal comment to MRC

To whom it may concern,

My name is Jason Johns and I'm a conservation scientist and fisherman in Santa Barbara county. I read petition 2023-33 MPA with an open mind, as I know that MPAs can be successful both for natural and human communities when carefully applied. While reading the petition as well as the scientific literature it both cited and failed to cite, I found two major errors that undermine the petition's legitimacy.

In the attached letter I outline these errors in the context of what is known about the effect of MPAs on the health and resilience of kelp. Thank you in advance for taking the time to read and consider these points.

Sincerely,

Jason Johns

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Postdoctoral Researcher

One People One Reef - Bernardi Lab, UC Santa Cruz

Urban Forest Institute

A Petition To Expand California Marine Protected Areas Contradicts Science And Itself

By Jason Johns, Conservation Scientist

Marine Management and Conservation

Conservation is a critical tool in maintaining the health of our ocean ecosystems. The kelp forests of California are important sources of ecological, cultural, and economic value. Their careful management is one of the highest priority initiatives for all of their stakeholders and stewards, including policy makers, tribes, fishers, divers, conservation biologists, and others.

Building marine management plans is a complex endeavor, and the success of any given initiative relies on its ability to consider multiple, sometimes conflicting perspectives. Each stakeholder group brings unique and important expertise, and each perspective has both assets and limitations. The asset that the scientific perspective brings to management is the ability to produce and analyze objective, tangible evidence.

Using science objectively, not selectively

While it's a no-brainer to use science in conservation decisions, it requires additional effort to use it objectively and comprehensively. Part of this objectivity is being sure to consult all of the science available on the issue at hand. We need to be wary of "using" any science to support a given initiative, especially when we have a personal stake in the outcome. Omitting relevant studies from the conversation undermines both the legitimacy and success of conservation initiatives.

Several organizations recently submitted a petition to the California Fish and Game Commission to protect kelp forests in Southern and Central California. The purpose of this letter is to address their incomplete and improper acknowledgement of the science around kelp health in California.

Let me first establish my biases. I'm fortunate to have a deep relationship with and respect for the ocean, which started in my childhood. I interact with the ocean by any means possible, whether it be riding waves, paddling various crafts, snorkeling, scuba diving, and occasionally sourcing food from it with various tools. I am also a scientist with a keen interest in learning more about the dynamics of the natural world, and a conservation biologist working to support its longevity. Accordingly, I approached this petition with an open mind, and multiple sources of both expertise and motivation.

I looked at the scientific papers and reports cited in the petition to examine the evidence myself. While sharing opinions is an important part of this process, the following are not my opinions - rather objective analyses of two fundamental errors in petition 2023-33MPA that either contradict the scientific literature and/or the petition itself.

Errors in the petition

The first major error that the petition makes is claiming that kelp density itself is positively influenced by MPAs. While we know that some California kelp dwelling species can be positively affected by MPAs, such as lobsters and sheephead (Kay et al., 2012; Hamilton & Caselle, 2015), kelp density has never been shown to be consistently higher in MPAs than outside them. In fact, the vast majority of published science on this topic from California demonstrated that that kelp density is unaffected by MPAs (Malakhoff & Miller, 2021; Smith et al., 2023). The second inconsistency is in the petition's description of the selection process for the sites chosen for MPA expansion or establishment. These two errors are fundamental to the petition, and their lack of rigor substantially undermines its legitimacy.

Error #1: MPAs improve kelp density and resilience to climate change

The petition is written with the intention of protecting kelp itself, which relies on the premise that MPAs enhance the health of kelp. It is true and relatively uncontroversial that MPAs protect many fish and invertebrate species - there are generally more fish and larger fish within MPAs than outside of them (Lester et al., 2009; Rolim at al., 2019). This has been demonstrated many times in various ecosystems around the world. Importantly, though, there is a lack of scientific evidence demonstrating that kelp itself is positively influenced by MPAs (Malakhoff & Miller, 2021; Smith et al., 2023).

However, the petition makes the following claim: "The Decadal Management Review of the statewide MPA network found that, while kelp species across the state experienced large-scale declines during the 2014-2016 marine heatwave, 'overall, kelp canopy was more stable and appeared to be more resilient inside MPAs' (CA MPA DMR 2022)."

The Decadal Management Review (DMR) does state this, but does not show any data to support it, which makes it an inappropriate citation in this context. A more appropriate citation would have been the 2021 report by Carr and colleagues that the DMR authors cited, entitled "Monitoring and Evaluation of Kelp Forest Ecosystems in the MLPA Marine Protected Area Network."

While the Carr et al. report did compare kelp resilience in MPAs and non-MPAs across California, there are multiple factors that make it a less than appropriate citation for this claim, especially considering there is much more directly relevant science to consult on this topic (Malakhoff & Miller, 2021; Smith et al., 2023). First, two out of three

comparisons had no visual difference between MPAs and their “reference” non-MPAs. In addition, when looking specifically at kelp resilience, the DMR lumped all MPAs across California into one analysis (Figure 25), rather than splitting them into Southern, Central, and Northern California regions, as they did with their other analyses. Given the many fundamental differences between these regions, including the species of kelp that dominate them, it is difficult to draw any region-specific conclusions from this analysis. The strong differences between California regions are emphasized elsewhere in the DMR, as well as in two other studies currently (Hall-Arber et al. 2021 and Kumagai et al).

Further, the DMR did not show any statistics in this particular analysis, which is a fundamental part of determining the confidence that any apparent trend is a true representation of the entire population. This is likely why they chose the language, “appeared to be more resilient.” Finally, the authors acknowledge the inherent difficulty in comparing MPAs with non-MPAs, as MPAs are often chosen *because* they are known or suspected to be especially resilient, even before their protection.

A more directly applicable study to the petition’s claim is Smith et al. (2023), which did split their analyses of kelp communities in California MPAs by region, and fortified the trends they found with statistics. They found that “for all habitats except the rocky intertidal, MPAs did not impart increased resistance or recovery from marine heatwave-driven community changes compared to sites outside of MPAs.”

Malakhoff & Miller (2021) would have also been an important study to consider, which found that “no significant effect of reserve status (MPA vs. non-MPA) or time period or the interaction between status and time was evident for kelp stipe density” (Figure 1). They also compared grazing and urchin density inside and outside MPAs, and found “no evidence, therefore, that increases in predators inside Channel Islands MPAs are causing, either through direct or indirect effects, a trophic cascade leading to positive effects on kelp forests via decreased sea urchin biomass and grazing.” They conclude that “urchin biomass overall has increased inside

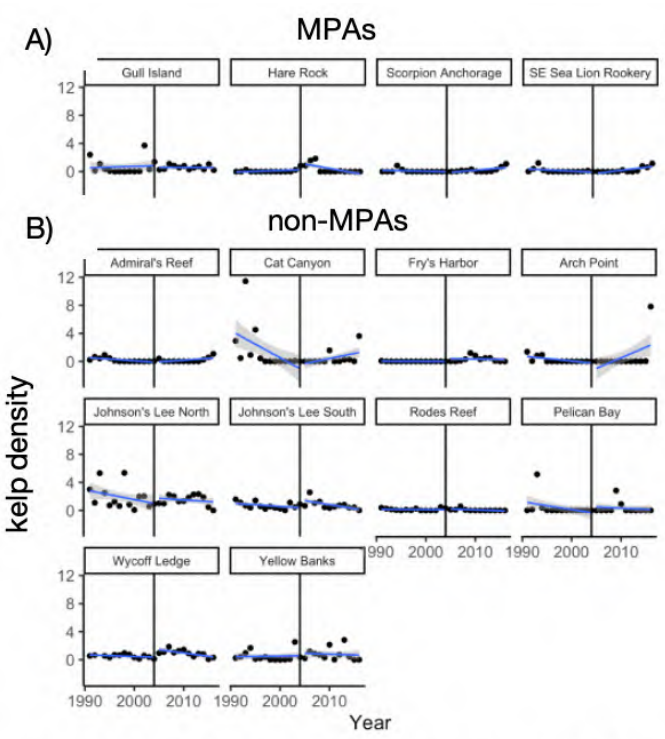

Figure 1. *Adapted from Malakhoff & Miller (2021) Figure S3. “Change in kelp stipe density over time with regression lines fit before and after the establishment of marine reserves in 2004 (vertical lines) at reserves (A) and control (B) sites.”

reserves, and we found no evidence that giant kelp is positively affected by reserves."

While it is not yet published, it is important to mention a recent study by Kumagai et al. which found that kelp resilience and recovery to the 2014-2016 marine heatwave was slightly more robust inside Southern California MPAs than outside (there was no effect of MPAs in Central California). They do, however, acknowledge that their measurements of kelp resilience and recovery are subject to some amount of error, as they were from satellite imagery. In contrast, both Malakhoff & Miller and Smith et al. measured kelp directly by counting the density of stipes (aka "stringers") on the reef, which is arguably a more thorough measure of kelp health. They also acknowledge the bias associated with the selection of MPA sites - "Taken together, these results could be biased if MPAs had been non-randomly placed in habitat more favorable to kelp recovery."

Importantly, this study is in preprint, meaning it has been submitted to a scientific journal and is currently under peer review. The petition does not cite this paper, nor should it, but the preprint is publicly available, thus it is mentioned here for thoroughness.

Another study not cited by the petition, but worth mentioning, is Eisaguirre et al. (2020). Like Kumagai et al., they did not examine the effects of non-random placement of MPAs, which likely could have affected their finding of higher kelp density in MPAs than outside in the Northern Channel Islands. This result contrasts that of Malakhoff & Miller, which found no effect of MPAs on kelp density. Notably, Malakhoff & Miller surveyed 33 sites and analyzed each site both individually and together, with statistics. Eisaguirre et al. surveyed 7 sites and lumped them all together, reporting no statistical hypothesis testing, but rather models that did not fit their data particularly well.

The above literature review demonstrates the objective failure of the petition authors to thoroughly examine the science relevant to their initiatives and claims, rendering the petition illegitimate.

Error #2: Sites were chosen because they were not listed as "high priority" by Giraldo-Ospina et al., 2023.

The second contradiction is in regard to the strategy used to select sites for MPA expansion. This error is not a contradiction or omission of the literature, but rather a contradiction of the petition itself.

The petition narrative states, "we did not focus on 'high priority' restoration sites identified by Giraldo-Ospina et al. 2023…" However, Table 1 of the petition suggests that they propose to expand the two MPAs on the Northern Channel Islands *because* they hold portions of high priority sites: "The Northern Channel Islands contain some of the largest remaining resilient kelp beds in state waters, although large portions of the

islands have experienced die-offs and are rated as ‘high priority’ sites by Ospina-Giraldo et al. 2023.”

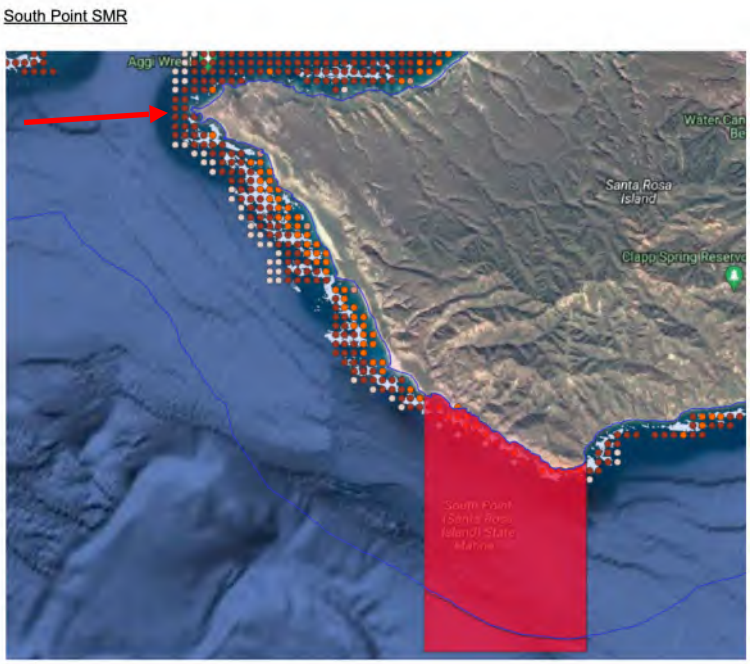

Figure 2. *Adapted from Petition 2023-33 MPA. The red polygon indicates the current South Point MPA on Santa Rosa Island. The red arrow indicates the point to which the MPA is being proposed to expand, 3nm out. Dark red circles indicate “high priority” zones.

Further, Giraldo-Ospina explicitly states that Santa Rosa has a concentration of high priority sites: “Sites in the south coast classified as high priority for giant kelp restoration are visibly clustered around San Miguel and Santa Rosa Islands.” This is clear from the map of Santa Rosa Island included on page 17 of the petition, which proposes to expand the current South Point MPA (red polygon) on the southwest side of Santa Rosa Island all the way to the west end of the island (red arrow; Figure 2). The dark red circles indicate “high priority” areas, which clearly constitute the majority of the proposed expansion area.

This is another egregious error that undermines the legitimacy and relevance of petition 2023-33MPA. The authors of this petition gathered thousands of signatures on a fundamentally flawed document, which is negligent at best.

Going forward

The intent of this letter is not to denigrate marine management and protection, nor any of the science cited in the petition, rather to expose the lack of foundation for this proposal. The errors identified here not only undermine the legitimacy of the petition itself and its signatures, but demonstrate a lack of regard for complete and objective due diligence for a potentially highly impactful initiative. My hope is that this previously ignored information will be considered in all discussions going forward.

Finally, I remind that the natural sciences, while crucial, are not the only factor to consider. There is also a robust body of social science research examining the effects of marine reserves on other tangible and intangible factors such as livelihoods, cultures (both indigenous and non-indigenous), healthy subsistence, and lifelong passions. These considerations should also be weighed heavily, yet were mostly ignored in this petition. Knowledge is power, and it is our duty to incorporate all of the relevant knowledge available to us in these significant decisions.

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From: Mitchell Conniff <[redacted]>
Sent: Tuesday, November 5, 2024 09:39 AM
To: FGC <FGC@fgc.ca.gov>
Subject: MRC November 6-7, 2024 Meeting Comments

Greetings,

Below is a letter from the Point Loma Commercial Fishing Alliance to be included as public comment for the November 6-7, 2024 meeting. The comment is in regards to Petition 23-33MPA. I am aware that the deadline for electronic submission has passed, I will be presenting this letter in person at the meeting, but I am sending an electronic copy as well for the administrative record.

Thank you,

Mitch Conniff

PLCFA

www.ptlomacfa.org

October 28, 2024

Marine Resources Committee

Natural Resources Headquarters Building

Second Floor

715 P Street

Sacramento, CA 95814

Greetings:

I am writing this letter to the council regarding petition (2023-33MPA) submitted by Environment California and Azul in November of 2023. Our organization has grave concerns regarding this petition and many of the assertions contained therein, specifically in regard to the proposed expansion of the Cabrillo MPA. Additionally, we feel the petition does not merit further consideration due to numerous inconsistencies with the 2016 MLPA Master Plan and a failure by the petition to reach the standards outlined by the MLPA Master Plan.

First, allow me to introduce our organization. The PLCFA is an organization of Commercial Fishers and Commercial Fish Businesses based in Point Loma. We were established to address issues that impact our businesses including state and federal regulations, land-use issues and environmental/ marine resource management. Our members are primarily made up of trap and hook & line fishers and they primarily fish the near shore waters around Point Loma, adjacent to the current Cabrillo MPA. As a group we take our environmental and marine stewardship responsibilities seriously and our members engage in zero bycatch fisheries, utilize carbon reducing CARB Tier 2 engines in their vessels as well as engage in various community based environmental events.

Because our group is Point Loma/ San Diego based, our members are specifically concerned with the impact of the proposed expansion of the Cabrillo MPA on their livelihoods. The proposed expansion would add an additional 15+ Square miles of zero-take MPA and represent a 500% increase of the existing MPA. This expansion would eliminate virtually all marine resource take for the historic fishing community of Point Loma and reduce near-shore fisheries available within the city of San Diego by roughly half. When combined with the existing restrictions in La Jolla it eliminates the viability of commercial fishing accessible from San Diego Bay and would eliminate the livelihoods of

dozens of families. The petition blithely infers that these fishers could pursue their livelihoods elsewhere, but that opportunity simply does not exist. This expansion of the current MPA would result in what amounts to a massive closure, impacting a large swath of historic commercial fishing grounds and the evidence used to justify such a drastic move is inadequate at best.

The Petition Is Not Aligned with the Process Laid out in the 2016 MLPA Master Plan

The 2016 MLPA Master Plan laid out a process for new petitions. That process had specific standards that included the following:

- a blue-ribbon scientific panel that looked at all aspects of successful MPA's with "results driven management" and proposed expansion
- "robust" stakeholder outreach including "advice, assistance and involvement of the participants in the various fisheries"
- "Preserve the diversity of recreational, educational, commercial and cultural uses"
- Include diverse types of reserve (no-take, restricted take and unrestricted take in compliance with current fishery management) to evaluate the effectiveness of different protection levels
- Contain an analysis of socio-economic impacts resulting from the proposed MPA

Petition 2023-33MPA fails to meet those standards in many specific ways.

The Petition does not follow the process for new petitions as described in the Master Plan

Petition 2023-33MPA fails to meet the process standards in many specific ways. The MLPA Master plan outlines a process in which the groups included in the Memos of Understanding (MOU), a Blue-Ribbon Scientific Panel, MLPA and CDFW staff and members of the Regional Stakeholder Group would work collaboratively to analyze and make proposals for changes to the MPA network. Nowhere in the Master Plan is there a process in which wide-ranging, narrow interest groups outside the above referenced groups create their own petitions. It is our contention that the petition contains numerous errors in process and did not go through the proper process outlined by the MLPA Master Plan and thus should be exempt from further consideration.

The science sed to justify the expansions is overly broad, data is misconstrued

and necessary scientific data is incomplete or absent altogether

The proposition lists seven MPA's, with a combined size of 76.2 square miles and spread over hundreds of miles, yet virtually every study mentioned deals exclusively with a small

number of areas in the Santa Barbara channel and Monterey Bay. To apply limited studies of a relatively small area, hundreds of miles away, broadly to a variety of marine environments with a unique set of issues is irresponsible and flies in the face of the Master Plan's promise to apply a science driven approach to MPA management and new petitions. The Cabrillo MPA, for example, faces a broad and unique set of possible challenges that could be relevant to kelp die off. Explanations and possible causation that deserve investigation are Tijuana River runoff, San Diego River runoff, possible contamination from the three adjacent Naval bases, Naval activities on the water adjacent to the proposed expansion, pesticide use in the creation of the Sunset Cliffs Natural Park, extreme marine wave events that occurred in recent years and corresponded with the kelp forest disappearance, a sewage treatment plant in the proposed MPA and storm runoff that is prevalent in the area. Each one of those factors deserve consideration for their impact on the health of the kelp forest, yet the petitioners completely ignore them. The biggest consideration the petitioners fail to investigate is the health of the kelp forest inside the existing MPA compared with kelp forest health adjacent to the MPA. Anecdotal observation would suggest that the kelp forest disappearance is in fact the same within the MPA and outside the MPA and at minimum a study should be completed to determine whether or not that is the case. All seven of these MPA expansions should be considered on a case-by-case basis, considering the unique factors each one faces and relying on data and analysis pertinent to each one.

The petition mentions several times that "overfishing" is contributing to kelp forest disappearance (despite conceding multiple times that the most generally accepted factor contributing to kelp forest die off is climate change and associated acidification). The petition does nothing to analyze the overall health of the various fisheries and fails to show any evidence that the areas in question are in fact "overfished". There is no analysis of what a healthy baseline stock for the various fisheries is, what the stock looks like currently and what it would look like if it were "overfished". The commercial fishing activity within the proposed Cabrillo MPA expansion are highly regulated, limited entry, zero by-catch fisheries. To imply that these fisheries are "overfished" is to imply that the current analyses of the state and federal government, PSMFC and all the scientists involved are wrong and their management practices, up to and including the present, have been inaccurate and detrimental to the marine ecosystem.

The one factor that virtually every scientist and stakeholder agrees is the driving force behind the declining health of our kelp forests are marine heatwave events, climate change and ocean acidification. Despite that shared belief the petitioners fail to address that in any meaningful way and their petition could in fact contribute to those areas. Any responsible, science-based petition would investigate the most likely cause and prescribe

solutions that would primarily deal with that cause. The only solution this petition realistically prescribes is no take of marine resources and absolutely no prescribed action to deal with the most likely culprit. Further, the petition does no analysis of the likely side-effects of their proposed solution. Closures of this magnitude will undoubtedly result in increased Vehicle Miles Travelled and Vessel Hours Travelled (VMT/VHT) as fishers are forced to travel beyond the closures in order to make a living. Considering the Cabrillo MPA, the only areas left for those fishers would be La Jolla or travelling offshore to San Clemente Island and the offshore banks. Best case scenario is that this expansion would result in a doubling of VHT as fishers travelled north to La Jolla and likely would send a significant number of fishers offshore increasing VHT tenfold. Additionally, the petition does nothing to address the likelihood that this closure would lead to a decrease in locally available seafood products forcing the market to rely on products from further away, increasing VMT to bring products to market. The expansions and resulting closures would undoubtedly lead to an increase in imported resources as well, leading to greater VMT/VHT and an outsourcing of the environmental impacts to places with poorer fisheries management practices than California. Any responsible petition would include an analysis of likely side effects, including a VMT/VHT analysis, and how those factor into the goals of the prescribed solutions.

<u>The Master Plan calls for MPA's to include diverse types of reserve (no-take, restricted take and unrestricted take in compliance with current fishery management) and diverse types of marine environment.</u>

San Diego County has multiple MPA and SMCA. They are all virtually identical in that they are all reef structure and contain a zero-take or highly limited take. There is zero diversity, and the petition proposes to massively expand that without proposing any efforts at diversity of ecosystem or take allowances. There is an opportunity to include areas of different take allowances to explore the differences between the management techniques, yet the petitioners ignore that notion altogether. To increase an MPA to this degree, and eliminate citizen access to Marine resources, without even exploring the results of different management techniques is inconsistent with the MLPA Master Plan.

This petition clearly does not meet the standards outlined in the MPA Master Plan, nor was the process for new petitions followed. The petitioners failed to meet the scientific standards, ignore altogether any notion of a collaborative process and fails to engage, in any meaningful way, to "preserve the diversity of recreational, educational, commercial and cultural uses". Because of the failure of the petitioners to even attempt to adhere to the process laid in the MLPA Master Plan the petition should be excluded from any further consideration.

The Socio-Economic Impact is ignored altogether, and the necessary impact and study were never completed

The socio-economic impact portion of their petition (which is required for the petition to be accepted) amounts to one small paragraph that includes no real scientific analysis. The petition includes seven expansions from San Diego hundreds of miles north to Santa Cruz yet sums up the economic impact as "minimal" and ridiculously suggests that the economic interests will somehow be enhanced. There are no economic figures included in the proposition, there is no analysis of the cultural, historical or social impacts, no mention of possible impacts on native communities and what little science that is included is irrelevant and misconstrued. Ms. Deehan of EC attended the San Diego MPA Collaborative in October and when pressed on the matter admitted that they didn't have any economic data and would be "very interested in seeing the numbers". That is an admission of their neglect to this area, a response removed from reality and an example of how out of touch the petitioners are.

The proposal would have a devastating socio-economic impact on the Point Loma Community

We have attached an Economic Impact Report that analyzes how this expansion would impact the livelihoods of Trap Fishers and the associated land-based businesses in Point Loma. The report indicates that the Trap Fishery contributes 51 jobs and $4.3 million to the local economy. This analysis does not include the tens of millions of dollars contributed from the sport fishing industry, the recreational spear-fishing industry, the tourism industry and many more. This data can be extrapolated out 6 more times for each expansion and economic impact quickly reaches into the hundreds of millions of dollars and hundreds (possibly thousands) of jobs. The petitioners appear to rely on the notion that all of these stakeholders can simply move a little bit and then enjoy the fruits of the expanded MPA's. The reality is that there is nowhere to move any longer and these businesses will be left with no choice but to go out of business. The Cabrillo MPA expansion in particular would remove the last available reef structure in southern San Diego County. The only other possible option would be to move north to La Jolla and that is not a realistic option as La Jolla is already impacted by the South La Jolla MPA and the remaining fishable area is too impacted at present; it certainly could not support the addition of the entire Point Loma Fishery. The Cabrillo expansion amounts to a closure of the last fishable area and would result in the loss of income to the members of the fishery. Additionally, it would wipe out the capital investment that each one of these businesses has made in licenses and vessels. It would result in the annual economic loss to the community of $4.3. All of these businesses are family operated, and many are multi-generational. These businesses are

the last vestiges of a once thriving commercial day boat fishery and are integral to the character of the community. This is a massive socio-economic impact on just one of the seven communities in the petition and that it is addressed in one small paragraph is devoid of reality and sensitivity to the needs of the stakeholders and their communities.

San Diego County and the City of San Diego would suffer an outsized impact from this petition

The San Diego County coastline is long and varied and home to millions of people. Already we are home to multiple MPA's, SCMA's and de-facto closures from military bases (Camp Pendleton and the Coronado Navy bases). The amount of coastline shut off to the take of marine resources far exceeds the 30% goal and the proposed expansion of the Cabrillo MPA would take away a significant piece of what is left. Furthermore, virtually all of the marine ecosystem deemed no-take under the MLPA is reef structure. If the Cabrillo expansion occurred a significant portion of the remaining reef structure would be removed and what is left is difficult to access due to the relative distance from available marinas, not to mention the increased impact on those areas due to greater use. If this expansion were approved the citizen and economic impact on access to marine resources in San Diego County would be outsized and place an undue burden on the citizenry.

The petitioner's dismissal of the required socio-economic impact analysis, and their disregard for the various commercial and economic interests should preclude this petition from further consideration.

Stakeholder outreach plainly and simply was not even attempted by the writers of this petition.

The MLPA Master Plan envisions a process for petitions in which the petitioners engage in robust stakeholder outreach and a collaborative effort in which the economic and cultural interests of various parties were considered. These petitioners have attempted nothing remotely close to that. Each one of the seven MPA expansions has a unique group of stakeholders with a variety of perspectives on what management of these ecosystems would look like. The MLPA Master Plan takes these varying perspectives into account and prescribes a process in which petitions would be written in collaboration with those varying interests and outreach would be made to address the concerns. The petitioners did none of that.

There are any number of stakeholders, notably commercial fishing interests. Most of these groups, like ours, maintain websites and social media accounts. Many of us are in regular contact with fisheries scientists and staff at institutions like Scripps and Cal Sea Grant and maintain contact with CDFW wardens and staff on a regular basis. We operate businesses

and hold public events on a regular basis. In essence, we are easy to find, yet no effort was made to find us in the process of crafting this petition. Before the petition was submitted there was no effort to reach out for feedback. After the petition was submitted, there was no outreach to get feedback on the submission. No effort was made whatsoever at collaboration or outside feedback.

In reference to the Cabrillo MPA expansion, the one attempt at outreach and public feedback occurred in October of this year at an MPA collaborative meeting, eleven months after the submission was made. Notably, the meeting was scheduled at 10 a.m. on the first Wednesday in October which just so happened to be the opening day of Lobster season. At the meeting Ms. Deehan of EC was present, and stakeholders were allowed an opportunity to address concerns. Following the meeting we presented our concerns in writing as well as presented economic analysis. To date no acknowledgement or response has been received, nor has there been any further attempt to address our concerns or collaborate. Quite clearly this was an attempt to check the stakeholder outreach box and that is the extent of any attempt at collaboration.

It is quite evident that this petition was written and submitted without any intention of engaging with stakeholders, addressing the varied economic and social interests and working collaboratively. The meager attempts that have been made were all after the fact and concerns have not been meaningfully addressed. Considering that this effort is not in alignment with the spirit, or the letter, of the MLPA Master plan this petition should be exempt from further consideration.

The process by which the commission accepted this petition is not in-line with the process laid out in the MLPA Master Plan.

The MLPA Master Plan speaks extensively of what the process for petitions of changes to the MPA network should look like. It provides for a process for that includes “blue-ribbon” scientific analysis, socio-economic analyses, stakeholder and community outreach and collaboration. Most importantly it describes a process that is to be addresses by the various state committee’s and their staffs, the groups under the MOU banner and the Regional Stakeholder Groups. What we got instead is a process that allowed any group to submit any petition, self-assess whether it met the criteria for consideration and allow it to be accepted at face value for consideration regardless of its merits or whether it met the criteria set out in the MLPA Master Plan. As a result, various stakeholder groups are left in the impossible position of defending and advocating against the wish list of any special interest group that has the resources to submit a petition. This is not what good regulation and good governance looks like. The citizens of the State of California, and the stakeholders beholden to regulation, were promised many things in the MLPA and decadal

reviews. We were promised science driven management of fisheries and resources. We were promised a review of the effectiveness and costs of MPA's, and application of the findings be considered in any proposed expansion of the network. We were promised a science driven appraisal of the various restrictions on MPA's and various applications of types of restrictions to analyze effectiveness. We were promised a collaborative effort, considering all of the needs of citizens. What we have instead is special interest groups taking over the writing of regulations and submitting a wish list of their narrow interests. Environment California and Azul have no business writing new regulations for all the citizens of California any more than the NRA does writing gun regulations. Their petition is a well written letter in support of an MPA expansion, but it is just that- one stakeholder's opinion of what the MPA network should look like. To elevate it to the level of consideration, without any barrier to entry beyond a one-page self-assessment, flies in the face of any notion of good governance or citizen regulation. The commission is abdicating its responsibilities under the MLPA, the MLPA Master Plan and any notion of good governance. Considering that the petition fails to meet the process standards outlined by the MLPA and MLPA Master Plan it should be exempt from further consideration.

In closing, it is the opinion of the Point Loma Commercial Fishing Alliance that petition 2023-33MPA should be exempt from any further consideration. We have come to this conclusion considering the following:

· The petition fails to meet the criteria outlined in the MLPA master plan.

· The science used to justify the petition is overly broad, misapplied and incomplete

· The required socio-economic impact analysis was ignored

· The process by which the petition was submitted in the first place violates the principles outlined in the MLPA and the MLPA Master Plan

Combining the procedural errors and incomplete or erroneous analysis included in the petition, we feel that the CDFG and MRC have no choice but to exclude the petition from any further consideration.

Respectfully,

Mitchell Conniff

Administrative Director, PLCFA

4904 N. Harbor Drive, Suite 102

San Diego, CA 92106

PLCFA Cabrillo MPA Expansion Annual Economic Impact Analysis

The purpose of this document is to illustrate the economic impact of the proposed Cabrillo MPA Expansion and the resultant closure of the commercial trap fishery. The analysis looks at economic impact specific to the Point Loma based commercial fishery, the land based commercial fish businesses and associated economic activity from secondary sources (restaurants, fish markets, etc.) for the period from 7/1/2023 to 6/30/2024. The analysis only includes activity from commercial trap fisheries (Spiny Lobster, Crab, Sheephead) and does not consider the other socio-economic impacts this expansion would have on the area (recreational fishing, tourism, other forms of commercial fishing which) which numbers into the tens of millions. The methodology used to determine these figures was gathered through census (direct communication and gathering of economic data from stakeholders), direct analysis of reporting to CDFW and PSMFC and business record analysis for land-based businesses.

The table below illustrates the direct dollar value impact of commercial trap fishery activity:

	Dollar Value
Direct sales from Commercial Trap Fishers*	
Lobster	$3,861,323.00
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Sheephead	$40,130.00
Commercial Fish Business Sales**	
Lobster	$186,579.00
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Secondary Sales***	$140,884.00
Total	$4,344,684.00

**Sales made directly from fishers to wholesale buyers*

***Sales made by land-based commercial fish businesses to end users (retail sales and wholesale)*

The table below illustrates jobs directly derived for the fishery:

	Job Value
Jobs Supported by the Point Loma Commercial Trap Fishery	
Fishers	22
Deck hands	26
Land Based Jobs*	3
Total	51

**Jobs in businesses that are supported by the commercial trap fishery (restaurant employees, fish market employees, etc.) This figure was derived from analyzing the amount of sales these businesses did of the fishery products and applying industry standard hours of employment required for those sales. The resulting figure is the number of employees required.*

Other economic impacts:

Each fisher builds traps specific to the fishery they are involved in. The number of traps depends on the fishery, but spiny lobster for example, utilizes 300 traps per fisher. These traps are built utilizing local labor and products from local purveyors. While it is difficult to pinpoint the exact annual impact of this activity it conservatively reaches above 100K annually.

Commercial trap fishing is a limited entry fishery with set numbers of permits for each species. The permits are sold on the secondary market, fetching well in excess of 100K per permit. Additionally, each fisher uses a highly specialized vessel equipped specifically for trap fishing. There is a wide variation in the value of these vessels. Conservatively, each fisher has 150K invested in permits and vessel and many in excess of 500K. This expansion (particularly when coupled with the Santa Barbara region expansions) would render many of these permits and vessels value-less. There is no reasonable expectation that these businesses could simply fish elsewhere and the loss in value of these investments would be catastrophic to most.

There is a broader socio-economic impact associated with this MPA expansion. This expansion would effectively end consumptive take of marine resources for the Point Loma geographical area. This area has been the sight of consumptive, commercial and recreational take for centuries, beginning with reliance of first people's on the area for sustenance, immigration to the area for the sole purpose of commercial fish activities and modern day activities that include tourism and recreation industries that rely on the ability to utilize marine resources.

PT. LOMA
COMMERCIAL FISHING
ALLIANCE

www.ptlomacfa.org

October 28, 2024

Marine Resources Committee
Natural Resources Headquarters Building
Second Floor
715 P Street
Sacramento, CA 95814

Greetings:

I am writing this letter to the council regarding petition (2023-33MPA) submitted by Environment California and Azul in November of 2023. Our organization has grave concerns regarding this petition and many of the assertions contained therein, specifically in regard to the proposed expansion of the Cabrillo MPA. Additionally, we feel the petition does not merit further consideration due to numerous inconsistencies with the 2016 MLPA Master Plan and a failure by the petition to reach the standards outlined by the MLPA Master Plan.

First, allow me to introduce our organization. The PLCFA is an organization of Commercial Fishers and Commercial Fish Businesses based in Point Loma. We were established to address issues that impact our businesses including state and federal regulations, land-use issues and environmental/ marine resource management. Our members are primarily made up of trap and hook & line fishers and they primarily fish the near shore waters around Point Loma, adjacent to the current Cabrillo MPA. As a group we take our environmental and marine stewardship responsibilities seriously and our members engage in zero bycatch fisheries, utilize carbon reducing CARB Tier 2 engines in their vessels as well as engage in various community based environmental events.

Because our group is Point Loma/ San Diego based, our members are specifically concerned with the impact of the proposed expansion of the Cabrillo MPA on their livelihoods. The proposed expansion would add an additional 15+ Square miles of zero-take MPA and represent a 500% increase of the existing MPA. This expansion would eliminate virtually all marine resource take for the historic fishing community of Point Loma and reduce near-shore fisheries available within the city of San Diego by roughly half. When combined with the existing restrictions in La Jolla it eliminates the viability of commercial fishing accessible from San Diego Bay and would eliminate the livelihoods of dozens of families. The petition blithely infers that these fishers could pursue their livelihoods elsewhere, but that opportunity simply does not exist. This expansion of the current MPA would result in what amounts to a massive closure, impacting a large swath of historic commercial fishing grounds and the evidence used to justify such a drastic move is inadequate at best.

The Petition Is Not Aligned with the Process Laid out in the 2016 MLPA Master Plan

The 2016 MLPA Master Plan laid out a process for new petitions. That process had specific standards that included the following:

- a blue-ribbon scientific panel that looked at all aspects of successful MPA's with "results driven management" and proposed expansion
- "robust" stakeholder outreach including "advice, assistance and involvement of the participants in the various fisheries"
- "Preserve the diversity of recreational, educational, commercial and cultural uses"
- Include diverse types of reserve (no-take, restricted take and unrestricted take in compliance with current fishery management) to evaluate the effectiveness of different protection levels
- Contain an analysis of socio-economic impacts resulting from the proposed MPA

Petition 2023-33MPA fails to meet those standards in many specific ways.

The Petition does not follow the process for new petitions as described in the Master Plan

Petition 2023-33MPA fails to meet the process standards in many specific ways. The MLPA Master plan outlines a process in which the groups included in the Memos of Understanding (MOU), a Blue-Ribbon Scientific Panel, MLPA and CDFW staff and members of the Regional Stakeholder Group would work collaboratively to analyze and make proposals for changes to the MPA network. Nowhere in the Master Plan is there a process in which wide-ranging, narrow interest groups outside the above referenced groups create their own petitions. It is our contention that the petition contains numerous errors in process and did not go through the proper process outlined by the MLPA Master Plan and thus should be exempt from further consideration.

The science sed to justify the expansions is overly broad, data is misconstrued and necessary scientific data is incomplete or absent altogether

The proposition lists seven MPA's, with a combined size of 76.2 square miles and spread over hundreds of miles, yet virtually every study mentioned deals exclusively with a small number of areas in the Santa Barbara channel and Monterey Bay. To apply limited studies of a relatively small area, hundreds of miles away, broadly to a variety of marine environments with a unique set of issues is irresponsible and flies in the face of the Master Plan's promise to apply a science driven approach to MPA management and new petitions. The Cabrillo MPA, for example, faces a broad and unique set of possible challenges that could be relevant to kelp die off. Explanations and possible causation that deserve investigation are Tijuana River runoff, San Diego River runoff, possible contamination from the three adjacent Naval bases, Naval activities on the water adjacent to the proposed expansion, pesticide use in the creation of the Sunset Cliffs Natural Park, extreme marine wave events that occurred in recent years and corresponded with the kelp forest disappearance, a sewage treatment plant in the proposed MPA and storm runoff that is prevalent in the area. Each one of those factors deserve consideration for their impact on the health of the kelp forest, yet the petitioners completely ignore them. The biggest consideration the petitioners fail to investigate is the health of the kelp forest inside the existing MPA compared with kelp forest health

adjacent to the MPA. Anecdotal observation would suggest that the kelp forest disappearance is in fact the same within the MPA and outside the MPA and at minimum a study should be completed to determine whether or not that is the case. All seven of these MPA expansions should be considered on a case-by-case basis, considering the unique factors each one faces and relying on data and analysis pertinent to each one.

The petition mentions several times that "overfishing" is contributing to kelp forest disappearance (despite conceding multiple times that the most generally accepted factor contributing to kelp forest die off is climate change and associated acidification). The petition does nothing to analyze the overall health of the various fisheries and fails to show any evidence that the areas in question are in fact "overfished". There is no analysis of what a healthy baseline stock for the various fisheries is, what the stock looks like currently and what it would look like if it were "overfished". The commercial fishing activity within the proposed Cabrillo MPA expansion are highly regulated, limited entry, zero by-catch fisheries. To imply that these fisheries are "overfished" is to imply that the current analyses of the state and federal government, PSMFC and all the scientists involved are wrong and their management practices, up to and including the present, have been inaccurate and detrimental to the marine ecosystem.

The one factor that virtually every scientist and stakeholder agrees is the driving force behind the declining health of our kelp forests are marine heatwave events, climate change and ocean acidification. Despite that shared belief the petitioners fail to address that in any meaningful way and their petition could in fact contribute to those areas. Any responsible, science-based petition would investigate the most likely cause and prescribe solutions that would primarily deal with that cause. The only solution this petition realistically prescribes is no take of marine resources and absolutely no prescribed action to deal with the most likely culprit. Further, the petition does no analysis of the likely side-effects of their proposed solution. Closures of this magnitude will undoubtedly result in increased Vehicle Miles Travelled and Vessel Hours Travelled (VMT/VHT) as fishers are forced to travel beyond the closures in order to make a living. Considering the Cabrillo MPA, the only areas left for those fishers would be La Jolla or travelling offshore to San Clemente Island and the offshore banks. Best case scenario is that this expansion would result in a doubling of VHT as fishers travelled north to La Jolla and likely would send a significant number of fishers offshore increasing VHT tenfold. Additionally, the petition does nothing to address the likelihood that this closure would lead to a decrease in locally available seafood products forcing the market to rely on products from further away, increasing VMT to bring products to market. The expansions and resulting closures would undoubtedly lead to an increase in imported resources as well, leading to greater VMT/VHT and an outsourcing of the environmental impacts to places with poorer fisheries management practices than California. Any responsible petition would include an analysis of likely side effects, including a VMT/VHT analysis, and how those factor into the goals of the prescribed solutions.

<u>The Master Plan calls for MPA's to include diverse types of reserve (no-take, restricted take and unrestricted take in compliance with current fishery management) and diverse types of marine environment.</u>

San Diego County has multiple MPA and SMCA. They are all virtually identical in that they are all reef structure and contain a zero-take or highly limited take. There is zero diversity, and the petition proposes to massively expand that without proposing any efforts at diversity of ecosystem or take allowances. There is an opportunity to include areas of different take allowances to explore the

differences between the management techniques, yet the petitioners ignore that notion altogether. To increase an MPA to this degree, and eliminate citizen access to Marine resources, without even exploring the results of different management techniques is inconsistent with the MLPA Master Plan.

This petition clearly does not meet the standards outlined in the MPA Master Plan, nor was the process for new petitions followed. The petitioners failed to meet the scientific standards, ignore altogether any notion of a collaborative process and fails to engage, in any meaningful way, to "preserve the diversity of recreational, educational, commercial and cultural uses". Because of the failure of the petitioners to even attempt to adhere to the process laid in the MLPA Master Plan the petition should be excluded from any further consideration.

The Socio-Economic Impact is ignored altogether, and the necessary impact and study were never completed

The socio-economic impact portion of their petition (which is required for the petition to be accepted) amounts to one small paragraph that includes no real scientific analysis. The petition includes seven expansions from San Diego hundreds of miles north to Santa Cruz yet sums up the economic impact as "minimal" and ridiculously suggests that the economic interests will somehow be enhanced. There are no economic figures included in the proposition, there is no analysis of the cultural, historical or social impacts, no mention of possible impacts on native communities and what little science that is included is irrelevant and misconstrued. Ms. Deehan of EC attended the San Diego MPA Collaborative in October and when pressed on the matter admitted that they didn't have any economic data and would be "very interested in seeing the numbers". That is an admission of their neglect to this area, a response removed from reality and an example of how out of touch the petitioners are.

The proposal would have a devastating socio-economic impact on the Point Loma Community

We have attached an Economic Impact Report that analyzes how this expansion would impact the livelihoods of Trap Fishers and the associated land-based businesses in Point Loma. The report indicates that the Trap Fishery contributes 51 jobs and $4.3 million to the local economy. This analysis does not include the tens of millions of dollars contributed from the sport fishing industry, the recreational spear-fishing industry, the tourism industry and many more. This data can be extrapolated out 6 more times for each expansion and economic impact quickly reaches into the hundreds of millions of dollars and hundreds (possibly thousands) of jobs. The petitioners appear to rely on the notion that all of these stakeholders can simply move a little bit and then enjoy the fruits of the expanded MPA's. The reality is that there is nowhere to move any longer and these businesses will be left with no choice but to go out of business. The Cabrillo MPA expansion in particular would remove the last available reef structure in southern San Diego County. The only other possible option would be to move north to La Jolla and that is not a realistic option as La Jolla is already impacted by the South La Jolla MPA and the remaining fishable area is too impacted at present; it certainly could not support the addition of the entire Point Loma Fishery. The Cabrillo expansion amounts to a closure of the last fishable area and would result in the loss of income to the members of the fishery. Additionally, it would wipe out the capital investment that each one of these businesses has made in licenses and vessels. It would result in the annual economic loss to the community of $4.3. All of these businesses are family operated, and many are multi-generational. These businesses are the last vestiges of a once thriving commercial day boat fishery

and are integral to the character of the community. This is a massive socio-economic impact on just one of the seven communities in the petition and that it is addressed in one small paragraph is devoid of reality and sensitivity to the needs of the stakeholders and their communities.

San Diego County and the City of San Diego would suffer an outsized impact from this petition

The San Diego County coastline is long and varied and home to millions of people. Already we are home to multiple MPA's, SCMA's and de-facto closures from military bases (Camp Pendleton and the Coronado Navy bases). The amount of coastline shut off to the take of marine resources far exceeds the 30% goal and the proposed expansion of the Cabrillo MPA would take away a significant piece of what is left. Furthermore, virtually all of the marine ecosystem deemed no-take under the MLPA is reef structure. If the Cabrillo expansion occurred a significant portion of the remaining reef structure would be removed and what is left is difficult to access due to the relative distance from available marinas, not to mention the increased impact on those areas due to greater use. If this expansion were approved the citizen and economic impact on access to marine resources in San Diego County would be outsized and place an undue burden on the citizenry.

The petitioner's dismissal of the required socio-economic impact analysis, and their disregard for the various commercial and economic interests should preclude this petition from further consideration.

Stakeholder outreach plainly and simply was not even attempted by the writers of this petition.

The MLPA Master Plan envisions a process for petitions in which the petitioners engage in robust stakeholder outreach and a collaborative effort in which the economic and cultural interests of various parties were considered. These petitioners have attempted nothing remotely close to that. Each one of the seven MPA expansions has a unique group of stakeholders with a variety of perspectives on what management of these ecosystems would look like. The MLPA Master Plan takes these varying perspectives into account and prescribes a process in which petitions would be written in collaboration with those varying interests and outreach would be made to address the concerns. The petitioners did none of that.

There are any number of stakeholders, notably commercial fishing interests. Most of these groups, like ours, maintain websites and social media accounts. Many of us are in regular contact with fisheries scientists and staff at institutions like Scripps and Cal Sea Grant and maintain contact with CDFW wardens and staff on a regular basis. We operate businesses and hold public events on a regular basis. In essence, we are easy to find, yet no effort was made to find us in the process of crafting this petition. Before the petition was submitted there was no effort to reach out for feedback. After the petition was submitted, there was no outreach to get feedback on the submission. No effort was made whatsoever at collaboration or outside feedback.

In reference to the Cabrillo MPA expansion, the one attempt at outreach and public feedback occurred in October of this year at an MPA collaborative meeting, eleven months after the submission was made. Notably, the meeting was scheduled at 10 a.m. on the first Wednesday in October which just so happened to be the opening day of Lobster season. At the meeting Ms. Deehan of EC was present, and stakeholders were allowed an opportunity to address concerns. Following the meeting we presented our concerns in writing as well as presented economic

analysis. To date no acknowledgement or response has been received, nor has there been any further attempt to address our concerns or collaborate. Quite clearly this was an attempt to check the stakeholder outreach box and that is the extent of any attempt at collaboration.

It is quite evident that this petition was written and submitted without any intention of engaging with stakeholders, addressing the varied economic and social interests and working collaboratively. The meager attempts that have been made were all after the fact and concerns have not been meaningfully addressed. Considering that this effort is not in alignment with the spirit, or the letter, of the MLPA Master plan this petition should be exempt from further consideration.

The process by which the commission accepted this petition is not in-line with the process laid out in the MLPA Master Plan.

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In closing, it is the opinion of the Point Loma Commercial Fishing Alliance that petition 2023-33MPA should be exempt from any further consideration. We have come to this conclusion considering the following:

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- The science used to justify the petition is overly broad, misapplied and incomplete
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Respectfully,

Mitchell Conniff
Administrative Director, PLCFA
4904 N. Harbor Drive, Suite 102
San Diego, CA 92106

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- Each fisher builds traps specific to the fishery they are involved in. The number of traps depends on the fishery, but spiny lobster for example, utilizes 300 traps per fisher. These traps are built utilizing local labor and products from local purveyors. While it is difficult to pinpoint the exact annual impact of this activity it conservatively reaches above 100K annually.
- Commercial trap fishing is a limited entry fishery with set numbers of permits for each species. The permits are sold on the secondary market, fetching well in excess of 100K per permit. Additionally, each fisher uses a highly specialized vessel equipped specifically for trap fishing. There is a wide variation in the value of these vessels. Conservatively, each fisher has 150K invested in permits and vessel and many in excess of 500K. This expansion (particularly when coupled with the Santa Barbara region expansions) would render many of these permits and vessels value-less. There is no reasonable expectation that these businesses could simply fish elsewhere and the loss in value of these investments would be catastrophic to most.
- There is a broader socio-economic impact associated with this MPA expansion. This expansion would effectively end consumptive take of marine resources for the Point Loma geographical area. This area has been the sight of consumptive, commercial and recreational take for centuries, beginning with reliance of first people's on the area for sustenance, immigration to the area for the sole purpose of commercial fish activities and modern day activities that include tourism and recreation industries that rely on the ability to utilize marine resources.

From: Branislav Radibratovic <[redacted]>
Sent: Wednesday, March 12, 2025 10:00 PM
To: FGC <FGC@fgc.ca.gov>
Subject: 2023-33MPA - Specifically Cabrillo SMR expansion

Providing you with perspective of an avid surf fisherman, living in San Diego. And focusing on the proposed Cabrillo SMR expansion. Hope you'll find this argument honest, logical and specific, not a political pamphlet or an industry opinion.

What does fishing mean to me? A way of life, metal therapy, physical exercise (at the age of 54 my running and gym days are over). I can honestly not imagine my life without fishing.

What I think about California Marine Protective areas? I love them as they are. Together with all the fishing regulations they provide sustainable fishing supply for me to enjoy. Without them, there would not be many fish around.

Why I am protesting Cabrillo SMR expansion? We all know: 10-20% of spots hold 80-90% of fish. In my case, surf-fishing for halibut and calico bass happens only in areas with reef and kelp. Currently in San Diego County most of those areas are already protected. An exception is Sunset Cliffs area north of the existing Cabrillo SMR. The proposed expansion would eliminate the last significant piece of fishable reef in San Diego county.

In reality, most of that area is not approachable on foot. So, if you would move the boundary of new proposed area 1.5 miles south of Swordfish Point (proposed north boundary), no objective surf fishermen would complain.

I hope you consider the above in your deliberation. Below, I am adding some thoughts, that are not mine, and I expect you have already heard those many times. Never the less, I agree with them, and wanted to repeat them.

Equity argument: most people cannot afford boats; many cannot pay to fish on commercial boats. What is left for them is shoreline.

Environmental impact of shoreline fishing is negligible:

- It covers sliver strip of water near the shore.
- No electronics is used to locate the fish.
- Fish is released most of the time. Since started shore fishing, I have released > 95% of my catch. Boat fishing creates waste, spearfishing creates waste too.

It is really a valid argument that opening shoreline to fishing in all protected area would not impact habitat recovery and would help to many of us that count on fishing to improve quality of our lives.

Brian Radibratovic, PhD

From: Curran, Jessica J CIV USN COMNAVREG SW SAN CA (USA)
<[redacted]>
Sent: Friday, August 15, 2025 10:39 AM
To: FGC <FGC@fgc.ca.gov>
Cc: Shuman, Craig@Wildlife <[redacted]>; Golumbfskie-Jones, Jason C CIV USN COMNAVREG SW SAN CA (USA) <[redacted]>; Palmer, Jessica N CIV USN COMNAVREG SW SAN CA (USA)
<[redacted]>
Subject: Department of Navy Opposition to Expansion of Cabrillo State Marine Reserve (Petition 2023-33MPA_AM1)

Hello,

Please see the attached letter regarding the subject petition to expand the Cabrillo State Marine Reserve.

V/r,

Jessica

Jessica Curran | Navy Region Southwest Marine Biologist

[redacted] office: 619.705.5405

[redacted]

[redacted] San Diego, CA 92132

DEPARTMENT OF THE NAVY
COMMANDER NAVY REGION SOUTHWEST
750 PACIFIC HIGHWAY
SAN DIEGO CA 92132-0058

IN REPLY REFER TO:

5090
Ser N40
August 13, 2025

Dr. Erika Zavaleta
California Fish and Game Commission
President
715 P Street, 16th Floor
Sacramento, CA 95814

Dear Dr. Zavaleta:

SUBJECT: DEPARTMENT OF NAVY OPPOSITION TO EXPANSION OF CABRILLO STATE MARINE RESERVE (PETITION 2023-33MPA_AM1)

This letter concerns petition 2023-33MPA_AM1, submitted by Ms. Laura Deehan, which would expand the Cabrillo State Marine Reserve (SMR) westward and northward by approximately 9.9 square miles. This expansion would encroach into Navy-owned waters adjacent to Naval Base Point Loma (Navy owns waters out to 300 yards from mean lower low water line) and into areas off the Point Loma peninsula that are crucial to Navy testing and training to meet mission requirements. I am writing to you in my capacity as the Department of Navy (DoN) Regional Environmental Coordinator; the DoN is opposed to the proposed expansion of the Cabrillo SMR.

In your upcoming evaluation of this petition, we ask that you carefully consider, consistent with the California Marine Life Protection Act (MLPA) framework, the potential impacts to military readiness. Should the Commission decide to proceed with granting this expansion, we would like to work with you on the SMR language to ensure that it does not subject any DoN or greater Department of Defense (DoD) activities to state regulation or inadvertently restrict current or future military readiness activities. Additionally, a Memorandum of Understanding between DoD and the State may be necessary to recognize continued military readiness activities while reflecting our mutual cooperative conservation goals.

I would like to reemphasize that DoN is opposed to the expansion of the Cabrillo SMR as it would adversely affect national defense considerations in the nearshore waters of Point Loma. These offshore waters are central features of a large network of land, air, and sea ranges that are vital to national security, including training, testing, research, and development. Designation or expansion of any such marine protected area in these waters will create future operational constraints, which would compromise DoD's ability to carry out its national defense mission.

My staff point of contact for this matter is Ms. Jessica Curran. She can be reached at [redacted]

[redacted]

Fleet Environmental Director
By direction
of the Commander

Copy to: Dr. Craig Shuman, CDFW

Planning and Development
Lisa Plowman, Director
Jeff Wilson, Assistant Director
Elise Dale, Assistant Director

Dear Ms. Miller-Henson,

As Secretary of the Santa Barbara County Fish and Wildlife Commission, I am submitting the attached letter containing formal comments regarding the current Marine Protected Area (MPA) petitions under consideration. This letter reflects the collective position of the full Commission, which includes signatures from all nine appointed members, representing diverse stakeholder groups within Santa Barbara County.

Our Commission has thoroughly reviewed the details of Petitions 2023-14MPA, 2023-15MPA-AM, 2023-18MPA, 2023-28MPA-AM, 2023-29MPA-AM, and 2023-33MPA-AM. As outlined in the attached document, our positions and recommendations were developed through numerous public meetings and extensive local input, based on decades of combined experience in fish and wildlife matters across the county.

We appreciate the opportunity to contribute to the discussion surrounding MPA management and thank the California Fish and Game Commission for its continued commitment to public engagement and science-informed decision-making. Should you or your staff require any further clarification or supporting materials, please do not hesitate to contact me directly.

Sincerely,

Secretary, Santa Barbara County Fish and Wildlife Commission
Phone: 805-934-6297
Email: castrot@countyofsb.org

one COUNTY one FUTURE

Planning and Development
Lisa Plowman, Director
Jeff Wilson, Assistant Director
Elise Dale, Assistant Director

October 20, 2025

To: Ms. Melissa Miller-Henson

Executive Director

California Fish and Game Commission

715 "P" St. 16th Floor Sacramento, CA 95814

From: Santa Barbara County Fish and Wildlife Commission

c/o Santa Barbara County Planning and Development

624 W. Foster Road. Santa Maria, CA 93455

Dear Ms. Miller-Henson,

The Santa Barbara Fish and Wildlife Commission is a county commission consisting of nine members appointed by the Santa Barbara County Board of Supervisors. The commission, among other things, aids the county board on active fish and wildlife related matters with our combined hundreds of years of local fish and wildlife experience between our fellow commissioners.

This comment letter serves to provide our input regarding the current MPA petitions requesting changes be made to the MPA network specifically around the Santa Barbara Channel and Channel Islands. We feel our county fish and wildlife commission's input on the MPA petition process may prove especially valuable due to our local experiences and local understanding of the ecosystem, as well as our variety of backgrounds, consisting of non-consumptive users, fishermen, and biological scientists. This letter serves as a culmination of many public meetings learning about the MPA petitions that have been proposed as well as fellow commissioners observations being involved in local discussions about the petitions outside of official meetings to gauge public input and sentiment. This county commission appreciates the opportunity to provide the following feedback on these local MPA petitions.

Petition2023-14MPA

Petition2023-14MPA requests changes to several State Marine Conservation Areas (SMCAs), one of which, the Naples SMCA, is within the County. Generally, SMCAs already allow for some form of limited take, this petition requests adding commercial take of sea urchins to the allowable methods list inside of the SMCAs in the petition.

Sea urchins are primarily taken commercially and are a core part of the County's commercial fishing sector. Urchins, and their tendency to graze on the root systems of local kelp forests, have recently posed problems with kelp rebuilding efforts after El Ninos in the 2010's reduced kelp forest size noticeably. Local fishermen cite urchin barrens inside of MPAs that cannot be touched and continue to spread to the surrounding area with no possible measures existing to remove the main mass from the MPA.

Recommendation: While cases may vary across different MPAs and counties, for the above reasons, this commission finds it reasonable to allow the proposed change and supports the petition for allowed sea urchin take at the Naples SMCA to help facilitate kelp forest regrowth. We kindly recommend this change be allowed at Naples.

Petition2023-15MPA-AM

Petition2023-15MPA requests changes to three joint State and Federal Marine Reserves (SMRs/FMRs), all of which, the Footprint SMR/FMR, Gull Island SMR/FMR, and Santa Barbara Island SMR/FMR, border the county. These MPAs, and others around the Channel Islands, are unique to the State network in that they were established through a joint process between State and Federal agencies before the coastal MLPA under the CINMS. The resulting network was a series of state and federal MPAs at the Channel Islands that covers federal water up to 6 nautical miles from the islands. All SMRs and FMRs the petition addresses are currently no-take areas.

The petition requests changing these areas to joint State and Federal Marine Conservation Areas, SMCAs and FMCAs, and proposes several options that allow for various forms of the limited take of pelagic finfish or highly migratory species recreationally and commercially. In addition, the petition provides possible sub-divisions of the Gull Island and Santa Barbara Island State MPAs into nearshore and offshore areas, similar to other State MPAs elsewhere. The primary arguments of the petition are the minimal impact pelagic fishing effort has on the local MPA ecosystem and goals, and the support of pelagic areas in the State's MPA Master Plans and other documents seen in the broader coastal network but apparent lack thereof in the pre-Master Plan Channel Islands network.

Several members of this commission were part of the original process at the Channel Islands over 20 years ago and the southern MLPA in 2012. We all understand that the primary factor for the MPA implementation at these island sites offshore was to originally protect species like groundfish and structure groundfish live on to rebuild overfished populations at the time. While MPA goals have changed since the 2000s, this fact is still key to understanding why these areas are the way they are today.

Pelagic fish, and the methods used to target them, are predominantly fished near the surface of the water column, offshore, and off the bottom. This type of effort avoids the nearshore or offshore rocky-bottom ecosystems local nearshore species or groundfish are predominantly found in. In addition, the pelagic species that would be taken in these areas are significantly less affected by these MPAs and the broader network due to them being very mobile, their relative abundance is not concentrated in an MPA compared to out of one. The MPA Master Plans from 2008 and 2016 discuss this, citing the lower effects that MPAs have on pelagic species and the need to have areas that allow for some form of limited pelagic take, aligning the petitioner's arguments with the Master Plans. In addition, the petition does point out an imbalance in pelagic allowed areas between the MLPA's coastal implementation phases that came after the first MPA Master Plan in 2008 and the Channel Islands Network implementation that came well before the first MPA Master Plan in the early 2000's.

Outside the Channel Islands, in the coastal network that came afterwards, most MPAs that overlap deeper waters pelagic species pass through allow for some form of take of pelagic finfish. Observing the Channel Islands, we can see a significantly higher overlap with offshore waters, namely due to the federal sections

of these MPAs. However, even with this significantly larger offshore encroachment, almost no pelagic allowed areas exist. Whether this difference was due to the Channel Islands process pre-dating the coastal process and the 2008 MPA Master Plan's outlook on pelagic species is up to debate, but the fact of the matter is the difference is noticeably present, and for no abundantly clear reason.

Recommendation: The subject of island MPAs allowing pelagic take, specifically these three, has been raised by the public several times prior at our meetings, and local MPA collaboratives our commissioners have attended. For these reasons, and those above, this commission supports this petition, and believes it should be accepted by the State Commission through one of the proposed "options" the petition lists that best fits the existing network.

Petition2023-18MPA

Petition2023-18MPA requests multiple changes to a variety of coastal and island MPAs within the county. Some of the changes are listed as "non-regulatory requests" by the Department while others make modifications to, or remove existing MPAs. All but one of the MPAs in the petition are within the County, they are the: Vandenberg SMR, Point Conception SMR, Kashtayit SMCA, Campus Point SMCA, and San Miguel Island Special Closure.

Of the changes, the proposal at Vandenberg SMR and San Miguel Island Special Closure are the two MPAs that would have the largest regulatory changes. At Vandenberg the petition requests a coastal SMCA be made that allows for only shore-based fishing by hook-and-line, citing an equity and enforcement concern between military base personnel and members of the public. Because military personnel are allowed to fish the shore of the SMR while members of the public outside the base cannot due to the SMR, both the equity and enforcement concerns are certainly present and should be addressed. The proposed solution of a shore based SMCA does seem to be a reasonable way to correct this problem.

At San Miguel and Anacapa (outside of the county) the petition requests the Special Closure(s) be removed in its entirety citing its original goal being to reduce disturbance to pinniped rookeries and seabird populations has been far exceeded and better methods have been developed on-site.

The remaining MPA requests are non-regulatory and include supported use for M2 radar monitoring at Point Conception SMR for better enforcement, a refined regulatory language for allowances at the Kashtayit SMCA, and using the color red instead of purple for distinguishing the Campus Point No-Take SMCA.

Recommendation: This commission finds all of the above modifications and requests more than reasonable, gives its support for them all. We recommend the FGC accept the petition in full.

Petition2023-28MPA-AM

Petition2023-28MPA requests to create a new MPA around Point Sal, designating it the Point Sal SMCA or a Tribally named SMCA, and listing it as a limited-take area with only an exception of a shore based finfish take allowance and tribal take allowance. The petitions driving reasons for the new MPA are that the area is ecologically significant in terms of local upwelling and relative to the landings that occur there the area is a small fraction of the State's commercial output, under 1%. The petition also cites tribal inclusivity and significance in the area as justification for its closure.

While the petition is accurate in the broader economic analysis, locally Point Sal is a very important area for both recreational and commercial operations out of Port San Luis (Avila), the local port to Point Sal.

Point Sal, and its surrounding waters, are essential for year-round and seasonal fisheries such as salmon, dungeness crab, groundfish, and halibut. This new MPA in addition to the existing network will significantly affect the local port's economic health due to Point Sal's being a significant fishing area for local commercial and recreational anglers. Namely, crab and groundfish boats out of Avila would be significantly affected by this change as per their testimony, over half their time is spent in the proposed area.

Recommendation: While the shore-based allowance is a welcome allowance, we believe this is still too costly on the local economy of Avila and its recreational and commercial fisheries to warrant its allowance. For this reason this commission has decided to be against this petition, and recommends the FGC deny it.

Petition2023-29MPA-AM

Petition2023-29MPA requests to create a new MPA around Carpinteria, designating it the Mishopshno SMCA. The petition asks to make take regulations for the area the same as the Point Sal petition, with an allowance of shore fishing of finfish and a tribal exception for those in the federally recognized Santa Ynez Band of Chumash Indians which would be able to still use tribal take methods inside of the SMCA. The proposed area's size was reduced when the petition was amended to include the shore allowance.

The petition's primary reasons for this MPA include this tribal allowance and co-management model along with the added reasons of MPA connectivity, spacing, and protecting juvenile great white shark nursery grounds. While this commission does agree that Tribal inclusion is a warranted piece of MPA and coastal management, we do not believe that a new MPA altogether is needed to accomplish this. MPAs across the coast can be modified themselves to allow for such co-management but the existing area offshore Carpinteria is currently open to the entire public, Tribes included.

Carpinteria's coast has been the subject of several MPA proposals over the years. During the MLPA the same area was looked into but was ultimately not selected, trading off two other SMCAs instead of establishing one at Carpinteria in a separate MLPA planning alternative. In 2020 this commission also followed a similar MPA petition in a smaller area to the current proposal that similarly advocated to protect juvenile great white sharks. That petition was ultimately rejected by CDFW due to the larger footprint white sharks, a pelagic species, covered relative to the coast of Carpinteria/California in general, and we believe the same reasons from 2020 are still relevant in 2024 against the petitioner's arguments.

Additionally, it should be said that Carpinteria Reef, the reef that would be almost entirely inside the MPA, is one of the last open reef areas to the fishing community. Removing this reef will see the end of local fishing access to coastal reefs, forcing anglers to travel further, coastally or to the islands, and burning more fuel to have similar opportunities. Commercial members of this commission are concerned for the areas of the proposed MPA that overlap the state halibut trawl grounds. These grounds are minimal already and have been reduced continuously over the years. This proposed MPA would cut a significant portion of the current open trawl area harming this unique fishery that the commission has repeatedly stated is well managed. Lastly, there is an overwhelming amount of public outcry on this petition specifically citing lost access to one of the last open reefs on the coast by boat and especially kayak.

Recommendation: For all of these reasons this commission has decided to be against this petition, and requests the FGC deny it.

Petition2023-33MPA-AM

Petition2023-33MPA requests for multiple MPA expansions and one MPA creation throughout the California coast, of which, three MPA expansions are within Santa Barbara at the Point Conception SMR, the Gull Island SMR, and the South Point SMR. Of the three expansions the South Point SMR expansion would be the largest, including all of the southwest side of Santa Rosa Island in the MPA and adding over 27.5 square miles to the SMR. This is followed by Point Conception SMR's expansion eastward adding over 14 more square miles to the SMR, and lastly by Gull Island SMR's smaller northward expansion adding over 1.5 square miles to the closure.

The driving force behind Petition2023-33MPA is kelp restoration. The petition claims growing these MPAs would allow for the now protected areas to rebuild their kelp forests under no fishing pressure which would also mean less traffic in general. Kelp restoration is a very important subject in Santa Barbara County as several sectors, consumptive and non-consumptive, depend on healthy levels of kelp for commercial and recreational use. That being said, this commission believes removing fishing access in these areas will do little to nothing to promote kelp regrowth and more-likely prevent kelp rebuilding projects (seeding, artificial reefs, and sea urchin removal programs) from directly assisting in the rebuilding of our kelp forests. Besides fishing, factors such as water quality, water temperature, storms, and swell need to be considered as larger drivers of kelp loss, not larger closed areas. There are several active projects locally and statewide dedicated to kelp rebuilding, none of which remove fishing access from areas in order to rebuild the kelp because there is no reason to. We believe the same applies in the areas this petition looks at. There are no reasons these specific areas need a fishing closure to help kelp forests regrow; therefore, there is no justification for their expansion, especially into waters predominantly too deep for kelp to root and grow. Similar to petition 29, there has been specific public outcry against this petition for all of the above reasons at MPA collaboratives, and public meetings.

Recommendation: For these reasons this commission has decided to be against this petition and recommends the FGC deny it.

Signed, the Santa Barbara County Fish and Wildlife Commission,

Phil Beguhl (Chair) - 2nd District

Scott Cooper (Vice Chair) - 3rd District

Frank Abatemarco - 1st District

Chad Thomas - 4th District

David Morgan - 5th District

Jeff Landers - Santa Maria Sportsman's Association Representative

Whitney Uyeda - Santa Barbara Sport Fishing Representative

Jeff Maassen - Commercial Fisherman Representative

Steve Adam - Santa Ynez Valley Pistol and Bow Club Representative

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