

## STAFF SUMMARY FOR APRIL 14, 2021

**24. DEPARTMENT INFORMATIONAL ITEMS****Today's Item****Information** ☒**Action** ☐

DFW will highlight items of note since the last FGC meeting.

- (A) Director's report
  - I. Annual report regarding necropsies on mountain lions taken under depredation permits
- (B) Wildlife and Fisheries Division, and Ecosystem Conservation Division
- (C) Law Enforcement Division
- (D) Marine Region

**Summary of Previous/Future Actions (N/A)****Background**

Verbal reports are expected at the meeting for items (A) through (D).

The Director's report will include an overview of DFW's annual report for necropsies on mountain lions taken under depredation permits (Exhibit 2) and an update on DFW implementation of the Cutting Green Tape Initiative (Exhibit 3). The Marine Region report will include an overview of the Marine Region's *2020 Year in Review* and *2020 By the Numbers* reports (exhibits 4 and 5).

DFW news releases of interest are provided as exhibits 6-8.

**Significant Public Comments (N/A)****Recommendation (N/A)****Exhibits**

1. [DFW memo transmitting report, received Mar 26, 2021](#)
2. [DFW Report to the Fish and Game Commission Regarding Findings of Necropsies on Mountain Lions Taken Under Depredation Permits in 2020, dated Mar 23, 2021](#)
3. [DFW Cutting Green Tape Initiative Update, dated Jan 2021](#)
4. [DFW Marine Region 2020 Year in Review report](#)
5. [DFW Marine Region 2020 "By the Numbers" report](#)
6. [DFW News Release: Updated Freshwater Sportfishing Regulations, dated Mar 1, 2021](#)
7. [DFW News Release: Recreational Ocean Salmon Fishery Season Curtailed on Much of the California Coast, dated Mar 11, 2021](#)
8. [DFW News Release: The Recreational Red Abalone Fishery to Remain Closed Until 2026, dated Mar 19, 2021](#)

**Motion (N/A)**

Received by FGC  
March 26, 2021

## Memorandum

**Date:** March 19, 2021

**To:** Melissa Miller- Henson  
Executive Director  
Fish and Game Commission

**From:** Charlton H. Bonham  
Director

**Subject:** **2020 Mountain Lion Depredation Report; To Be Received by FGC at the April 14 meeting under Agenda Item 24, Department Updates**

The Department is transmitting the annual report summarizing results of scientific findings from necropsies performed on mountain lions taken under depredation permits in 2020. Additionally, the report includes information reported in the CDFW Wildlife Incident Reporting System. This report is required to be submitted to the Legislature under Fish and Game Code Section 4807(b) and is scheduled to be received at the April 14 Fish and Game Commission meeting.

If you have any questions, please contact Mr. Scott Gardner at (916) 801-6257 or by email at [Scott.Gardner@wildlife.ca.gov](mailto:Scott.Gardner@wildlife.ca.gov).

Attachment

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**State of California  
NATURAL RESOURCES AGENCY  
Department of Fish and Wildlife**

**Report to the Fish and Game Commission  
Regarding Findings of Necropsies on Mountain Lions  
Taken Under Depredation Permits in 2020**

**Prepared by the Wildlife Investigations Laboratory  
Wildlife Branch, Wildlife and Fisheries Division**

**March 23, 2021**

**Submitted in compliance with Section 4807 of the Fish and Game Code**

## **Summary**

Based on the California Department of Fish and Wildlife (CDFW) records received from the Wildlife Incident Reporting System and various staff at the time of this report, CDFW issued 246 mountain lion depredation permits in calendar year 2020 and 45 mountain lions were reported as being lethally taken.

The CDFW amended its mountain lion depredation, public safety, and animal welfare policy in December 2017 and February 2020. The purpose of the amendment is to avoid, where possible, mountain lion mortalities resulting from the issuance of depredation permits within specific geographically and genetically isolated mountain lion populations in Southern California as defined by Ernest et al. 2014<sup>1</sup>. A three-tier stepwise process allows the CDFW to first issue non-lethal mountain lion depredation permits that include hazing by the permit holder or authorized agent prior to the issuance of a lethal depredation permit within the implementation areas. In 2020, 74 of the 246 (30%) depredation permits were for non-lethal take.

CDFW staff issued the greatest numbers of permits in February, March, and April 2020 (Figure 1). The reasons for property owners obtaining mountain lion depredation permits varied. However, goats alone accounted for the highest number of the total reported incidents (45%) followed by sheep (32%) (Figure 2).

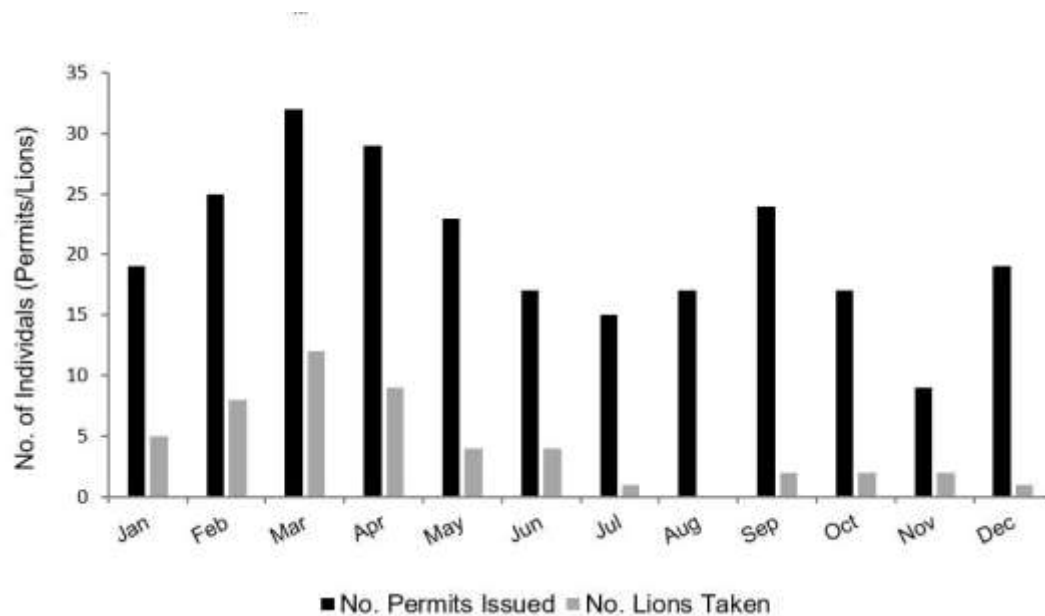
Although 45 mountain lions were reported as being taken in 2020, CDFW staff necropsied 50 depredation carcasses. Seventy percent of mountain lions necropsied to date were male and 28% were female; the sex of one lion was not specified (Table 1). Seventy percent of mountain lions necropsied to date were aged as adults (24 months or older); 22% were sub-adults (13-24 months of age); 8% were juveniles (12 months or younger, Table 2). The highest number of depredation mountain lion carcasses came from CDFW's Northern Region (38%; Table 3).

Necropsied mountain lion stomach contents that could be identified most frequently contained hoofstock such as goat (14%); however, other contents were observed (Figure 3).

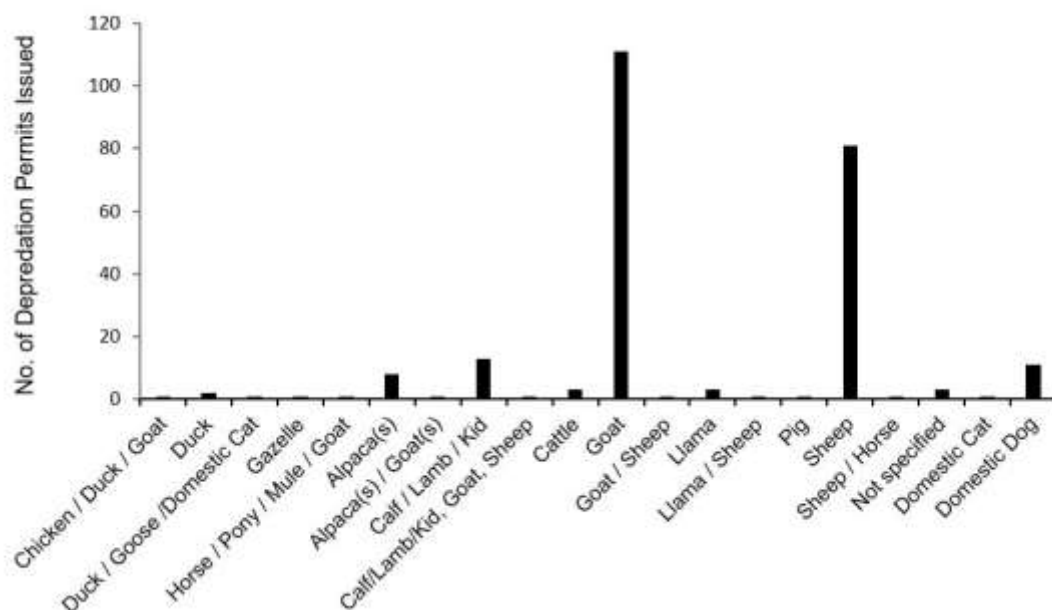
Note: There are various factors that may contribute to a greater number of depredation necropsies recorded than the number of mountain lions reported as taken on depredation by the CDFW Wildlife Incident Reporting system (WIR). One such factor is that reporting parties and CDFW staff have reported intermittently being unable to close WIR depredation incidents and report take. Additionally, reporting parties in remote areas have reported problems with internet access and being able to use the online WIR System. CDFW continues to make efforts to contact permissess, input reported data, and update the WIR system.

<sup>1</sup> Ernest, Holly B., T.W. Vickers, S.A. Morrison, M.R. Buchalski, W.M. Boyce. 2014. Fractured Genetic Connectivity Threatens a Southern California Puma (*Puma concolor*) Population. *PLoS ONE* 9(10): e107985. doi:10.1371/journal.pone.0107985.

**Figure 1. Monthly summary of lethal and non-lethal mountain lion depredation reports for 2020. The number of depredation permits issued each month and the number of mountain lions taken are shown.**



**Figure 2. Number of lethal and non-lethal depredation permits issued in 2020 and the type of property damage reported (i.e. animal(s) reported to have been taken by a mountain lion). These numbers are based upon the number of incidents and not the total number of animals claimed to have been taken in a single incident.**



**Table 1. Sex of depredating mountain lions necropsied by CDFW in 2020.**

<b>Sex</b>	<b>Total by Sex</b>
Male	35
Female	14
Not indicated	1

**Table 2. Ages of depredating mountain lions necropsied by CDFW in 2019.**

<b>Age Class</b>	<b>Total by Age Class</b>
Juvenile <sup>1</sup>	4
Sub Adult <sup>2</sup>	11
Adult <sup>3</sup>	35

<sup>1</sup> Juvenile: 12 months or younger

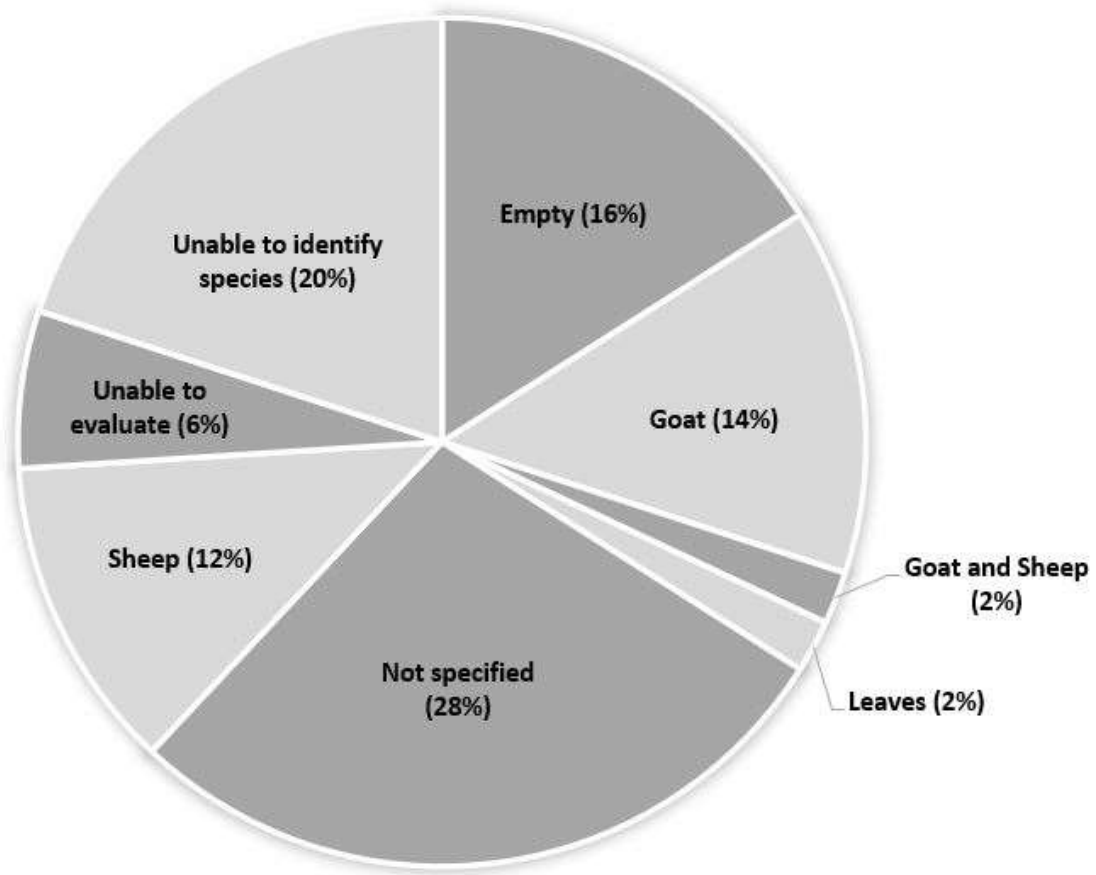
<sup>2</sup> Sub Adult: 13-23 months

<sup>3</sup> Adult: 24 months or older

**Table 3. Geographic distribution of depredating mountain lions necropsied by CDFW in 2020.**

<b>CDFW Region</b>	<b>Total by Region</b>
Northern	19
North Central	15
Bay Delta	12
Central	2
South Coast	2

**Figure 3. Stomach contents of depredating mountain lions necropsied by CDFW in 2020.**



# California Department of Fish and Wildlife

## Cutting Green Tape Initiative Update

### January 2021



This document provides a status update on the California Department of Fish and Wildlife's (CDFW) progress made to date on the Cutting Green Tape Initiative (CGT).

#### Overview:

- CDFW received \$4M in the FY 20-21 Budget Act to increase the scale and pace of restoration work by incorporating new efficiencies into grant programs and developing programmatic permitting options.
- CDFW has redirected 19 staff from multi-disciplined backgrounds to support CGT actions during FY 20-21.
- Significant progress has been made with respect to developing a streamlined restoration permit (F&G Code 2081 (a)) and consolidating permit approvals.
- CDFW has contracted with Ascent Environmental to prepare a CEQA strategy paper that assesses opportunities to streamline and expedite conservation, recovery, and restoration projects.
- CDFW has drafted a Legislative report on the use of the Habitat Restoration Enhancement Act for small watershed projects and continues to provide technical support to the State Water Resources Control Board in development of their general order for large habitat restoration projects statewide.
- CDFW has analyzed over 300 existing grant projects and is developing tools to help ensure projects will be completed on time.
- CDFW has reconvened the Restoration Leaders Committee (RLC) and their three subcommittees on prioritization, administration, and permitting to further the RLC's original 18 recommendations as well as identify opportunities for additional improvements. The RLC will be a key stakeholder group used to support future collaboration on CGT actions.
- CDFW is developing two sets of workshops for early 2021 that will provide technical assistance to stakeholders about restoration permitting options and allow stakeholder participation in the development of a CGT \$15M Grant Solicitation targeting North Coast watersheds.
- CDFW has approved its 17<sup>th</sup> NCCP, the Western Placer County NCCP/HCP and reviewed, approved, and amended several Regional Conservation Investment Strategies.
- The North Coast Salmon Project has formed watershed steering committees for Mendocino Coast, Russian River tributaries, and Lagunitas Creek. The team has initiated a survey to assess restoration barriers, finalized the South Fork Eel Salmon Habitat Restoration Priorities (SHaRP) process, and drafted an analysis report on

Coho-focused habitat restoration projects funded through the Fisheries Restoration Grant Program.

**Background:** In July 2020 CDFW was provided \$4M in the FY 20-21 Budget Act to increase the scale and pace of restoration work, incorporate efficiencies into grant programs, and incorporate the use of programmatic permitting options. Specifically, CDFW initiated actions to:

- Develop a focused team tasked with accelerating the granting and permitting processes of restoration projects within the identified focus area and in support of enhanced coho salmon recovery:
  - Counties: Humboldt, Mendocino, Sonoma, and Marin
  - Watersheds: Lagunitas, Russian, Mendocino (Coast), and the South Fork Eel
- Dedicate a senior level staff person to developing permitting efficiencies and support restoration permitting.
- Reconvene and expand the Restoration Leaders Committee (RLC) to include a larger, more diverse representation of restoration leaders from around the state. Through the RLC, the Department intends to refine and implement enhancement and efficiencies in the Department's grant programs, which includes the 18 recommendations submitted to the Department from the RLC in late 2018.
- Work with the RLC, and other stakeholders, to develop a CGT focused Proposal Solicitation Notice for the identified focus area that will rely on accelerated Prop 1 restoration dollars in FY 21-22.
- Continue coordinated efforts with the State Water Resources Control Board and Sustainable Conservation in support of their General Order and development of an Environmental Impact Report for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Implementation of Large Habitat Restoration Projects Statewide.
- Bolster support for Natural Community Conservation Plans (NCCP) and Regional Conservation Investment Strategies (RCIS) development and finalization, including finalizing the Mitigation Credit Agreement (MCA) pilot project in support of finalizing the MCA guidelines.

**Technical Update:**

- **Strike Teams** – CDFW has either partially or fully redirected 17 staff to support CGT actions during FY 20-21, and has hired two limited term Environmental Scientists dedicated to CGT actions. This effort has allowed staff from multi-disciplined backgrounds (e.g., legal, CEQA, CESA, LSA, grants, fisheries, management) to form specific strike teams and collaboratively address CGT actions.
- **Permitting** - The restoration permitting team has developed a template for a new Section 2081(a) California Endangered Species Act "Restoration Management Permit" (RMP). In addition, the permitting team has developed a CEQA findings template to use when CDFW serves as a responsible agency in making its project approvals. This new permit will provide a simplified CESA take authorization process for restoration projects and increase flexibility for temporary species relocations and restoration site dewatering.

The restoration permitting team has reviewed approximately 250 active grants within the focus area, of which 25 were selected as potential pilot projects for use of the RMP. CDFW is narrowing the list of potentially suitable projects to target approximately 2-5 restoration projects that could benefit from RMP permitting within the current fiscal year. These projects include aquatic connectivity, invasive species control, and aquatic habitat enhancement. CDFW anticipates refining this list and reaching out to grantees and project proponents to finalize RMP permitting strategies by the end of January. Future efforts will include evaluating other restoration projects that could benefit from the RMP, including projects proposed outside the focus area and projects with other funding sources.

The restoration permitting team also continues to work on two additional templates. The first combines the Section 2081(a) RMP with a scientific collecting permit, and the second combines the Section 2081(a) RMP with a memorandum of understanding for take of fully protected species. Along with the RMP, the additional templates will consolidate all CDFW approvals necessary for temporarily relocating species out of harm's way during restoration activities. The permitting team anticipates finalizing these two templates in mid-late January.

To improve communication and consistency within CDFW and with our partners, the restoration permitting team will be coordinating with other CDFW CGT teams and with the Restoration Leaders Committee (RLC) to develop integrated CGT stakeholder permitting workshops for 2021.

In response to the COVID-19 pandemic, CDFW quickly instituted an online method for submitting ITP applications, CD requests, and HREA project approval requests as well as the ability to pay these fees online. CDFW's CESA and HREA programs are also working on developing a more in-depth program that will integrate online application for these permits and approvals with the ability to track and monitor project info statewide.

*Habitat Restoration Enhancement Act* - CDFW has drafted a report to legislature as required by Fish and Game Code section 1656. The report is due by December 31, 2020 and will include information such as the number, type, and geographical distribution of approved projects, funding adequacy, and recommendations for changes and improvements to the program. Additionally, CDFW CGT staff will be participating in a smart environmental permitting workshop with the PPIC Water Policy Center in January 2021 and are working with WRA, Inc. to submit an abstract and develop a presentation for the Bay-Delta Science Conference in April 2021.

*Large Habitat Restoration Projects* - CDFW continues to provide support and scientific expertise to the SWRCB and Sustainable Conservation in their development of an Environmental Impact Report for Clean Water Act Section 401 Water Quality Certification and Waste Discharge Requirements for Implementation of Large Habitat Restoration Projects Statewide.

*California Environmental Quality Act* - CDFW has contracted with Ascent Environmental to prepare a CEQA strategy paper that assesses opportunities to streamline and expedite conservation, recovery, and restoration projects. Qualifying projects consist of actions whose primary purpose is to maintain or enhance biodiversity in California. Actions that mitigate adverse biological effects of projects are not the focus of this assessment.

**Granting** – The accelerating grant projects team is working to identify early signs of project delays and trying to identify useful tools and guidance to help projects finish on time. The team is actively building a linked database of CDFW grant projects to analyze project progress and identify trends. Initial findings show that planning and design grants are roughly 25% more likely than other project types to need an amendment for time. The team plans to release a survey for CDFW grant managers and grantees in January 2021 that will further help identify barriers managers and grantees face as well as any technical assistance needs. This information will be helpful in identifying and developing tools and guidance that will proactively help grantees complete projects on time.

CDFW has also secured an additional appropriation of \$15 million of Proposition 1 FY 21-22 funding to administer a CGT Proposal Solicitation Notice (PSN) in Summer 2021. The PSN will align with the North Coast Salmon Project by focusing restoration funding in the CGT focus area. To support this, our current efforts have focused on developing a draft PSN with coordinated input from the North Coast Salmon Project Team, the RLC, and other stakeholders. Next steps include:

- Finalize a proof-of-concept CGT PSN that delivers on a developing vision as well as several RLC recommendations, including a clearer articulation of CDFW's priorities, a watershed scale approach, and increased program efficiencies.
- Stakeholder outreach and workshop efforts, using the existing RLC network as a forum for communicating CDFW's vision.

Lastly, CDFW has put together a team to develop a report on the first five years of restoration supported through Proposition 1 grant funds. The report will highlight major elements and accomplishments of the program (2015-2019) including an overview of Proposition 1 objectives and priorities, grant program implementation, project highlights, coordination, and partnerships. CDFW anticipates completing a first draft of the report by mid-February 2021, with a target for a final product by late spring/early summer 2021.

- **Restoration Leaders Committee (RLC)**- As a key component of CDFW's CGT Initiative, CDFW reconvened the RLC and held three meetings between August and December 2020. Objectives of our initial engagement with the RLC centered around an overview of CDFW's CGT initiative and revisiting the structure and identity of the committee itself and their recommendations previously submitted to improve CDFW's restoration grants. Next steps include:
  - Ongoing efforts of the RLCs three subcommittees (Prioritization, Administrative, and Permitting) to further the RLC's original 18

recommendations as well as identify opportunities for additional improvements.

- Continued coordination with the RLC and the North Coast Salmon Project to prioritize restoration opportunities in the focus areas for the CGT Solicitation.
  - Public workshops coordinated through the RLC network to collaborate with the restoration community around CDFW's planned CGT Solicitation.
  - CDFW developed report on the efforts and outcomes of RLC and other efficiency driven initiatives.
- **Conservation Planning** – The conservation planning team underwent an evaluation to reprioritize current efforts with a focus on moving several conservation planning projects towards major milestones. Specifically, this effort contributed to approval of CDFW's 17<sup>th</sup> NCCP, the Western Placer County NCCP/HCP. This 50-year Plan permits the take of 14 covered species and will conserve at least 50,000 acres of habitat for several permittees, including Placer County and the City of Lincoln. CDFW and the Wildlife Conservation Board also awarded \$576,000 for seven projects and \$1.67 million for four projects, respectively, from the NCCP Local Assistance Grant program.

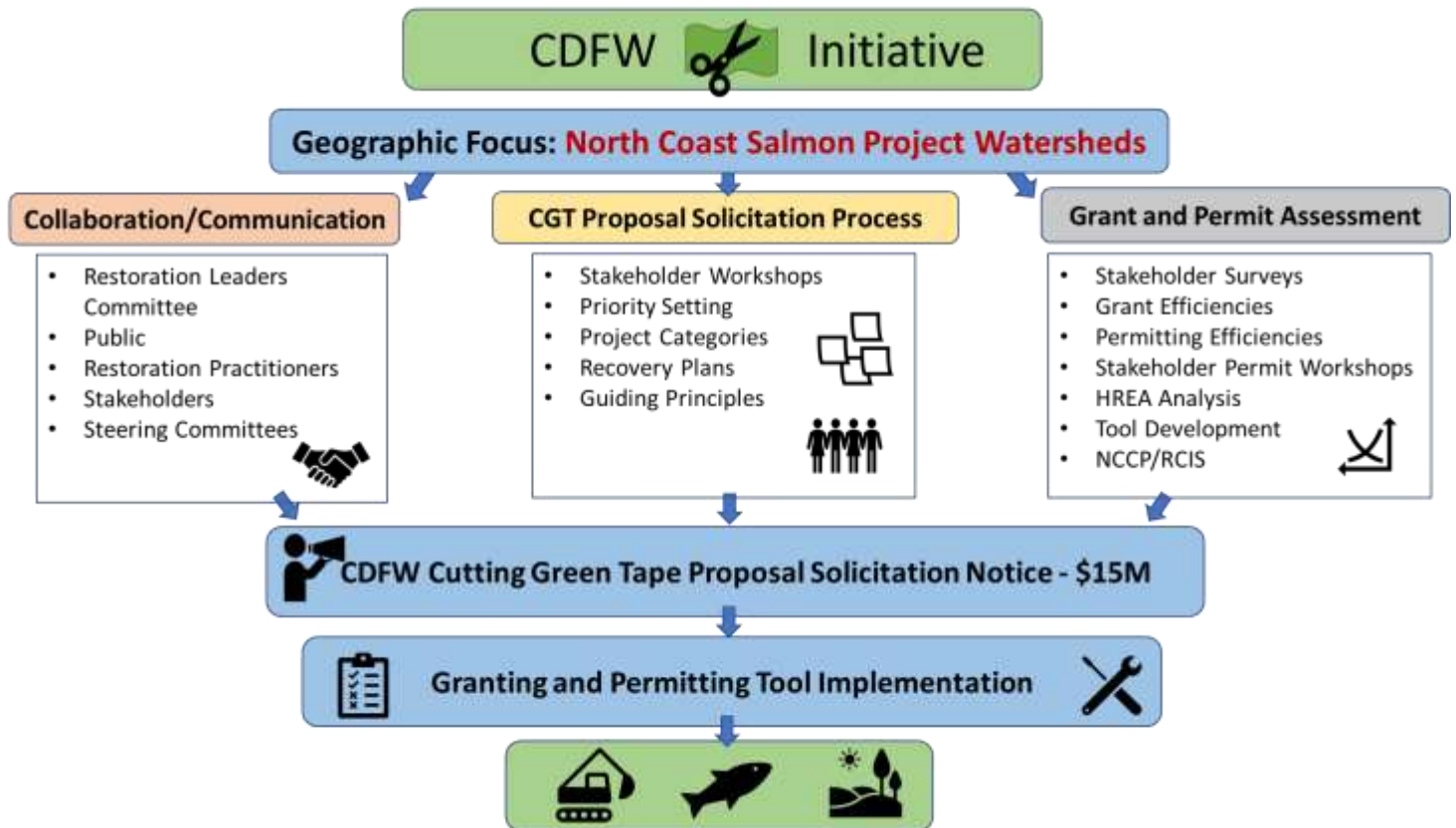
Major advancements have also occurred on the RCIS front. In the last few months, CDFW has been able to: complete substantive review of the Antelope Valley RCIS; conditionally approve the Yolo RCIS; approve a minor amendment for the Santa Clara County RCIS that expanded the number of actions that are eligible to be used to create credits through an MCA; conduct a completeness review of the Monterey County RCIS; and submit final comments on the Mid-Sacramento Valley RCIS. Additionally, staff have participated in public outreach events, such as the RCIS Symposium, and continued to meet bi-weekly with proponents regarding the Southport pilot Mitigation Credit Agreement.

In December 2020, the updated Mitigation Bank Enabling Instrument (BEI) was put out for public notice by all eight-agencies, which will allow the purchase of bulk credits in banking.

- **North Coast Salmon Project** - The North Coast Salmon Project (Project) was initiated in FY 18-19 to expedite and enhance efforts to recover endangered Coho Salmon in California. The Project is focused in four specific watersheds with an intent to extended across the entire North Coast:
  - Lagunitas Creek
  - Russian River tributaries: Dutch Bill, Green Valley, Mill, and Willow creeks
  - Mendocino Coast streams: Noyo, Garcia, Ten Mile, and Navarro rivers, and Pudding Creek
  - South Fork and Lower Eel River

The project is collaborating with regional watershed groups/partners to identify priority recovery efforts to implement moving forward utilizing the State Coho Recovery Strategy and Priority Action Coho Team (PACT) report and the Salmon Habitat Restoration Priorities (SHaRP) process. Evaluation of current habitat, population, and effectiveness monitoring efforts will guide collaboration efforts

with the public/stakeholders/restoration practitioners and the CGT teams to identify and prioritize action items that can be implemented by CDFW through our granting and permitting programs.



# MARINE REGION

## 2020 YEAR IN REVIEW



# Table of Contents

Message from the Regional Manager.....	1
COVID-19 Impacts.....	2
COVID-19 and the California Recreational Fisheries Survey.....	2
Changes in Licensing Trends .....	3
Increased Recreational Intertidal Collecting.....	4
Aquaria Impacts .....	5
COVID-19 Effects on Commercial Fisheries.....	5
Laboratory and Field Research During COVID.....	9
Department Diving Safety Program.....	9
Research Vessel Operations.....	9
Whale Safe Fisheries.....	10
Risk Assessment Mitigation Program .....	11
Conservation Plan and Incidental Take Permit.....	11
Commercial Dungeness Crab Trap Gear Retrieval Program .....	11
Recreational Crab Trap Regulations .....	11
Research, Monitoring, and Management .....	11
Marine Life Management Act Master Plan .....	11
Management Strategy Evaluations.....	13
Box crab Experimental Fishery Permits .....	13
Climate Readiness.....	14
Marine Aquaculture .....	14
California Endangered Species Act .....	15
Drift Gillnet Transition Program.....	15
Ocean Resources Enhancement and Hatchery Program.....	16
Eelgrass.....	16
Kelp and Other Marine Algae.....	16
Invasive Sargassum in Monterey.....	17
White Seabass.....	17
Salmon.....	17
Pacific Halibut.....	18
Groundfish.....	18
CalCOFI.....	18
Data Modernization.....	19
E-Tix and Marine Landings Data System.....	19
Interactive Landings Data on the Web.....	20
Improved Recreational Lobster Catch Estimates.....	20
Outreach and Data Sharing.....	21
New Marine Region Home Page.....	21
Marine Species Portal .....	21
Marine Protected Areas .....	22
Fishery Disaster Relief.....	23
Dungeness Crab .....	23
Salmon.....	23
Pacific Sardine.....	23



CDFW diver Thomas Reviea holding abalone shells in 1963. CDFW diver Jenny Hofmeister holding captive raised white abalone in 2020.

# 150 YEARS

CDFW scientific aid Dane McDermott dock sampling in 2019. CDFW warden talking with fishermen decades ago.



# Message from the Regional Manager

2020 was a very difficult year. The COVID-19 pandemic turned our personal and professional lives upside down, we endured the worst fire season in California's history, and we experienced a politically divided culture and period of social unrest that rivals anything we have seen in a generation. While many suffered through extended periods of fear, grief, and hardship, the events of 2020 also brought out amazing feats of achievement, perseverance, unity, and success.

Time and time again, we heard about acts of heroism by our medical frontline workers, fire and law enforcement personnel, and those at the forefront of the fight against racial inequality and social injustice. At the same time, we observed heroic acts of our colleagues, friends, and family as we Zoomed our kids to school, helped others in need, and made sacrifices to curb the spread of COVID-19. I wish to specifically thank and acknowledge the heroic work of those who heeded the call to serve as contact tracers to help stem the spread of COVID-19, especially Marine Region staff [Loni Adams](#), [Tracey Farrelly-Sims](#), [Cindy LaFontaine](#), [Brian Owens](#), [Elizabeth Pope](#), [Mike Prall](#), and [Kim Walker](#). I also wish to thank our dedicated administrative team who remained in the office as essential workers – often by themselves in empty buildings – to literally keep the lights on, keep our packages and mail moving, and ensure our remote workforce was able to continue to do their jobs.

The unique events of 2020 shaped much of our work in Marine Region. We closely tracked and responded to the dramatic shifts in commercial and recreational fishing activity as behavior changed in response to the pandemic. We curtailed our field work and sampling programs to only focus on the most essential needs and developed new protocols and procedures to ensure the critical work could continue in a COVID-safe manner. In response to passage of the federal CARES Act, we quickly mobilized leadership across all commercial sectors to develop a spend plan and allocate the \$18.3 million of Fisheries Relief funds allocated to California.

Despite much of our workforce relocating to home offices, we accomplished a tremendous amount. We initiated a buyout program for the California drift gillnet fishery in partnership with the Ocean Protection Council and developed and implemented several new regulatory programs, including the Risk Assessment and Mitigation Program (RAMP) and the lost or abandoned commercial Dungeness crab gear retrieval program to further reduce the risk of whale and turtle entanglement. On the outreach front, we refreshed the Marine Region home page, launched the new Marine Species Portal, and published an article in Outdoor California magazine titled [Guarding the Deep - A Brief History of the Marine Region](#) to help commemorate our sesquicentennial, a celebration of 150 years of the Department and Fish and Game Commission working to achieve our missions.

Much will be said and written about the events of this past year and the term “20/20 hindsight” will forever take on new meaning. While we must not forget the sorrow, loss, and adversity of this past year, we can take pride in knowing that we joined together to persevere and will forever be stronger because of the hardships we overcame.

Dr. Craig Shuman

# 150 YEARS

# COVID-19 Impacts

The impacts of the COVID-19 pandemic were felt throughout the California Department of Fish and Wildlife (Department) and among our constituents statewide. Beyond the direct impacts on individuals, COVID-19 affected the ability of some fisheries to operate, the supply chains that people rely on, the markets where California marine resources are bought and sold, and the Department's ability to achieve our mission.

In mid-March 2020, the majority of Department staff were redirected to home offices. Overnight, the Department was forced to rethink the way we work, how we communicate, and how work plans must change. In early summer, staff were notified of a salary reduction and associated leave program that further reduced capacity. This was compounded by staff participation in emergency leave programs to care for family members and the redirection of nearly 5% of the Marine Region workforce to contact tracing. These combined factors significantly reduced capacity throughout most of 2020, but staff rose to the occasion, developing effective solutions to the ever-changing challenges of the COVID-19 pandemic.

## COVID-19 and the California Recreational Fisheries Survey

State and county health advisories and Stay Home Orders impacted the ability of California Recreational Fisheries Survey (CRFS) staff to conduct sampling. These orders varied by date and location creating a patchwork of rules until the initial statewide Stay Home Order was issued on March 19th. Although outdoor recreational activities, including recreational fishing, were allowed in most locations, CRFS interviews with anglers were initially discontinued until more information about COVID-19 transmission vectors was obtained and safety procedures developed.



2020 CDFW work fashion trends left to right, top to bottom: Environmental scientist Trung Nguyen at the docks. CRFS sampler Jennaca Hajek. Scientific aid Hannah Brown conducting Pismo clam outreach. CRFS sampler Terrance Manila with post sampling hand sanitizer. Environmental scientist Chelsea Protasio in the tidepools. Environmental scientist Derek Stein ready for masked Pismo clam outreach.

In an effort to stay aware of trends in recreational activities, CRFS implemented state-wide effort checks at fishing sites. More than 500 sites were surveyed at a distance to document status (open or closed to the public) and to gauge relative effort. In May, when California's party/charter boat fleet began operating under new COVID-19 health guidelines, CRFS resumed tracking the fleet's activities. While April through June monthly estimates were not produced, CRFS resumed sampling in July under newly developed sampling guidelines to comply with all state, county, and Department COVID-19 health advisories and best practices. The new guidelines reduced CRFS efficiency at intercepting anglers, but methods were



Morning light at Asilomar State Beach overlooking Asilomar State Marine Reserve during the River, Carmel, and Dolan fires in Monterey.



Offshore near San Francisco a fishing vessel at noon during September 2020 wildfires.



CDFW scientific aid Bill Doo wearing PPE while interviewing a crab hoop netter on the Fort Point Pier in San Francisco.

employed to compensate for the loss including doubling the number of party/charter boat dockside surveys and streamlining the angler interview process at launch ramps, piers, breakwaters, and jetties. The development of new sampling guidelines allowed CRFS to resume production of monthly estimates and meet its mission.

In November 2020, CRFS resumed sampling beaches and banks under the new COVID-19 safety protocols. This marked the first time CRFS was at full coverage since 2017. This sampling was made possible through additional funding received through the Modernizing Marine Recreational Fisheries Act. CRFS also resumed the Angler License Directory Telephone Survey to collect recreational fishery information. This technique is used where field intercept surveys are impractical, such as nighttime fishing and effort originating from private marinas or slips.

## Changes in Licensing Trends

At a time when commercial fisheries, businesses, and recreational anglers would normally be planning for an upcoming 2020/2021 season (April 1, 2020 – March 31, 2021), there was uncertainty about what the season would look like. Markets were severely impacted by restaurant closures, export restrictions, declining foreign markets, and, in some locations, recreational anglers were restricted from accessing ports or launch ramps.

This uncertainty can be seen in patterns of license sales. In March, there was a large drop in the number of commercial fishing and business licenses and vessel registrations. This was followed by a large surge in April. Overall, the yearly total of 6,566 (\$1,137,916.50) commercial fishing licenses sold represents only a 0.8% decrease over the 2011 to 2019 average. Twenty three percent (1,517) of licenses were purchased by first-time licensees. This effect is also seen in sport fishing license sales, but with a longer delay. Sales were much reduced in the months of March and April, followed by a large surge May through July, as compared

to previous years. Unlike commercial licenses, the total yearly sales of 1,943,315 (\$69,596,854.50) sport fishing licenses represents a 9.7% increase over the 2011 to 2019 average.

As a result of market trends, some commercial permittees pivoted towards selling fish directly to the public. There was a large

increase in the number of new Fisherman's Retail Licenses issued by the Department, which allow commercial license holders to sell to the end consumer. 586 Fisherman's Retail Licenses were sold for the 2020 calendar year. In the prior decade, an average of 353 retailers were licensed each year.

## Increased Recreational Intertidal Collecting

COVID-19 resulted in a loss of income for many Californians and forced many to seek new outdoor recreational activities. This led to a significant increase in people visiting tidepools and beaches and harvesting animals along the coast, which in turn led to public concerns for marine resources. The Department observed an extreme increase in tidepool visitation and collecting. Unfortunately, many tidepoolers did not know or follow take regulations. For example, in one Southern California location, wildlife officers issued 130 citations between March and October for tidepool take violations. Fewer than 10 citations were issued in the same area in 2019.

In response, the Marine Region worked with partners to create several new materials to educate the public about intertidal harvesting regulations, including flyers, posters, and new permanent signage. Marine Region staff coordinated multiple coastal outreach events in Los Angeles, San Luis Obispo, Monterey, and San Mateo counties during



Yelloweye rockfish caught in 2020 and processed by CRFS.



A fishing boat selling halibut directly to the public.



CDFW wardens checking tidepooler buckets as they leave Pillar Point.



Easy to collect mussels in the tidepools.



From top to bottom: New sign at Pillar Point describing tidepool collecting regulations. New Tidepool collecting sign to be posted. Aquarium leopard sharks getting ready to be released into the wild. Former Cabrillo Aquarium flatfish now gets to fend for itself in the wild. Cabrillo aquarium staff Jeff Landesman grants ocean freedom to another of the many recently released aquarium sharks.



low tide series. All COVID-19 safety protocols were followed, and members of the public were contacted from a safe distance and educated on species and regulations. These Department outreach efforts, along with partner agencies and organizations, educated large numbers of people and helped reduce unintentional violations in key intertidal areas.

## Aquaria Impacts

Like all other businesses, aquariums throughout California experienced challenges with staffing and the ability to continue normal operations. This led to a need to relocate animals to ensure they were properly cared for. Staff aided six aquariums with the transfer of 41 animals to other aquariums and the

release of 221 animals into the wild that could no longer be maintained. The species moved ranged from anemones, sea urchins, and hermit crabs to rockfish, flatfish, rays, and juvenile sharks. All requests for relocation or release into the wild required a health inspection by the Department's Shellfish Health Pathologist to ensure the health of the captive animals and protect wild animals from introduced disease.

## COVID-19 Effects on Commercial Fisheries

Commercial fisheries were impacted by COVID-19 infections among crews, changes in markets, the ability to obtain fisheries observers, and more. The changes were felt



in fisheries from squid and lobster – which rely heavily on exports – to tuna – which includes high-seas fisheries with foreign crews. The following examples from the California groundfish, salmon, and lobster fisheries show how the impacts were felt differently by different sectors. The federal government also responded to COVID, providing direct financial relief through the Coronavirus Aid, Relief, and Economic Security (CARES) Act.

## Groundfish

When the State's first shelter in place order went into effect, commercial fisheries and processors were deemed essential businesses, meaning they could continue operations. According to California groundfish industry representatives and regional media reports, temporary restaurant closures and ongoing restrictions on indoor and outdoor dining resulted in a reduction in demand for fish supplied to restaurants. This included several species of California groundfish that are frequently purchased for sale in restaurants. Additionally, demand for exports continued to be lower in 2020. Cumulative monthly average ex-vessel revenue for all non-whiting groundfish sectors across all West Coast states through September 2020 was significantly less than the 2015-2019 averages.

Sablefish, historically California's most valuable commercial groundfish species, experienced a 21% decline in pounds landed and 43% decline in revenue

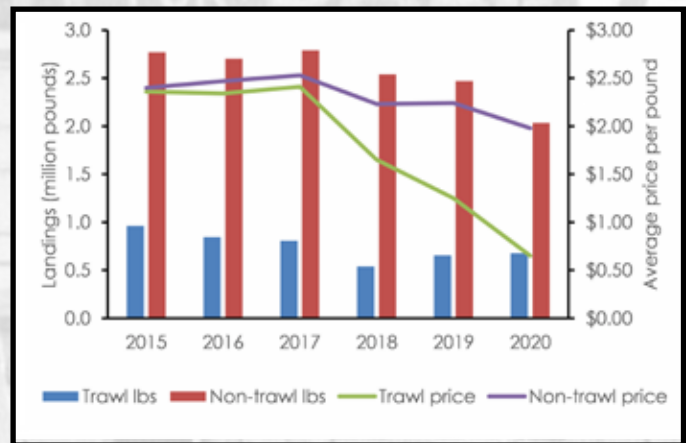


Figure 1. Sablefish landings and value, 2015-2020.

generated in 2020 compared to the previous five-year average (2015-2019). The sablefish trawl sector incurred the most significant impacts, with the volume landed in 2020 11% lower than the five-year average, yet the average price paid falling to \$0.66 per pound which was 68% lower than the five-year average of \$2.08 (Figure 1). Industry leaders attributed the drop to increased catch as stocks increase coupled with trade issues with China and restaurant closures locally and abroad due to COVID-19.

In 2020, the number of Fisherman's Retail licensees selling groundfish doubled compared to 2019, with more than half of those being first time license holders. Direct sales of groundfish pounds to the consumer were up slightly in 2020, continuing a trend that began in 2019 when direct sales doubled over previous years. Although

CDFW John Fitch and assistant. CDFW scientific aid Benson Chow dissects and prepares white seabass ovaries for a maturity study in the San Carlos lab.



the greater San Francisco Bay Area had the most groundfish sales by Fisherman's Retail licensees in 2020, sales there dropped 20% compared to 2019. By contrast, Southern California groundfish sales more than doubled in 2020.

In response to California industry requests for near-term COVID-19 relief, commercial trip limit measures were successfully fast-tracked, and implemented in season in June 2020. Also, commercial fishing seasons for some sectors were extended past normal closure dates. These actions were recommended by the Department and made possible by the intensive efforts of Marine Region staff serving on the Pacific Fishery Management Council's Groundfish Management Team.

## Salmon

COVID-19 also affected commercial salmon fisheries, buyers, and reliant businesses due to widespread impacts on the restaurant industry, which is usually a major consumer of fresh California Chinook salmon. Some salmon trollers adapted by pursuing new market opportunities - most notably, 2020 was marked by an unprecedented level of

direct-to-consumer sales of salmon. Nearly 70,000 pounds were offloaded and sold at farmers markets, via door deliveries, and at the dock, more than double the average number of pounds documented over the past decade. Charter operators also adapted to the year's circumstances and generally ran with smaller passenger loads at all ports along the coast, to ensure compliance with local Health Department requirements.

## Lobster

In the final months of the 2019-2020 commercial lobster fishing season, the average price per pound significantly decreased from \$13.92 during the first week of January 2020 to a closing average price of \$10.62 on March 18, 2020. This decrease was a direct result of the impact of the COVID-19 pandemic and the closing of international seafood markets. Though concern was raised about a depressed market and continued low price, when the 2020-2021 season opened in October 2020 spiny lobsters sold for an average of \$14.88 per pound during the first week of the season. By the end of December 2020, spiny lobsters were selling for a record high average price of \$38.70. This dramatic

# 150 YEARS

CRFS sampler Helen Acosta interviewing an angler on a beach south of Humboldt Bay. CDFW scientist Andrew Weltz conducting Rapid Spawn Assessment in San Francisco by sampling Pacific herring eggs on vegetation. Captain Putman joyfully measuring a lobster.



increase in price has been attributed to a trade war between China and Australia that has decreased spiny lobster supply to China, resulting in increased demand for California spiny lobster and subsequently increased price.

### CARES Act Relief Funds

In early May the Secretary of Commerce announced allocation of \$300 million in fisheries assistance funding provided by the CARES Act. The funding was provided to states, Tribes, and territories with coastal and marine fishery participants, with the allocation for California's fishing industry being more than \$18 million.

The Department coordinated with the Pacific States Marine Fisheries Commission (PSMFC) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries) to develop the California spend plan consistent with the CARES Act and NOAA Fisheries' guidance. Substantial coordination with the eligible fishery sectors was conducted to equitably and efficiently distribute California's allocation of relief funds. The Department identified more than 11,500 potential applicants comprising commercial fishermen, vessel owners, fish businesses, aquaculture operations, commercial passenger fishing vessel owners, and fishing guides targeting anadromous species. Applications were distributed in September with nearly 1,700 individuals and businesses qualifying for assistance and a

minimum payment of \$7,200.

### Laboratory and Field Research During COVID

#### White Abalone Restoration

The Marine Region along with its White Abalone Restoration Consortium partners continued the important work to restore the endangered white abalone in Southern California waters. Following the 2019 first ever stocking of captive-bred white abalone into the wild, the consortium conducted a second COVID-19 delayed stocking in 2020. Staff developed safety protocols which allowed a second stocking event in fall 2020. More than 1,100 white abalone were stocked across two Southern California sites. Post stocking monitoring showed continued survival of individuals from both events, hopefully helping to increase the wild white abalone populations.

#### Salmon Sampling

Acting on advice from the Pacific Fishery Management Council's salmon industry advisors and the Department, NOAA Fisheries delayed the recreational salmon fishery opener. The April delay was a response to physical distancing requirements and widespread closures of launch ramp facilities, charter boat operations and restrictions to harbor and marina access due to the COVID-19 pandemic. Delaying the opener of the fishery was designed to reduce impacts to stocks of concern and provide

CDFW diver Jenny Hofmeister releasing hand raised white abalone into the wild. Luminary scientist Frances Clark carting fish samples.



# 150 YEARS

more fishing opportunity later in the summer months than would otherwise be possible.

The delay challenged Department staff to alter commercial and recreational fishery monitoring protocols to ensure staff were able to safely monitor catch and effort in port locations throughout California. Despite these setbacks, fisheries commenced in early May and staff were authorized to conduct dockside sampling shortly thereafter, with new measures in place to help ensure both the safety of staff and the fishing community.

## Coastal Pelagic Species Age Determinations

Staff adapted to logistical challenges for compliance with social distancing and stay home orders that prevented traditional in person trainings, research, and aging workshop collaborations with NOAA's Southwest Fisheries Science Center. To support aging needs for Pacific anchovy, Pacific sardine, and other coastal pelagic species stock assessments, staff incorporated the use of high-definition microscope cameras to catalogue otolith images that could be shared through remote meeting tools, and set up mobile aging labs in their homes that allowed for continued work and collaboration.

Salmon sampled by masked PSMFC contractor Nadia El Adli in Fort Bragg. California Fish and Game divers Jack Carlisle and Jack Schott circa 1960 when short shorts were the height of dive fashion.

## Department Diving Safety Program

The Diving Safety Program's core function shifted from diver training and field facilitation to internal administration in 2020. Due to COVID-19 restrictions on travel, field work, and safety concerns, nearly all dives were canceled or postponed in 2020. By the end of December only 300 dives were completed – a nearly 85% decline from the 4-year average of 1,830 dives for fisheries and conservation research and monitoring, enforcement, and light maintenance tasks.

Nonetheless, this limited achievement involved the collaborative efforts of three scientific diving organizations (agencies, and others) that provided approximately 15 visiting divers for work on a collaborative project. With cancellation of the annual Department diver certification course, no new Department divers were qualified this year, and the current roster of 66 active divers were provisionally re-qualified until full operations resume.

## Research Vessel Operations

As with other field operations, Marine Region vessel operations were significantly curtailed due to COVID-19 safety concerns. Most of the Marine Region's 15 research vessels were prohibited from working due to limited space onboard and the inability for staff to maintain necessary physical distancing. Staff focused on ensuring the vessels were current on maintenance and repairs and ready to return



to sea when restrictions are lifted.

The Research Vessel (R/V) Garibaldi, the 45-foot-long flagship of the Marine Region, was able to complete one cruise with outside partners to conduct marine protected area (MPA) surveys before the COVID-19 restrictions went into effect. Once she was “grounded” Marine Region staff focused on maintenance, repairs and upgrades. The R/V Garibaldi now has a generator that complies with current emission standards and an electric scuba air compressor to replace the outdated gasoline powered unit. In September, the Garibaldi went back to sea to support white abalone restoration efforts. Due to the COVID-19 pandemic, the R/V Garibaldi and crew was only underway 13 days in 2020 and traveled approximately 650 nautical miles. This is a stark contrast to the vessel’s annual average of 126 days at sea and nearly 4,300 nautical miles traveled (previous 4-years).

# Whale Safe Fisheries

## Risk Assessment Mitigation Program

The Marine Region in collaboration with other Department staff developed new regulations (Section 132.8, Title 14, CCR) for the Risk Assessment and Mitigation Program (RAMP), which became effective November 1, 2020 for the commercial Dungeness crab fishery. Under RAMP the Department will evaluate marine life entanglement risk for six Fishing Zones at least monthly from November – June. If risk is elevated, the Director will determine an appropriate management action to minimize entanglement risk by zone.

## Conservation Plan and Incidental Take Permit

Marine Region staff submitted a preliminary draft Conservation Plan to address protected species interactions in the commercial Dungeness crab fishery to National Marine Fisheries Service for review on May 15, 2020. Species of concern include humpback whales, blue whales and Pacific leatherback sea turtles. The Conservation Plan is one component of the Department’s application for an Incidental Take Permit under Section 10 of the federal Endangered Species Act.



Clockwise: 1950's CDFW diver Glenn Bickford. CDFW diver Briana Brady in modern dive gear off Catalina. Recovered Dungeness crab trap. CDFW divers aboard the RV Mollusk.



# Research, Monitoring, & Management

## Marine Life Management Act Master Plan

Implementation of the 2018 Marine Life Management Act (MLMA) Master Plan continued in 2020. Staff provided results on the scaled management process for 15 state-managed finfish to the Commission in early 2020. These results include an exploration into the steps needed to pursue a scaled-management process for California halibut and the development of new regulations for California grunion. Staff also finished the prioritization of 13 key state-managed invertebrate fisheries and presented these results to the Commission's Marine Resources Committee in November 2020. Implementation and development of Fishery Management Plans (FMPs) for several species also continued.



CDFW scientific illustration of a pink shrimp.

## Pink Shrimp FMP

Marine Region staff began work on a Basic FMP for Ocean Pink Shrimp. Implementation of the Basic FMP will align management of the species with Oregon and Washington and may lead to the fishery achieving certification as sustainable by the Marine Stewardship Council, a first for California state-managed fisheries.



Young humpback whale breaching.

## Commercial Dungeness Crab Trap Gear Retrieval Program

A program to allow retrieval of lost or abandoned commercial crab trap gear was implemented for the first time in 2020. The Department issued Retrieval Permits to qualified entities in seven ports (Crescent City, Trinidad, Eureka, Bodega Bay, San Francisco, Half Moon Bay, Monterey Bay) which allowed retrieval of lost or abandoned commercial Dungeness crab gear in exchange for compensation. More than 500 traps were retrieved, all of which were returned to the original owners.

## Recreational Crab Trap Regulations

In December, the Fish and Game Commission (Commission) unanimously approved new regulations governing recreational crab trap fishing that incorporate whale safe fishing practices. In addition, a new validation requirement will allow the Department to identify crab trappers for targeted survey work to collect essential fishery information for the first time for this fishery. Regulations are expected to be effective for the 2021 season.

# 150 YEARS

## Pacific Herring FMP

Regulations implementing the [California Pacific Herring FMP](#) became effective on March 1, 2020. The Herring FMP establishes a cohesive strategy to guide the sustainable management of California's commercial and recreational Pacific herring fisheries, as required by the MLMA. Staff completed a supplemental Herring FMP rulemaking to address issues relevant to the commercial Herring Eggs on Kelp (HEOK) sector of the herring fishery. These regulations became effective on November 30, 2020.

Recreational limits established by the Herring FMP have been in place since March. The 2020-21 commercial fishery season began in December 2020 with San Francisco Bay HEOK. It is the first season managed under the new permit structure and management strategy established by the Herring FMP. The Director set commercial quotas for the first time under the Herring FMP, establishing 2020-21 season quotas for all management areas of the commercial fishery. Gillnet quotas are set at 133 tons for Tomales Bay and 11 tons each for Humboldt Bay and Crescent City Harbor. In San Francisco Bay, the 2019-20 estimated stock fell below 15,000 tons. This triggered a tier 3 management approach, per the Herring FMP, resulting in a fishery closure (0-ton quota) for San Francisco Bay. The HEOK quota in San Francisco bay is set at 14 tons.

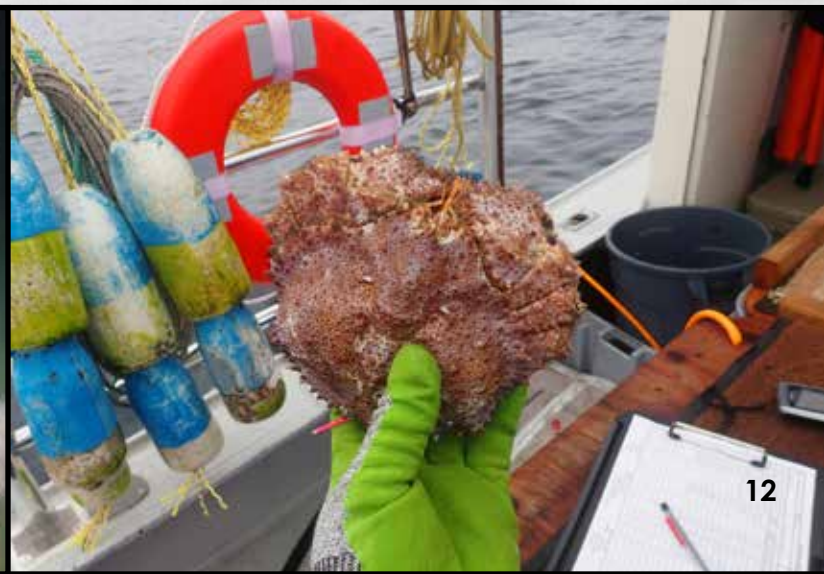
## California Halibut Stock Assessment

The Department recently completed an update to the 2011 California halibut stock assessment. It draws on the prior modeling approach and considers recent data as well as recommendations from the 2011 review process. Facilitated by the Ocean Science Trust, an independent scientific peer review of the updated California halibut stock assessment was completed by a panel of experts in 2020. The review focused on whether the technical components, models, and analysis that underpin the stock assessment were applied in a manner that is scientifically sound, reasonable, and appropriate.

The Department is moving into an exploration phase of the scaled-management process for California halibut, which will identify goals and objectives for managing the fishery. This phase includes a scoping process to inform a draft scaled management roadmap and timeline, with community and stakeholder feedback. Additionally, the Department is actively working on a Management Strategy Evaluation (MSE), completing an Enhanced Status Report (ESR), and evaluating ecosystem and bycatch considerations.

# 150 YEARS

Box crabs feasting in their natural environment. Measuring and counting box crabs aboard a fishing vessel.



## Management Strategy Evaluations

Staff led efforts to integrate MSEs into the science and management of our fisheries. MSE is a modeling approach that explores the future performance of fisheries under alternative management scenarios to identify those that achieve our goals despite multiple types of uncertainty. Staff finalized MSEs for eight case study fisheries and started three more. These will be shared with stakeholders and appended to ESRs in 2021. The Marine Region is innovating in this field by implementing MSEs that incorporate multiple stocks and multiple gear types into a single analysis, initially using the approach for California halibut.

## Box Crab Experimental Fishery Permits

The brown box crab experimental fishery program continued into a second year despite challenges faced in 2020 by constraints on fieldwork and shifting to virtual trainings and no-contact electronic data collection methods. Strong interest in commercial harvest of brown box crab led the Marine Region to initiate a collaborative research program in 2019 to evaluate a potential fishery. In 2020, six experimental fishing permits were active in the program, landing 44,400 pounds of brown box crab with an ex-vessel value of nearly \$135,000. The Marine Region is working with permittees



1953 tagged and flying halibut. CDFW scientist Kristine Lesyna collecting life history information from a freshly caught halibut in 2020. An abundance of 2020 halibut caught by recreational anglers.

to gather essential fishery information using logbooks, trap surveys, and a mark-recapture study, while research partners at California Sea Grant are studying brown box crab life history. The California Ocean Protection Council and the PSMFC are supporting the use of electronic monitoring systems to monitor catch and effort. Data analyses will help evaluate the feasibility of a box crab fishery and explore the utility of electronic monitoring for other fixed-gear fisheries.

Below: CDFW wildlife technicians Terrance Manilla and David Astrue sampling a salmon boat at a safe distance. CDFW scientist Kristine Lesyna examines spawning condition of a female California halibut landed by a trawl vessel in Half Moon Bay. Halibut fin clips and otoliths in improvised home lab.



## Climate Readiness

Marine Region staff continued to coordinate with various state and federal agencies on climate-related activities. These efforts included participation in a Pacific Fishery Management Council's Climate and Communities Initiative and a series of fisheries-climate scenario planning workshops. Staff also participated on an Ocean Protection Council (OPC) Science Advisory Team workgroup to develop a report describing the current understanding and research needs regarding marine protected areas and climate resilience. In addition, staff contributed to the climate chapter for the update to the Department's Biodiversity Atlas.

## Marine Aquaculture

Aquaculture was the focus of increased interest at both the state and federal level as several new initiatives were launched in 2020. At the state level, staff worked with the State Aquaculture Coordinator, Commission staff, other agencies, and constituents on marine aquaculture leasing and permitting activities including lease amendments, consideration of new lease applications, reviewing CEQA documents, conducting lease inspections, and a variety of other administrative and oversight requests. Staff developed an informational report on [commercial marine aquaculture in California](#) for the Commission detailing the current status of aquaculture operations statewide. The report will inform the development of a Marine Aquaculture Action Plan initiated



The Marine Region advanced the development of a new climate ready Red Abalone FMP that responds to unprecedented climate driven declines in abalone stocks and integrates two draft plans that were submitted to the Commission in late 2019. The integration process is incorporating a number of key features including 1) developing indicators of kelp forest health (Part A), 2) incorporating multiple abalone indicators including abalone density and size from plans one and two (Part B), and 3) translation of indicators into Total Allowable Catches for potential future fisheries following resource recovery (Part C). The new draft FMP has benefited from an extensive 20-year time series of essential fishery information and a multi-stakeholder process.

by the OPC to serve as a comprehensive, science-based framework for marine aquaculture in California that balances ecosystem health with sustainable development.

At the federal level, aquaculture in Southern California was also put in the spotlight this year as NOAA Fisheries selected the region for consideration of an Aquaculture Opportunity Area (AOA) pursuant to an [Executive Order on Promoting American Seafood Competitiveness and Economic Growth](#). The Marine Region coordinated with NOAA and contributed data for their spatial analyses to evaluate the location of the AOA in Southern California. Marine Region staff also responded to a U.S. Army Corps of Engineers Public Notice for comment on

# 150 YEARS

a proposed offshore shellfish and seaweed farm, and a Notice of Intent to prepare an Environmental Impact Statement by NOAA for an offshore finfish farm proposed in federal waters.

## California Endangered Species Act

### Permitting

After years of coordination and work with CalTrans, Marine Region staff were able to complete the California Endangered Species

leatherback sea turtles as a candidate species in August. Marine Region staff are preparing a status review report to submit to the Commission in 2021.

## Drift Gillnet Transition Program

In 2019, the Department began implementation of California Senate bill 1017 (Allen), which provides for the transition of the large-mesh drift gillnet (DGN) fishery to other gears with lower levels of protected species interactions. This year, the first component of SB 1017, a voluntary buy-back program, was initiated. The program compensates



Act Incidental Take Permit and mitigation for the San Francisco Oakland Bay Bridge East Span Seismic Safety Project.

## Leatherback Sea Turtle CESA Petition

In January 2020 a petition to protect leatherback sea turtles under the California Endangered Species Act (CESA) was received by the Commission and referred to the Department. Marine Region staff prepared a petition evaluation that found merit to consider CESA listing. The evaluation was presented to the Commission in June and the Commission agreed the petitioned action may be warranted and designated

current DGN permit holders for surrendering their permits and nets. Permit holders were grouped into “active” and “inactive” categories based on their past fishing activity as defined by the bill. Of 68 current DGN permit holders, 44 submitted declarations of intent to participate in the program, including 28 of the 32 active participants in the fishery.

The bill required a mix of State and private funding to support the buy-back. In July, having received \$1 million from the California Ocean Protection Council and a matching \$1 million of non-state funds from Oceana, the Department notified the first 24 approved participants that they could proceed. As of

February 2021, 14 permit holders (ten active and four inactive) have completed the transition process and relinquished their nets and permits. Additional approved permittees are in contact with Net Destruction Entities, who work directly with participants to receive the nets and recycle them. The remaining participants will be notified they can participate if additional funding becomes available.

## Ocean Resources Enhancement and Hatchery Program

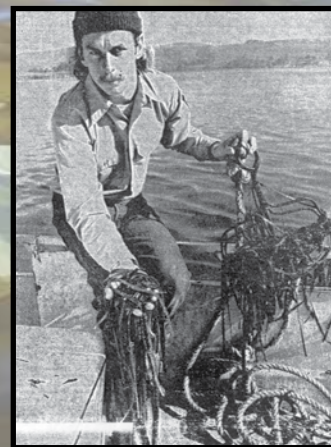
Department staff, working with the Ocean Resources Enhancement Advisory Panel, continued to focus on white seabass enhancement while addressing administrative and research priorities for the [Ocean Resources Enhancement and Hatchery Program](#) (OREHP). On September 30, 2020, Governor Newsom signed [Assembly Bill 1949](#), which amends the OREHP statute (Fish and Game Code Section 6590). The amendment updates the OREHP's management processes and expands the program's capabilities and public-private partnerships by (1) updating the organizational structure of the OREHP and revising the criteria for membership of the Advisory Panel; (2) establishing an independent scientific advisory committee to prioritize OREHP research and review program findings; (3) mandating an annual public meeting to present OREHP research; and (4) requiring a legislative report by July 1, 2027, to track OREHP progress. As a result of the new amendments, staff began work to solicit Advisory Panel nominations from all interested stakeholders, including sport and commercial fishing industries, aquaculture, and non-governmental interests. The new Advisory Panel will be established in early spring 2021.



White seabass from San Francisco Bay measured on the dock.

## Eelgrass

Despite curtailed field efforts, project staff continued work on eelgrass (*Zostera* spp.). Eelgrass expansion was again noted in Morro Bay, which is a good sign after years of decline for reasons yet identified. In addition, *Zostera pacifica*, a species specific to Southern California, is continuing to be identified in new locations, including Port San Luis and near Vandenberg Air Force Base. These observations will be added to the annual eelgrass surveys conducted by project staff in collaboration with the Nearshore and Bay Management Project.



Eelgrass held by CDFW scientist Frank Henry.

## Kelp and Other Marine Algae

The Department partnered with California Sea Grant to hire a Kelp Management Extension Fellow to coordinate key kelp reports and projects, including a Giant and Bull Kelp Enhanced Status Report, and expanded its support for kelp restoration in 2020. Together with Sea Grant and OPC, the Department established a new Kelp Recovery Research Program to guide the allocation of nearly \$2 million of kelp restoration research essential to informing kelp management and recovery. Staff are working with OPC, Reef Check California, commercial urchin divers, and Moss Landing Marine Laboratory to implement priority actions in Mendocino County identified in the 2019 Bull Kelp Recovery Plan. Other partners important to the overall effort are the Noyo Center for Marine Science, Watermen's Alliance, Greater Farallones Association, and The Nature Conservancy.

The recovery efforts included removing purple urchins to restore kelp and testing kelp outplanting methods. In addition, staff worked with the recreational dive community evaluating the sport take of urchin as a

tool to promote kelp recovery. To facilitate this, an emergency rule allowing unlimited recreational collection of purple sea urchin in Caspar Cove (Mendocino County) was adopted in March 2020. The rule was adopted as a standard rule at the end of 2020, which also included an area at Tanker Reef (Monterey County) allowing unlimited take of both red and purple sea urchins. Staff are also working with NGO partners to explore urchin trapping as a method to reduce urchin density and promote kelp recovery. Staff are coordinating with OPC to develop a Kelp Action Plan, which will inform the development of a Statewide Kelp Restoration and Management Plan.

## Invasive Sargassum in Monterey

*Sargassum horneri* is a large, annual brown seaweed, native from Japan to the Philippines. *S. horneri* is one of three species of sargassum that have become persistent in California. In 2003, *S. horneri* invaded Long Beach Harbor and rapidly spread to the California Channel Islands and as far south as Todos Santos, Mexico. Because sargassum can be locally very abundant, grow quickly, and potentially displace native algae, there are concerns about its potential to alter nearshore ecosystems.

In June 2020, a Reef Check California volunteer diver spotted and photographed an individual sargassum plant attached to the seafloor at the Monterey Breakwater within the Edward F. Ricketts State Marine Conservation Area. Due to concerns about the potential spread of this invasive species into a new part of the state and within a marine protected area, the Marine Region deployed two Department divers to search for the algae on June 23, 2020. The one *S. horneri* specimen was located and successfully removed. In more than two hours

of searching during two dives, no other sargassum was located. The removed specimen was examined by Department staff and determined to be a non-reproductive juvenile. Any new observations of sargassum in the area should be reported to the Department. Removal of any algae, including invasive species, within a marine protected area is illegal unless specifically allowed in regulation.

## White Seabass

As part of the annual review of the White Seabass Fishery Management Plan for the 2018-2019 season, staff collected and analyzed commercial and recreational data. Staff evaluated the numbers and sizes of white seabass landed, information on forage fish availability, and socioeconomic data to determine if the points of concern had been met. Relative to the 2017-2018 season, commercial pounds of white seabass landed decreased while recreationally caught numbers increased. None of the five main points of concern were met for the season and no further action was needed.

## Salmon

The Marine Region completed both the 2016 and 2017 Constant Fractional Marking reports this year. The critical scientific compendiums detail hatchery contributions to Central Valley harvest, escapement, and ocean fisheries, and describe the effects of various hatchery release strategies on survival, contribution to fisheries, and fidelity to their river-of-origin. Constant Fractional Marking results are central to evaluations of hatchery programs, bay and coastal net pen programs, barge studies, restoration



Chinook Salmon being measured in Bodega Bay in 2020.

activities, recovery goals, and salmon lifecycle model calibrations.

Marine Region staff assisted in the development of a risk assessment analyzing the effects of ocean salmon fisheries on federally endangered southern resident killer whales (SRKW). This work resulted in the Pacific Fishery Management Council considering and adopting associated fishery constraints in 2020 to protect SRKW in future years of low salmon abundance.

## Pacific Halibut

Marine Region staff continued to actively monitor recreational and commercial Pacific halibut fisheries in 2020, and track attainment of the annual recreational quota. The recreational Pacific halibut fishery was scheduled to be open from May 1 through October 31, or until the quota was met, whichever came earlier. Record breaking numbers of Pacific halibut were caught during 16 days at the end of July and beginning of August with more than 350 encountered by field staff at the docks. Typically, field staff see around 250 fish during an entire season. This unprecedented number of fish resulted in catch projections that rapidly exceeded the quota. The fishery closed for the year on August 11. Since active quota management began in 2015 the fishery has closed in August three times due to quota attainment, but August 11 is the earliest fishery closure on record.



Lingcod and vermilion rockfish hanging out at depth.

## Groundfish

Marine Region staff developed and analyzed comprehensive plans for new groundfish management measures that were implemented January 1, 2021. Many of the new measures increase access and opportunities due to the successful rebuilding of many previously overfished groundfish stocks.

Marine Region staff contributed to a number of scientific advancements in 2020. Lingcod fin rays were collected and processed for age and growth rate analysis of lingcod populations along the West Coast. The results will be used to improve future stock assessments and management decisions. Additionally, staff collaborated to develop a method to generate population abundance information from remotely operated vehicles in nearshore surveys, which was validated and approved by the Pacific Fishery Management Council. This is a step forward to incorporate new data streams into stock assessments of some nearshore groundfish stocks. The methodology could also provide information on stock abundance inside areas where extractive surveys or harvest is not permitted (e.g., MPAs) in the future.



2020 otoliths. 1961 Robert Bell examining samples.



## CalCOFI

The Marine Region continued as a partner with NOAA Fisheries and the University of California in the California Cooperative Oceanic Fisheries Investigations (CalCOFI) ecosystem monitoring program, which began in 1949. A new program coordinator was hired in 2020 using funds from all three partners to oversee and enhance communications, outreach, and research. The annual CalCOFI Conference was held online due to COVID, which allowed for

# Data Modernization

## E-Tix and Marine Landings Data System

2020 marked the first full year of mandatory electronic reporting of commercial landing receipts within 3 business days of landing. In 2020, the average number of business days between the landing and when the record was submitted was 2.34 business days, greatly enhancing our ability to engage in near real-time management. In October 2020, the Marine Landings Data System (MLDS) was fully developed through coordinated efforts between the Department's Data and Technology Division and Marine Region. MLDS is a web-based application allowing Department staff to access a full array of commercial fisheries records and reports needed for fisheries management and law enforcement purposes. Through the combination of MLDS and E-Tix, the 2020 summaries of commercial fishery landings were finalized and made available in early 2021.



1937 control panel for tabulating.

widespread participation and turned out to be a huge success with a five-fold increase in attendance (more than 500 registered participants). The conference explored our understanding of unprecedented changes in coastal and marine environments of the California Current Ecosystem. CalCOFI was highlighted as the longest marine ecosystem time series of coupled physical, chemical, and biological variables that provides essential information about ocean climate change. Check out the [website](#).



CDFW scientists using a variety of statistical equipment over the years. Above: 1952 statistical equipment sorting machine. Clockwise from top right: 1937 tabulator. 1937 statistical equipment key punchers. 1965 IBM 075 sorters.



## Interactive Landings Data On The Web

As part of Marine Region efforts to modernize our data systems, current landings information for [market squid](#) and [several other commercial pelagic fisheries](#) were developed using new interactive tools. The market squid data include both a table and a heat map, showing landings by season. The table and map are updated quarterly on the website, or whenever significant new landings data become available. The commercial pelagic species data include interactive landings graphs for market squid, Pacific sardine, northern anchovy, Pacific mackerel, jack mackerel, and Pacific bluefin tuna. The effort is an important step towards modernizing Department fisheries data sharing on the internet.

## Improved Recreational Lobster Catch Estimates

Estimates of California spiny lobster recreational catch and effort rely on information reported on seasonal lobster report cards. However, it was suspected that assumptions of non-reported fishing data were biased, resulting in an overestimation of recreational catch.

A survey of lobster report card holders was conducted in summer 2019 to test the key underlying assumption that reported and non-reported catch and effort are the same. Survey responses indicated that a higher percentage of non-reporters did not fish (40%) compared to those that returned their report



Recreational angler with tuna. Vintage tuna research.



cards (20%). The survey, in conjunction with a deeper analysis of past data, also revealed that recreational catch and effort increases with fishing participation level for both reporters and non-reporters, where participation level was determined based on each customer's report card purchasing history. Based on these findings, the Department developed an improved method for estimating the contribution of non-reported recreational catch and effort that accounts for differences in catch rate by participation level. Calculations for the 2019-2020 season revealed that the prior method of estimating non-reported catch would result in an over-estimate of total recreational catch by 27%. Having an accurate idea of recreational spiny lobster catch is important for managing the fishery and understanding the impact of both the commercial and recreational take on spiny lobster populations.



1952 CDFW staff entering data.



California spiny lobster.

# Outreach and Data Sharing

## New Marine Region Home Page

The Marine Region undertook a revamp of its web presence, with a new [home page](#) launched in September that makes it easier for the public to quickly find desired information. The new design focuses on four key areas of public interest: Regulations; Marine Protected Areas; Species Information; and Data, Management, and Research. Many Marine Region web pages were edited to increase clarity, and obsolete web pages were deleted. Updates will continue towards the goal of a streamlined and easily accessible website.

## Marine Species Portal

New in 2020, the California [Marine Species Portal](#) was unveiled in July. The Portal provides searchable access to basic species information, as well as [Enhanced Status Reports](#) (ESRs) for select state-managed fisheries. The Portal is one of the tools described in the 2018 Marine Life Management Act Master Plan for providing information on California fisheries to the public. The Portal, based on a prototype design developed with stakeholder input, was funded by the OPC and constructed by a consultant with the support of staff from the Marine Region and the Data and Technology Division (DTD).

The Portal currently houses 32 ESRs covering 35 species. These ESRs contain information on the natural history of the species and the location, landings, and characteristics of the fishery along with details about bycatch, socioeconomics, research needs, opportunities for management changes, and climate readiness. Through additional modifications to the Portal by DTD and MR staff, the Portal also includes “Species-at-a-Glance” information for 73 non-ESR species, with more being added continuously. The Species-at-a-Glance provides summary information on the key life history aspects for each species.



New Marine Region home page buttons for Data & Research, Species information, Regulations, and MPAs.



Screen shots of the new searchable Marine Species Portal.



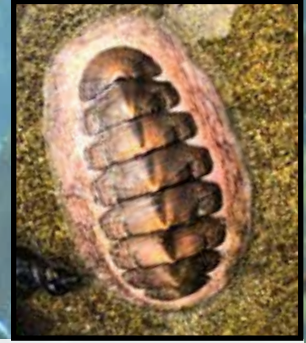
# Marine Protected Areas

The Department manages California's 124 MPAs and 14 special closures as a statewide network using a partnership-based approach through the [MPA Management Program](#). The MPA Management Program is composed of four key focal areas: Outreach and Education, Research and Monitoring, Enforcement and Compliance, and Policy and Permitting.

Staff increased digital outreach efforts to keep stakeholders informed on notable MPA Management Program activities. Staff published more than 20 blogs highlighting [California's MPAs](#) and the individual county [Collaboratives](#) that make up the statewide MPA Collaborative Network. The new [MPA video playlist](#) on YouTube allows viewers to visually explore individual MPAs and the unique species and habitats they protect.

In early spring, all field-based [long-term monitoring project](#) activities to inform adaptive management of the MPA Network were halted due to the COVID-19 pandemic. Staff worked closely with monitoring project leads to shift project tasks to analyses of existing data until new data collection could continue. After implementing safety protocols, field-based projects resumed with modified data collection protocols to accommodate physical distancing. New monitoring projects that started in 2020 include a [Tribal Stewards Program](#) and the development of a cohesive statewide [monitoring program for estuarine MPAs](#).

Interest in conducting research in MPAs continued in 2020 with 144 scientific collecting permits issued for research and educational activities within 74 MPAs: 31 State Marine Reserves (SMR), 41 State Marine Conservation Areas (SMCA), and 2 State Marine Recreational Management Areas (SMRMA). The total number of projects for each MPA designation are 66 in SMRs, 103 in SMCAs and 8 in SMRMAs. The MPA Management Project and its partners continue to work towards achieving the goals and requirements of the Marine Life Protection Act (MLPA). Significant attention is now focused on preparing the first decadal management review (DMR) of the MPA Network and Management Program for the Commission,



Green anemone and chiton living in an MPA.

planned for the end of 2022. The DMR will focus on reviewing each of the four focal areas of the MPA Management Program and the evaluation of the MPA Network in meeting the goals of the MLPA, including adaptive management recommendations for the Commission's consideration.



MPA collaboratives featured in 2020 CDFW blogs.



Healthy tidepool creatures in the Russian Gulch State Marine Conservation Area.

# Fishery Disaster Relief

## Dungeness Crab

Mitigation funds from the 2015-16 California Crab Fisheries Disaster totaling more than \$3.3 million were awarded for research and testing this year. A portion of the funds were allocated to the California Department of Public Health for the purchase of laboratory supplies to support domoic acid testing of crabs. Research proposals were also solicited in early 2020 that aimed to better understand domoic acid and how the fishery can better respond to future domoic acid events. Three research grants were awarded focusing on the socioeconomic impacts of domoic acid on California crab fisheries and fishing communities, transfer and retention of domoic acid in California crab species, and development of predictive modeling tools to better inform the commercial crab fleet.

## Salmon

Marine Region staff assisted with the development and execution of the 2016-17 Klamath River Fall Chinook (KRFC) salmon disaster relief program, which aimed to help members of California's sport and commercial fishing industries who were impacted by the sharp decline in KRFC abundance during the 2016 and 2017 fishing seasons. Staff provided data and technical support to help industry partners develop

a spend plan that allocated Congressionally appropriated funds equitably across fishery sectors and participants. Spend plan implementation required collaboration across the Department and with the PSMFC, as well as a dedicated outreach campaign to help raise awareness about individual eligibility and application deadlines. As a result of these efforts, approximately \$4.8 million was disbursed as direct payments to 1,181 eligible applicants in December of 2020.

## Pacific Sardine

Funds for the 2015-2016 Sardine Fishery Disaster were awarded this year with \$1.2 million distributed to 36 permittees and 9 businesses affected by the disaster. A portion of the funds (\$300,000) went to the nearshore collaborative research with industry partners. The research uses aircraft and industry fish observers to quantify the number of sardines and anchovies in nearshore areas inaccessible to vessel-based surveys.

Marine region staff completed the 2017-2019 Sardine Fishery Disaster proposal and submitted it to PSMFC for NOAA Fisheries approval. Approximately \$1.4 million will go to individuals and businesses affected by the disaster and \$700,000 will be used to continue the nearshore collaborative research with industry partners.



Warden aboard a salmon boat.



## Photo Credits

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# **MARINE REGION**

## **2020 BY THE NUMBERS**

# **2020 Marine Region: Area, Staff, and Funding**

***The Marine Region encompasses approximately **5,767** square statute miles of state waters, including San Francisco Bay and San Pablo Bay to the Carquinez Bridge.***

***For the 2019-2020 fiscal year, the Marine Region budget was **\$24,591,697*****

***As of December 31<sup>st</sup>, 2020, there were **143** permanent staff and **85** temporary staff positions within the Marine Region.***

Cover photo of squid boats taken by CDFW environmental scientist Carrie Wilson

## Contents

2020 Marine Region: Area, Staff, and Funding .....	i
2020 California Commercial Fishing .....	1
Weight and Ex-Vessel Value <sup>1</sup> of Commercial Landings by Port Area ....	1
Top Commercial Fishery Numbers .....	1
Commercial Vessels and Revenue for 2020 .....	2
Top 2020 Commercial Fisheries by Ex-Vessel Value .....	2
Top 2020 Commercial Species Landed by Weight .....	3
2020 Commercial Landings of Key Groundfish by Species .....	3
2020 California Recreational Fishing .....	4
California Recreational Fisheries Survey Sampling .....	4
Total Recreational Licenses Sold and Fees Collected in 2020 .....	4
Top Five Types of Fish Targeted by 2020 Recreational Anglers in California Based on Fishing Trips .....	5
Top 10 Types of Fish Caught by Recreational Anglers in California Based on Pounds of Fish Harvested <sup>1</sup> .....	5
Permitting and Environmental Review .....	6
Additional Marine Region Efforts .....	6
Marine Protected Area Management Project .....	7

# 2020 California Commercial Fishing

## Weight and Ex-Vessel Value<sup>1</sup> of Commercial Landings by Port Area

Port Area	Pounds	Ex-Vessel Value
Eureka	12,789,986	\$ 21,454,133
Fort Bragg	4,443,005	\$ 6,502,945
Bodega Bay	3,092,556	\$ 10,431,872
San Francisco	10,185,224	\$ 18,950,240
Monterey	41,959,017	\$ 22,554,718
Morro Bay	1,097,348	\$ 3,072,916
Santa Barbara	9,947,424	\$ 23,828,552
Los Angeles	17,226,045	\$ 16,040,906
San Diego	4,902,630	\$ 11,231,695
<b>Total</b>	<b>105,643,235</b>	<b>\$134,067,977</b>

Data as of 02/26/2021

<sup>1</sup>Ex-Vessel Value is the amount paid to the fishermen at the dock.

Data Source: Department's Marine Region, Marine Fisheries Statistical Unit

## Top Commercial Fishery Numbers

Total Commercial Landing Fees Collected: **\$826,317**

Top Ex-Vessel Value: **Dungeness crab**

Top Weight: **Market squid**

## Commercial Vessels and Revenue for 2020

Type	Numbers Sold	Revenue
Resident Vessel	2,885	\$ 1,095,579
Non-Resident Vessel	309	\$ 352,028
Passenger Fishing Vessel	550	\$ 208,863
<b>Total Vessels</b>	<b>3,744</b>	<b>\$1,656,470</b>
Resident License	5,897	\$ 853,591
Non-Resident License	644	\$ 278,691
<b>Total Licenses</b>	<b>6,541</b>	<b>\$ 1,132,282</b>

Data as of 02/26/2021

Data Source: Department's License and Revenue Branch

## Top 2020 Commercial Fisheries by Ex-Vessel Value

Fishery	Pounds	Ex-Vessel Value
Dungeness crab	8,382,714	\$ 30,148,421
Market squid	45,082,311	\$ 26,111,917
California spiny lobster	726,199	\$ 13,862,174
Chinook salmon	1,915,498	\$ 13,848,507
Spot prawn	391,609	\$ 5,779,593
Red sea urchin	1,858,076	\$ 4,608,001
Sablefish	2,770,465	\$ 4,508,704
California halibut	690,015	\$ 3,630, 509
Bigeye tuna	967,086	\$ 3,142,311
Swordfish	706,589	\$ 2,751,411

Data as of 02/26/2021

\*Note that landings and value are reported for the calendar year (January 1 – December 31) This may differ from seasonal landings for specific fisheries reported elsewhere.

Data source: Department's Marine Region, Marine Fisheries Statistical Unit  
[MLDS Statewide Landings by Pounds/Value Report](#)

## Top 2020 Commercial Species Landed by Weight

Fishery	Pounds	Ex-Vessel Value
Market squid	45,082,311	\$ 26,111,917
Northern anchovy	12,425,467	\$ 652,394
Dungeness crab	8,382,714	\$ 30,148,421
Pacific sardine	6,314,120	\$ 495,927
Yellowfin tuna	3,770,182	\$ 2,584,578
Dover sole	3,564,365	\$ 1,353,685
Sablefish	2,770,465	\$ 4,508,704
Chinook salmon	1,915,498	\$ 13,848,507
Red sea urchin	1,858,076	\$ 4,608,001
Chilipepper rockfish	1,410,559	\$ 551,270

Data as of 02/26/2021.

\*Note that landings and value reported over the calendar year (January 1 – December 31) may differ from seasonal landings for specific fisheries reported elsewhere.

Data source: Department's Marine Region, Marine Fisheries Statistical Unit

## 2020 Commercial Landings of Key Groundfish by Species

Species	Pounds	Ex-Vessel Value
Nearshore	326,074	\$ 1,579,630
Shelf and slope rockfish	3,338,033	\$ 2,060,224
Dover sole, thornyheads, sablefish (black cod)	6,891,943	\$ 7,278,246
Remaining Flatfish*	1,461,423	\$ 1,418,633
Other	956,497	\$ 1,069,667
<b>Totals</b>	<b>12,973,970</b>	<b>\$ 13,406,400</b>

\*Remaining Flatfish include: arrowtooth flounder (turbot), curlfin sole, English sole, Pacific sanddab, petrale sole, rex sole, rock sole, sand sole, and starry flounder.

Data Source: Department's Marine Landings Database System

# 2020 California Recreational Fishing

## California Recreational Fisheries Survey Sampling

- Data Collected from: **210,000 angler trips**
- Estimated Recreational Fishing Trips in Marine Waters: **2 million**
- Estimated Total Fish Caught: **7.2 million**
- Data Collected from: **507,000 fish and invertebrates**

Data Source: Department's Marine Region, California Recreational Fisheries Survey

## Total Recreational Licenses Sold and Fees Collected in 2020

License Type	Numbers Sold	Value
All Recreational Fishing Licenses	1,959,187	\$ 72,069,147
Spiny Lobster Report Card	43,597	\$ 414,172
Ocean Enhancement Validation	302,566	\$ 1,588,472

Note that recreational fishing licenses are valid for ocean and inland fishing in California.  
Data Source: Department's License and Revenue Branch

## Top Five Types of Fish Targeted by 2020 Recreational Anglers in California Based on Fishing Trips

Rank	Trip-Type and Top Species Targeted <sup>1</sup>	Estimated Number of Angler Trips (thousands)
1	<b>Bottomfish:</b> Rockfish, ocean whitefish, lingcod, basses (kelp/calico bass, and barred sand bass), ocean whitefish, and California scorpionfish	531
2	<b>Inshore:</b> California halibut, Pacific herring, jacksmelt and spotted sand bass	405
3	<b>Coastal Migratory:</b> Chub (Pacific) mackerel, Pacific barracuda, Pacific bonito and yellowtail	170
4	<b>Salmon:</b> Chinook salmon	59
5	<b>Highly Migratory:</b> Yellowfin tuna, bluefin tuna, skipjack tuna, dolphinfish (dorado) and albacore tuna	37

<sup>1</sup>For each trip target, the top species targeted are listed based on the estimated total catch for the species or species group.

The CRFS estimates and data were extracted from RecFin database at [www.recfin.org](http://www.recfin.org) and supplemented by CDFW Fisheries Analytics Project. Highly Migratory effort from Commercial Fishing Passenger Fishing Vessel was summed from Marine Log System.

\*Due to COVID-19 restrictions, data excludes April, May and June.

Data source: Department's Marine Region Fisheries Analytics Project and Ocean Salmon Project

## Top 10 Types of Fish Caught by Recreational Anglers in California Based on Pounds of Fish Harvested<sup>1</sup>

Rank	Type of Fish	Estimated Pounds of Fish Caught <sup>1</sup>
1	<b>Tunas</b> (bluefin, yellowfin, albacore and skipjack)	3,088,000
2	<b>Rockfish, greenlings and cabezon</b>	1,731,000
3	<b>Yellowtail</b>	751,000
4	<b>Lingcod</b>	524,000
5	<b>Flatfish</b> (California halibut, sanddabs, soles, Pacific halibut and starry flounder)	484,000
6	<b>Salmon<sup>2</sup></b> (Chinook salmon)	442,000
7	<b>Ocean whitefish</b>	228,00
8	<b>Basses</b> (kelp/calico bass, barred sand bass, and spotted sand bass)	185,000
9	<b>California scorpionfish</b>	155,000
10	<b>Chub(Pacific)mackerel</b>	123,000

<sup>1</sup>Fish Harvested=fish kept and fish released dead, estimates are preliminary and may differ from what is used for fisheries management. <sup>2</sup> Pacific Fishery Management Council (PMFC) uses numbers of salmon harvested for fishery management, numbers were converted to weight in pounds by the Ocean Salmon Project. The CRFS estimates and data were extracted from RecFin database at [www.recfin.org](http://www.recfin.org) and supplemented by CDFW Fisheries Analytics Project. CPFV tuna catch was summed from Marine Log System. \*Due to COVID-19 restrictions, data excludes April, May and June. Data source: Department's Marine Region Fisheries Analytics Project and Ocean Salmon Project

## Permitting and Environmental Review

- Environmental Documents Reviewed (plans, surveys, reports, permits, etc.): **428**
- Pre-Project Review: **81**
- Aquaculture Registrations Issued: **30**
- Live Import, Restricted Species, and Broodstock Collection Permits, and Letters of Authorization Issued: **67**
- Scientific Collecting Permits Issued/Renewed: **143**
  - Marine Protected Areas with Research Approval: **74**
    - State Marine Reserves: **31**
    - State Marine Conservation Areas: **41**
    - State Marine Recreational Management Areas: **2**

*Data source: Department's Marine Region, Environmental Review and Water Quality Project*

## Additional Marine Region Efforts

- **2** Enhanced Status Reports (ESRs)
- **73** Non-ESR Species-at-a-Glance Summaries
- **8** Management Strategy Evaluations Completed
- **44** Articles on the Marine Management News Published by Marine Region staff
- **300** Marine Region Research Dives

Marine Protected Areas information available at <https://wildlife.ca.gov/Conservation/Marine/MPAs>

*Data source: Department's Marine Region*

# Marine Protected Area Management Project

- Number of MPA Blogs and News Highlights
  - Exploring California's MPAs Published: **10**
  - MPA News Highlights Released: **10**
- Number of Days on Research and Monitoring Trips: **11**
- Number of MPA Underwater Videos Produced: **5**
- Number of MPA Monitoring and Research Conferences and Workshops Attended: **12**
- Number of Partner Outreach Events Attended: **13**
- Number of MPA Management Presentations: **13**
- Number of Scientific Collecting Permits Issued for work within MPAs: **54 (allowing research in 74 individual MPAs)**
- Number of Long-Term Monitoring Projects Underway: **10**
- Number of MPA Outreach Materials Distributed: **5,864**

*Data source: Department's Marine Region, Marine Protected Area Management Project*

# Updated Freshwater Sportfishing Regulations

March 1, 2021

New freshwater sport fishing regulations which take effect on March 1, 2021, aim to simplify and streamline the laws regulating inland fishing while maintaining and protecting California's fisheries. The package of updated regulations was adopted by the California Fish and Game Commission in October 2020. It was the largest regulatory inland sport fishing package in the Commission's history.

"The underlying goals were to reduce the complexity of inland sport fishing regulations, increase regulatory consistency and remove regulations that are no longer biologically justifiable," said California Department of Fish and Wildlife (CDFW) Inland Fisheries Program Manager Roger Bloom.

Major changes include:

- Separate regulations for inland trout (non-anadromous waters) from those for steelhead and salmon (anadromous waters) to make it easier to understand the bag and possession limits,
- Replacement of district regulations with statewide regulations separated for trout, and
- Standardize and consolidate "special fishing" regulations.

CDFW held a series of community meetings in 2018 and 2019 at locations across the state to publicly introduce and discuss proposed changes to simplify statewide inland sport fishing regulations. CDFW proposals and recommendations from the public were then vetted at the January and March 2020 Wildlife Resources Committee meetings.

Anglers should review the changes as they affect most of the inland trout waters in California. Updates to the regulations can be found both at [wildlife.ca.gov/Fishing/Inland](https://wildlife.ca.gov/Fishing/Inland) and [wildlife.ca.gov/Regulations](https://wildlife.ca.gov/Regulations).

# Recreational Ocean Salmon Fishery Season Curtailed on Much of the California Coast

March 11, 2021

California's recreational salmon fishery will open in ocean waters on Saturday, April 3 in the Monterey management area, from Pigeon Point (37° 11' 00" N. latitude) south to the U.S./Mexico border, with a minimum size limit of 24 inches. All other areas of the California coast will remain closed until further notice. The remaining 2021 season dates and associated regulations will be finalized next month.

Although the San Francisco and the Fort Bragg management areas were originally scheduled to open in April, on the advice of salmon fishery representatives, the Pacific Fishery Management Council (PFMC) made the decision to delay the openers in these areas to limit ocean fishery impacts due to poor stock forecasts. Both Klamath River fall Chinook and Sacramento River fall Chinook have reduced ocean abundance forecasts for the 2021 season compared to long term averages, and the PFMC is taking steps to ensure that enough salmon will return to rivers this fall to meet spawner abundance goals.

Traditionally, fishing in the Monterey management area is better early in the season, prompting recreational fishing representatives to prioritize its opening ahead of areas to the north. Although seasons for the San Francisco, Fort Bragg and Klamath management areas are not yet known, the season alternatives that are currently under consideration prioritize opportunity later in the summer, when catch rates are typically better.

Final season dates will be decided during the virtual PFMC meeting to be held April 6-9 and 12-15. The public is invited to comment on the PFMC's season proposals at that meeting or at a virtual public hearing scheduled for 7 p.m. on Tuesday, March 23. Details on how to attend the PFMC meeting, public hearing, and ways to provide public comment can be found on the PFMC website at [www.pcouncil.org](http://www.pcouncil.org)

Anglers are advised to check for updated information when planning a salmon fishing trip. Season dates, bag/possession limit information and gear restrictions can be found on CDFW's ocean salmon web page at [www.wildlife.ca.gov/oceansalmon](http://www.wildlife.ca.gov/oceansalmon) or by calling the Ocean Salmon

Regulations Hotline at (707) 576-3429. Public notification of any in-season change to conform state regulations to federal regulations is made through the National Marine Fisheries Service ocean salmon hotline at (800) 662-9825.

# The Recreational Red Abalone Fishery to Remain Closed Until 2026

March 19, 2021

While the spring season typically signals the start of the recreational red abalone season, CDFW reminds anglers that the northern California recreational red abalone fishery will remain closed until April 1, 2026. Red abalone stocks continue to be impacted by large scale die offs in this area due to the collapse of the bull kelp forest, which is their primary food. At its [December meeting](#), the Fish and Game Commission extended the fishery closure for an additional five years to 2026. The Commission closed the fishery in 2017 because of the mortality of red abalone populations due to environmental stressors.

The current poor environmental conditions and depressed abalone stock were caused by a series of large-scale ecological impacts. These included a massive marine heatwave and El Niño in 2014-2016, the local extinction of sunflower sea stars due to disease and subsequent population expansion of purple sea urchins. The result was a major shift from a robust healthy bull kelp forest ecosystem to one dominated by sea urchins with little kelp or other algae. Such conditions lead to starvation and mass mortalities of abalone, which need kelp to survive.

While the presence of persistently stable sea urchin dominated areas is not a new phenomenon in California, the more than 200 miles of poor conditions across the north coast is unprecedented. An [Interim Action Plan for Protecting and Restoring California's Kelp Forests](#) was developed to guide the state's efforts to help understand and improve the situation. Several projects are focused on reducing purple sea urchin populations at strategic areas of the coastline. The goal is to create patches of healthy bull kelp that will provide a source of kelp spores that may lead to recovery of the kelp forest when environmental conditions become favorable.

Recovery of bull kelp forests and the diverse ecosystem they support will take time. Thus, the extension of the abalone fishery closure is needed to allow for recovery and protection of surviving abalone. When reopening of the fishery is considered, it will be guided by the Red Abalone Fishery Management Plan, which is currently under development. [Learn more about the Red Abalone Fishery Management Plan.](#)