



CALIFORNIA MARINE LIFE PROTECTION ACT

MASTER PLAN FOR MARINE PROTECTED AREAS

APPENDIX C

North Coast: MPA Background and Priorities

August 24, 2016

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1. Introduction

The Marine Life Protection Act (MLPA), passed by the California Legislature in 1999, required the state to redesign its previously existing system of 63 marine protected areas (MPAs), covering approximately 2.7% of state waters (less than 0.25% of which occurred in no-take MPAs), to increase its coherence and effectiveness at protecting the state's marine life, habitats, and ecosystems.¹ From 2004 to 2012, the California Resources Agency (now California Natural Resource Agency [CNRA]), California Department of Fish and Game (now California Department of Fish and Wildlife [CDFW]), and Resources Legacy Fund Foundation (now Resources Legacy Fund [RLF]), entered into a public-private partnership called the California Marine Life Protection Act Initiative (MLPA Initiative)² to implement the MLPA through science-based and stakeholder driven regional MPA planning processes (see Appendix A). By December 2012, the MPA planning processes for each of the four coastal regions were completed, resulting in a comprehensive, interconnected statewide network of 124 MPAs³ and 15 special closures, constituting approximately 16% of state waters (9.4% of which in no-take MPAs).⁴ Core to redesigning and siting California's MPAs, as well as to the ongoing management of the statewide MPA network, is the Marine Life Protection Program (MLPP), established pursuant to the MLPA.⁵

In recognition of the regional MPA planning processes and varying ecological, social, and economic conditions along California's approximately 1,100-mile coastline (Fox et al. 2013a), appended to the 2016 Master Plan are Regional MPA Background and Priorities documents (Appendices C-F). These four Regional MPA Background and Priorities documents have a standardized structure and correspond to each completed regional MPA network implemented through the MLPA Initiative from north to south, including the North Coast (Appendix C), North Central Coast (Appendix D), Central Coast (Appendix E), and South Coast (Appendix F). Regional MPA Background and Priorities documents include region-specific MPA design considerations and priorities moving forward; which together provide important context to base future informed statewide MPA management decisions upon. They are not meant to contain specific details for management protocols and methodologies; and instead are intended as living documents that are readily accessible for reference and adaptive management, and serve as a logical starting place for guiding regionally-based activities. Each Regional MPA Background and Priorities document includes unique regional features and considerations taken into account when designing the MPAs, regional goals and objectives, summaries of regional MPAs, and regional plans for scientific and enforcement considerations. For the purpose of keeping each Regional MPA Background and Priorities document concise and user friendly, many of these features are described in brief, and further in-depth information can be found through provided web links.

¹ California Fish and Game Code (FGC) §2853(a)

² MLPA Initiative. (2004). Memorandum of Understanding among the California Resources Agency, the California Department of Fish and Game, and the Resources Legacy Fund Foundation for the California Marine Life Protection Act Initiative. Retrieved Apr 1, 2015 from <https://nrmsecure.dfg.ca.gov/FileHandler.ashx?DocumentID=30339>

³ MPAs are a subset of Marine Managed Areas (MMAs), however throughout this document the more common term "MPA" is used as an umbrella to refer to all types of protected areas. Total number of MPAs includes 111 new or redesigned MPAs and 13 MPAs previously established in 2003 at the northern Channel Islands that were retained without change. Total number of MPAs does not include previously existing San Francisco Bay MPAs

⁴ Options for a planning process in the fifth region, San Francisco Bay, have been developed for consideration at a future date. See Appendix A and CDFW's website for more information: <http://www.wildlife.ca.gov/Conservation/Marine/MPAs/Network/San-Francisco-Bay>

⁵ FGC §2853(b)

2. Description of Region

2.1 UNIQUE REGIONAL FEATURES

The North Coast regional planning process to design and site MPAs occurred from 2009 to 2012, and was the last of four planning regions completed through the MLPA Initiative. Encompassing 1,027 square miles (2,660 square kilometers) of coastal waters, the region extends from the shoreline (mean high tide) to the boundary between state and federal waters, three nautical miles from shore. The North Coast region spans a straight-line distance of approximately 210 statute miles (338 kilometers) of the California coastline (with about 517 statute miles [832 kilometers] of actual shoreline) from the California/Oregon border to Alder Creek near Point Arena in Mendocino County. The region also includes state waters surrounding prominent offshore rocks, such as Reading Rock and North West Seal Rock (location of St. George Reef lighthouse).⁶ The region includes a broad array of habitats that range in depth. The maximum depth within this region is 1,667 feet (508 meters). A detailed description of the North Coast region is found in the MLPA Initiative Regional Profile of the North Coast Study Region.⁷ Data sources can be found on CDFW's website,⁸ data viewer,⁹ and file transfer protocol (FTP) site.¹⁰ The following section is intended to summarize that description, including the key features and considerations used in the design and implementation of MPAs in the region.

The North Coast region is part of the California Current Large Marine Ecosystem, one of only four temperate upwelling systems in the world, considered globally important for biodiversity because of its high productivity and the large numbers of species it supports.¹¹ Some of the unique features of the region include:

- Some of the least developed coastal areas in the state
- Humboldt Bay which is the second largest estuary in California and home to approximately 37% of the known eelgrass in the state
- Castle Rock, an offshore rock supporting the largest population of common murres in California
- Most of the region is relatively shallow (less than 330 feet [100 meters]); however, there are several submarine canyons, such as Mendocino, Mattole, Delgada and Spanish canyons
- Kelp forests dominated by bull kelp, most commonly found off rocky headlands in the southern portion of the region

⁶ The boundary of state waters for the purposes of the 2016 Master Plan is from mean high tide to three nautical miles offshore of all intertidal rocks and mouths of embayments, including large open bays (excluding state waters in San Francisco Bay, which represent approximately 473 square miles). This method of measurement creates instances where the state water boundary is further offshore than three nautical miles (e.g., Monterey Bay and the area around Reading Rock and North West Seal Rock).

⁷ MLPA Initiative. (2010). *Regional Profile of the North Coast Study Region (California-Oregon Border to Alder Creek)*. Retrieved Apr 1, 2015 from <http://www.dfg.ca.gov/marine/pdfs/rpnc0410/profile.pdf>

⁸ Descriptions and summaries of California's MPAs are provided on the CDFW website: <https://www.wildlife.ca.gov/MPAs>

⁹ CDFW's marine and coastal data viewer, MarineBIOS, can be found on the CDFW website: <https://www.wildlife.ca.gov/MarineBIOS>

¹⁰ Additional data sources can be found on CDFW's FTP site: ftp://ftp.dfg.ca.gov/R7_MR/

¹¹ World Wildlife Fund. (2000). *The Global 200 Ecoregions: A User's Guide*. WWF. Washington D.C.

3. Considerations for Designing North Coast MPAs

During the MLPA Initiative, the members of the MLPA North Coast Regional Stakeholder Group (NCRSG) committed and participated in activities that included developing “alternative proposals for marine protected areas within the North Coast planning region that meet the requirements [and goals] of the MLPA.”¹² While the same general MPA planning process structure was used throughout the four coastal planning regions, specific details regarding alternative MPA proposal development varied and the iterative nature of the process allowed for adaptation based on lessons learned and unique characteristics of each region. Multiple rounds of MPA proposal development also provided stakeholder groups with evaluations of the extent to which their draft proposals would meet science and feasibility design guidelines, built trust among stakeholders, increased awareness of constituencies’ particular interests, allowed the stakeholder group to develop improved cross-interest proposals, accommodated decision support-tools that allowed stakeholders to collaboratively develop MPA designs, and increased and facilitated interactions between MLPA Initiative bodies and interested members of the public (see Appendix A). This section provides specific overviews of the various design considerations used in the North Coast MPA planning process.

3.1 REGIONAL GOALS AND OBJECTIVES

Regional goals are broad statements of what MPAs ultimately aim to achieve, objectives are more specific and measurable statements of what MPAs may accomplish to attain a related goal (Pomeroy et al. 2004). Once set, regional goals and objectives influence crucial design decisions regarding MPA size, location, boundaries, and management measures, while also helping to inform monitoring, evaluation, and the adaptive management process. Recognizing this, the regional MPA planning process included the development and application of regionally specific goals and objectives that were developed and adopted by the NCRSG prior to the formal MPA design process with the intent they be used as guiding principles. Regional goals were largely taken directly from the six network goals of the MLPA itself while the more specific objectives were based on regional priorities and lessons learned from designing MPAs in the Central Coast, North Central Coast, and South Coast planning regions. Regional goals and objectives were utilized by the NCRSG when identifying the intent for a particular MPA site. Included below are the regional goals and objectives of the North Coast planning region.

Goal 1. To protect the natural diversity and abundance¹³ of marine life, and the structure, function, and integrity of marine ecosystems.

1. Protect and maintain species diversity and abundance consistent with natural fluctuations, including areas of high native species diversity and representative habitats.
2. Protect areas with diverse habitat types in close proximity to each other.

¹² MLPA Initiative. (2010). *Charter of the North Coast Regional Stakeholder Group*. Retrieved Sept 21 from: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=73447>

¹³ *Natural diversity* is the species richness of a community or area when protected from, or not subjected to, human-induced change (drawn from Allaby 1998 and Kelleher 1992). *Natural abundance* is the total number of individuals in a population protected from, or not subjected to, human-induced change (adapted from Kelleher 1992 and CDFW [2005]. Final Market Squid Fishery Management Plan. Retrieved Aug 10, 2015 from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=33570&inline=true>).

3. Protect natural size and age structure and genetic diversity of populations in representative habitats.
4. Protect natural trophic structure and food webs in representative habitats.
5. Promote recovery of natural communities from disturbances both natural and human-induced.

Goal 2. To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.

1. Help protect or rebuild populations of rare, threatened, endangered, depressed, depleted, or overfished species and the habitats and ecosystem functions upon which they rely.¹⁴
2. Sustain or increase reproduction by species likely to benefit from MPAs and promote retention of large, mature individuals.
3. Sustain or increase reproduction by species likely to benefit from MPAs through protection of breeding, foraging, rearing or nursery areas or other areas where species congregate.
4. Protect selected species and the habitats on which they depend while allowing the commercial and/or recreational harvest of migratory, highly mobile, or other species where appropriate through the use of state marine conservation areas and state marine parks.

Goal 3. To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbances, and to manage these uses in a manner consistent with protecting biodiversity.

1. Sustain or enhance cultural, recreational, and educational experiences and uses (for example, by increasing size or abundance of species, maintaining high scenic value, lowering congestion, or improving catch rates, and protection of submerged cultural sites).
2. Provide opportunities for scientifically valid studies, including studies on MPA effectiveness and other research benefiting from areas with minimal or restricted human disturbance.
3. Provide opportunities for collaborative scientific monitoring and research projects that evaluate MPAs while promoting adaptive management and links with fisheries management, seabird and mammals information needs, classroom science curricula, cooperative fisheries research and volunteer efforts, and identify participants.

Goal 4. To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters, for their intrinsic value.

1. Include within MPAs key and unique habitats identified by the MLPA Master Plan Science Advisory Team (SAT) for the North Coast planning region.
2. Include and replicate to the extent possible [practicable], representatives of all marine habitats identified in the MLPA or the *California MLPA Master Plan for Marine Protected Areas* across a range of depths.

¹⁴ The terms “rare,” “threatened,” “endangered,” “depressed,” “depleted,” and “overfished” referenced here are designations in state and federal legislation, regulations, and fishery management plans (FMPs) - e.g., FGC, Marine Mammal Protection Act, Magnuson Stevens Fishery Conservation and Management Act, California Nearshore FMP, Federal Groundfish FMP. *Rare*, *endangered*, and *threatened* are designations under the California Endangered Species Act. *Depleted* is a designation under the federal Marine Mammal Protection Act. *Depressed* means the condition of a marine fishery that exhibits declining fish population abundance levels below those consistent with maximum sustainable yield (FGC, Section 90.7). *Overfished* means a population that does not produce maximum sustainable yield on a continuing basis (MSA) and in the California Nearshore FMP and federal Groundfish FMP also means a population that falls below the threshold of 30% or 25%, successively, of the estimated unfished biomass.

Goal 5. To ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.

1. Provide opportunities for interested parties to help develop objectives and ensure that each MPA is linked to one or more regional objectives.
2. To the extent possible, effectively use scientific guidelines in the *California MLPA Master Plan for Marine Protected Areas*.
3. Ensure public understanding of, compliance with, and stakeholder support for MPA boundaries and regulations.
4. Include simple, clear, and focused site-specific objectives/rationales for each MPA and ensure that site-specific rationales for each MPA reflect one or more goals and regional objectives.
5. To the extent possible, site MPAs adjacent to terrestrial federal, state, county, or city parks, marine laboratories, or other "eyes on the water" to facilitate management, enforcement, and monitoring.

Goal 6. To ensure that the California's MPAs are designed and managed, to the extent possible, as a component of a statewide network.

1. Ensure ecological connectivity within and between regional components of the statewide network.
2. Provide for protection and connectivity of habitat for those species that utilize different habitats over their lifetime.

3.2 DESIGN CONSIDERATIONS

MPA design considerations are contemplated in the 2008 Master Plan¹⁵ for increasing the quality and effectiveness of MPA network design. Design considerations should be considered as the location, designation (reserve, park or conservation area), size, and other characteristics of potential MPAs are developed. Design considerations may apply to individual MPAs or the network as a whole and help inform the process for developing MPAs.

The NCRSG had the opportunity to describe, in more detail, justifications for MPA design and siting during its work sessions and under the "other design considerations" field in MarineMap (see Appendix A, Section 4.4). Two additional design consideration categories for NCRSG members to further describe, in their own words, key information about their proposed MPAs were utilized. Written as "site-specific rationale" and "other design considerations" these categories provided specific rationale for the development of a proposed MPA and described the primary purpose or intent of an MPA; and became a key place for providing additional detail regarding the primary purpose or intent of the design and placement of an MPA, including unique features or qualities of the ecosystem or habitats. Site-specific rationale was used in conjunction with identified goal(s), regional objective(s), and stakeholder priorities and objectives to understand the core thinking behind MPA design. "Other design considerations" for proposed MPAs, referenced socioeconomic, feasibility, or other specific considerations that were taken into account for MPA design.

¹⁵ CDFW. (2008). *Draft Master Plan for Marine Protected Areas*. Retrieved Mar 5, 2015 from <https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan>

Primary design considerations include the following:

- Consider the needs and interests of all users in evaluating the siting of MPAs.
- To the extent possible, site MPAs in such a way as to prevent fishing effort shifts which could result in serial depletion.
- When crafting MPA proposals, utilize to the extent appropriate MPA design considerations described in the Nearshore Fishery Management Plan (NFMP)¹⁶ and the draft Abalone Recovery and Management Plan.¹⁷
- In developing MPA proposals, consider how existing state and federal programs address the goals and objectives of the MLPA and the North Coast region as well as how these proposals may coordinate with other programs.
- To the extent possible, site MPAs to facilitate use of volunteers to assist in monitoring and management.
- To the extent possible, design MPA boundaries that facilitate ease of public recognition and ease of enforcement.
- Consider existing public coastal access points when designing MPAs.
- MPA design should consider the benefits and drawbacks of siting MPAs that are either remote or near public access.
- Consider the potential impacts of climate change, community alteration, and distributional shifts in marine species when designing MPAs.

¹⁶Design considerations from the NFMP:

1. Restrict take in any MPA [intended to meet the NFMP goals] so that the directed fishing or significant bycatch of the 19 NFMP species is prohibited.
2. Include some areas that have been productive fishing grounds for the 19 NFMP species in the past but are no longer heavily used by the fishery.
3. Include some areas known to enhance distribution or retain larvae of NFMP species
4. Consist of an area large enough to address biological characteristics such as movement patterns and home range. There is an expectation that some portion of NFMP stocks will spend the majority of their life cycle within the boundaries of the MPA.
5. Consist of areas that replicate various habitat types within each region including areas that exhibit representative productivity.

¹⁷Design considerations from Abalone Recovery and Management Plan:

Proposed MPA sites should satisfy at least four of the following criteria.

1. Include within MPAs suitable rocky habitat containing abundant kelp and/or foliose algae
2. Insure presence of sufficient populations to facilitate reproduction.
3. Include within MPAs suitable nursery areas, in particular crustose coralline rock habitats in shallow waters that include microhabitats of moveable rock, rock crevices, urchin spine canopy, and kelp holdfasts.
4. Include within MPAs the protected lee of major headlands that may act as collection points for water and larvae.
5. Include MPAs large enough to include large numbers of abalone and for research regarding population dynamics.
6. Include MPAs that are accessible to researchers, enforcement personnel, and others with a legitimate interest in resource protection.

3.3 UNIQUE DESIGN CONSIDERATIONS

Regional MPA design and implementation considerations are additional factors that may help address enforcement and socioeconomic considerations, and encourage public involvement, while meeting the goals and design guidelines of the MLPA.¹⁸ During the MLPA Initiative process, MPA design and implementation considerations were applied at the regional level. Each regional MPA planning process required the consideration of unique regional design and/or policy considerations (Fox et al. 2013a, b). For example, during the North Coast regional MPA planning process from 2009 to 2012, 12 memorandums specific to the North Coast were issued, including several regarding the integration of MPA planning and traditional, non-commercial tribal uses of marine resources. A complete historical record of all North Coast MPA design and implementation considerations can be found on CDFW's website.¹⁹

Stakeholder Priorities and Objectives

In addition to the network goals of the MLPA, and regionally identified goals and objectives, the NCRSG identified a set of stakeholder priorities and objectives. This category was a new addition to MPA planning and occurred only within the North Coast region. Stakeholder priorities and objectives are local priorities that were considered in conjunction with the goals and regional objectives; these priorities and objectives reflect the interest of the NCRSG to create MPAs that best met the needs of their communities, while meeting the goals of the MLPA. Stakeholder priorities and objectives were developed to guide the NCRSG during the development of MPAs and assisted agencies and organizations with managing and monitoring once MPAs were implemented on the North Coast.

Stakeholder priorities and objectives may be used to gauge the effectiveness of the planning process in meeting the needs and desires of stakeholders. For example, the first stakeholder priority and objective identified below is intended to ensure that MPAs are designed in a way that can meet the goals of the MLPA, while also minimizing socioeconomic impacts to local communities and user groups. For the North Coast planning process, a category that reflects these local stakeholder objectives was included to supplement the goals and regional objectives. Stakeholder priorities and objectives may not supersede meeting the MLPA goals and regional objectives, but may work congruently with them to ensure regional concerns are addressed while meeting the MLPA goals. The North Coast stakeholder priorities included the following:

1. Minimize negative socioeconomic impacts and optimize positive socioeconomic effects for all users, to the extent possible, while maintaining consistency with the MLPA and its goals and guidelines. (Formerly Goal 5, Objective 1, North Central Coast Study Region [NCCSR])
2. Preserve opportunities for traditional and customary collection of natural resources by Tribes and Tribal communities when contemplating siting of MPAs and allowed uses. (New for North Coast Study Region [NCSR])
3. Consider the health and vitality of coastal communities, ports, and harbors, when designing MPAs. (New for NCSR)
4. Recognize relevant portions of existing state and federal fishery management areas and regulations, to the extent possible, when designing new MPAs or modifying existing ones. (Formerly part of Design Considerations, NCCSR)

¹⁸ CDFW. (2008). *Draft Master Plan for Marine Protected Areas. Appendix O, page O-6*. Retrieved Mar 4, 2015 from <https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Master-Plan>

¹⁹ Master contents of transmittal binders to the Commission for the MLPA North Coast Study Region (Binder 3, Policy Context): http://www.dfg.ca.gov/marine/mpa/binders_nc.asp

5. Preserve the diversity of recreational, educational, commercial, and cultural uses, to the extent possible. (Formerly part of Design Considerations, NCCSR)

3.4 IMPLEMENTATION CONSIDERATIONS

Once implemented, a regional MPA network component requires effective management, strong public outreach, and a sound monitoring plan. Implementation considerations serve an important role in providing recommendations to the Commission and to managing agencies to ensure the success of the newly established MPAs. Recommended implementation considerations were based on local knowledge and took into account the regional MPA network component. Implementation considerations for the North Coast planning region included the following:

- Provide opportunities for interested parties to help develop a long-term monitoring plan that includes standardized biological and socioeconomic monitoring protocols, and a strategy for MPA evaluation.
- Develop a process to inform adaptive management that includes stakeholder involvement for regional review and evaluation of management effectiveness to determine if regional MPAs are an effective component of a statewide network.
- Provide opportunities to coordinate with MLPA regional stakeholder groups in other regions to ensure that the statewide MPA network meets the goals of the act.
- Improve public outreach related to MPAs through the use of docents, improved signage, and educational brochures for North Coast MPAs.
- When appropriate, phase the implementation of North Coast MPAs to ensure their effective management, monitoring, and enforcement.
- Ensure adequate funding for monitoring, management, and enforcement is available for implementing new MPAs.
- Develop regional management and enforcement measures, including cooperative enforcement agreements, adaptive management, and jurisdictional maps, which can be effectively used, adopted statewide, and periodically reviewed.
- Incorporate volunteer monitoring and/or cooperative research, where appropriate.

The philosophy of participation from diverse stakeholder groups will continue throughout ongoing management of the MPAs. *The California Collaborative Approach: Marine Protected Area Partnership Plan* (the Partnership Plan)²⁰ describes the importance of engaging with unique and regionally diverse stakeholders for MPA implementation by leveraging the human and financial resources of state and local partners, ensuring transparent communication between management agencies and partners, and engaging in partnerships. The collaborative approach outlined in the Partnership Plan emphasizes that broad support and active engagement with marine policy, management, and science across all partner and stakeholder groups are essential to the success of the implementation of the statewide network of MPAs.²¹

²⁰ Ocean Protection Council. (2014). *The California Collaborative Approach: Marine Protected Areas Partnership Plan*. Retrieved Mar 4, 2015 from <http://www.opc.ca.gov/2014/05/draft-the-california-collaborative-approach-marine-protected-area-partnership-plan-open-for-public-comment/>

²¹ Ocean Protection Council. (2014). *The California Collaborative Approach: Marine Protected Areas Partnership Plan*. Retrieved Mar 4, 2015 from <http://www.opc.ca.gov/2014/05/draft-the-california-collaborative-approach-marine-protected-area-partnership-plan-open-for-public-comment/>

4. Summary of Regional MPAs

A network of 20 MPAs and seven special closures covering approximately 137 square miles (355 square kilometers) of state waters or about 13% of the North Coast region, went into effect on December 19, 2012. The North Coast MPA network was the last of four coastal regions to successfully establish MPAs pursuant to the MLPA (see Appendix A, Section 6.3). This section provides an overview of the North Coast MPAs, including summary statistics on the area within different types of MPAs in the region, the size and depth of each individual MPA, and habitat representation by MPA type and by individual MPA. Types of MPAs in the North Coast planning region include State Marine Reserves (SMRs), State Marine Conservation Areas (SMCAs), a State Marine Recreational Management Area (SMRMA), and special closures. Throughout all tables and figures in this section, all statistics are from CDFW's Marine Region Geographic Information Systems (GIS) unit.²² Statistics in this section were updated March 2016 and are subject to change as improvements in geographic data become available. Detailed profiles of each North Coast MPA can be found on the CDFW website, including designation type, size and location, key habitats protected, boundaries and regulations, rationale for why the MPA was chosen, species likely to benefit, and North Coast regional resources with additional information.²³

²² CDFW's Marine Region Geographic Information Systems Unit: <https://www.wildlife.ca.gov/Conservation/Marine/GIS>

²³ Individual MPA overview sheets can be found on the CDFW website:
<https://www.wildlife.ca.gov/Conservation/Marine/MPAs/Outreach-Materials#la-26716428-mpa-overview-sheets>



Figure 1. Adopted MPAs in the North Coast region.

Table 1. Summary statistics for protected areas within state waters in the North Coast region.

Protected Area Designation	Count	Area (square miles)	Area (percent)
SMR	6	51.28	4.99
SMCA	13	85.32	8.30
SMRMA	1	0.81	0.08
Special Closures	7	0.2	0.02
Total ²⁴	20	137.4	13.37

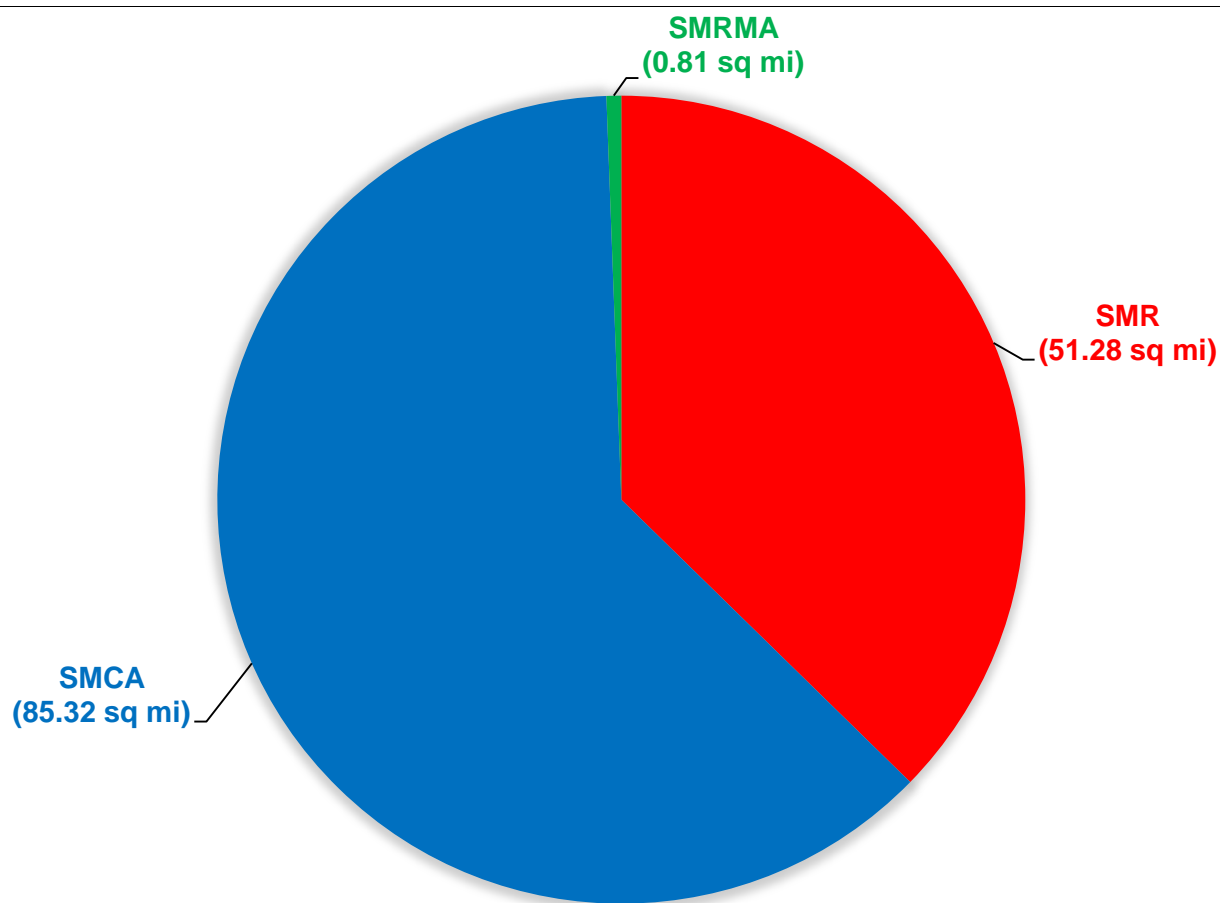


Figure 2. Area (square miles) in North Coast region state waters of each MPA designation.

²⁴ Totals do not include special closures

Table 2. Descriptive statistics for individual North Coast region MPAs.

MPA Name	Area (square miles)	Along-shore Span (miles) ²⁵	Depth Range (feet)
Pyramid Point SMCA	13.99	2.9	0-124
Point St. George Reef Offshore SMCA	9.52	3.4	176-399
Reading Rock SMCA	11.96	2.8	0-166
Reading Rock SMR	9.6	2.8	145-253
Samoa SMCA	13.06	3.6	0-158
South Humboldt Bay SMRMA	0.81	1.2	N/A
South Cape Mendocino SMR	9.08	1.5	0-277
Mattole Canyon SMR	9.79	3.4	82-1646
Sea Lion Gulch SMR	10.42	2.3	0-375
Big Flat SMCA	11.59	2.8	0-1110
Double Cone Rock SMCA	18.49	4.9	0-391
Ten Mile SMR	11.95	3.2	0-343
Ten Mile Beach SMCA	3.54	0.9	0-288
Ten Mile Estuary SMCA	0.18	0.1	N/A
MacKerricher SMCA	2.48	4.1	0-119
Point Cabrillo SMR	0.44	1.3	0-40
Russian Gulch SMCA	0.22	0.9	0-15
Big River Estuary SMCA	0.13	0.1	N/A
Van Damme SMCA	0.06	0.7	0-17
Navarro River Estuary SMCA	0.09	0.2	N/A

²⁵ Alongshore span measured as direct line from one end of the MPA to the other

Table 3. Percentage of total known habitat representation in North Coast region MPAs.

Habitat Type	Habitats in the North Coast Region MPAs (Percentage)			
	SMR	SMCA	SMRMA	Total (All MPAs)
Intertidal				
Sandy or gravel beaches	2.8	9.8	0	12.5
Rocky intertidal and cliff	7.9	8.4	0	16.3
Coastal marsh	0	4.3	1.6	6.0
Tidal flats	0	0.6	1.4	2.0
Surfgrass beds (0-30m)	0	0	0	0
Eelgrass beds (0-30m)	0	4.0	2.6	6.6
Estuary (total area)	0	0.6	1.9	2.5
Soft bottom				
0-30 meters	1.5	9.4	0	10.9
30-100 meters	6.8	8.2	0	15.0
100-200 meters	5.3	11.0	0	16.3
>200 meters	21.1	7.7	0	28.8
Hard bottom				
0-30 meters	2.9	7.2	0	10.1
30-100 meters	20.6	1.6	0	22.2
100-200m	36.2	1.3	0	37.5
>200 meters	28.1	13.6	0	41.7
Kelp forest				
Average kelp ('89, '99, '02, '03-08')	2.6	6.0	0	8.5
Submarine canyon				
0-30 meters	0	0	0	0
30-100 meters	33.7	18.4	0	52.2
100-200 meters	15.4	18.1	0	33.5
>200 meters	21.8	2.1	0	23.9

Table 4. Habitat representation for individual North Coast region MPAs.²⁶

Habitat Type		Pyramid Point SMCA	Point St. George Reef Offshore SMCA	Southwest Seal Rock Special Closure	Castle Rock Special Closure	False Klamath Rock Special Closure	Reading Rock SMCA	Reading Rock SMR	Samoa SMCA	South Humboldt Bay SMRMA	Sugarloaf Island Special Closure	South Cape Mendocino SMR	Steamboat Rock Special Closure	Mattole Canyon SMR
Sandy or gravel Beaches	mi	2.97	0	0	0	0	2.96	0	3.69	0	0	1.59	0	0
Rocky intertidal and cliff	mi	0	0	0	0.72	0	0.22	0	0	0	0.27	0.65	0	0
Tidal flats	mi	0	0	0	0	0	0	0	0	1.46	0	0	0	0
Coastal marsh	mi	0	0	0	0	0	0	0	0	1.46	0	0	0	0
Surfgrass	mi	0	0	0	0	0	0	0	0	0	0	0	0	0
Eelgrass	mi ²	0	0	0	0	0	0	0	0	0.23	0	0	0	0
Estuary	mi ²	0	0	0	0	0	0	0	0	0.79	0	0	0	0
Hard 0 - 30m	mi ²	0.70	0	0.01	0.01	0.01	0.07	0	0	0	0	0.16	0	0.01
Hard 30 - 100m	mi ²	0	0.38	0	0	0	0	0.16	0	0	0	2.99	0	0.41
Hard 100 - 200m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0.13
Hard 200 - 3000m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0.02
Soft 0 - 30m	mi ²	10.07	0	0.01	0.02	0	6.31	0	5.14	0	0	1.31	0	0.04
Soft 30 - 100m	mi ²	1.43	7.34	0	0	0	3.77	9.43	6.14	0	0	3.82	0	5.75
Soft 100 - 200m	mi ²	0	1.80	0	0	0	0	0	0	0	0	0	0	1.79
Soft 200 - 3000m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	1.62
Average Kelp	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0
Submarine Canyon 0 - 30m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0
Submarine Canyon 30 - 100m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0.12
Submarine Canyon 100 - 200m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0.44
Submarine Canyon 200 - 3000m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0.96

²⁶ Mile (mi) is a linear measurement of a statute mile equal to 5,280 feet, and square mile (mi²) is an area measurement of statute miles squared

Habitat Type		Sea Lion Gulch SMR	Big Flat SMCA	Double Cone Rock SMCA	Rockport Rocks Special Closure	Vizcaino Rock Special Closure	Ten Mile SMR	Ten Mile Beach SMCA	Ten Mile Estuary SMCA	Macker- richer SMCA	Point Cabrillo SMR	Russian Gulch SMCA	Big River Estuary SMCA	Van Damme SMCA	Navarro River Estuary SMCA
Sandy or gravel Beaches	mi	2.42	3.21	4.67	0	0	2.63	1.00	0.45	4.40	0.20	0.11	0.11	0.54	0.05
Rocky intertidal and cliff	mi	2.32	1.35	3.30	0.28	0.28	6.77	0.05	0.25	3.91	2.82	2.59	0.70	0.24	0.72
Tidal flats	mi	0	0	0	0	0	0	0	0	0	0	0	0.23	0	0.36
Coastal marsh	mi	0	0	0	0	0	0	0	2.01	0.01	0	0	1.21	0	0.64
Surfgrass	mi	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Eelgrass	mi ²	0	0	0	0	0	0	0	0.13	0	0	0	0.14	0	0.09
Estuary	mi ²	0	0	0	0	0	0	0	0.08	0	0	0	0.12	0	0.06
Hard 0 - 30m	mi ²	0.12	0.06	0.72	0	0	0.47	0	0	0.68	0.16	0.10	0	0	0
Hard 30 - 100m	mi ²	2.86	0.01	0.09	0	0	0.50	0	0	0.05	0	0	0	0	0
Hard 100 - 200m	mi ²	0.12	0.01	0	0	0	0	0	0	0	0	0	0	0	0
Hard 200 - 3000m	mi ²	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0
Soft 0 - 30m	mi ²	1.50	2.07	3.28	0	0	1.66	0.71	0	0.85	0.10	0.03	0	0	0
Soft 30 - 100m	mi ²	3.86	5.09	11.20	0	0	8.13	2.45	0	0.06	0	0	0	0	0
Soft 100 - 200m	mi ²	1.09	2.98	2.11	0	0	0.46	0	0	0	0	0	0	0	0
Soft 200 - 3000m	mi ²	0	0.59	0	0	0	0	0	0	0	0	0	0	0	0
Average Kelp	mi ²	0	0	0.01	0	0	0.02	0	0	0.03	0.01	0.02	0	0.01	0
Submarine Canyon 0 - 30m	mi ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submarine Canyon 30 - 100m	mi ²	0	0.06	0	0	0	0	0	0	0	0	0	0	0	0
Submarine Canyon 100 - 200m	mi ²	0	0.51	0	0	0	0	0	0	0	0	0	0	0	0
Submarine Canyon 200 - 3000m	mi ²	0	0.09	0	0	0	0	0	0	0	0	0	0	0	0

5. Scientific Information

Adhering to the provisions of the MLPA requiring monitoring, research, and evaluation, the MLPP has defined a process around a 10-year management review cycle to facilitate adaptive management (Figure 3). Partners in the MLPP provide oversight on all aspects of MPA monitoring and the adaptive management process, including developing regional MPA monitoring plans, regional MPA baseline monitoring programs, and long-term MPA monitoring activities; and contribute to five-year baseline management review, interim assessment and evaluation, and management review at the statewide level.

5.1 OVERVIEW OF REGIONAL MONITORING

California's MPAs were designed to generally reflect the integration of science and science-based MPA design guidelines from the MLPA, the 2008 Master Plan, and SAT guidance (see Appendix A, Section 4). While science guidelines strongly influenced MPA design, the iterative nature of the highly participatory, stakeholder-driven process led to some tradeoffs between ecosystem protection and socioeconomic considerations; which varied by region (Fox et al. 2013a, Saarman et al. 2013, Gleason et al. 2013). The development of science guidelines and methodologies, and how well MPA proposals met science and feasibility design guidelines and evaluations also varied among regions (see Appendix A, Section 3.3 and Section 4.3).

Following MPA design and implementation, the first step in MPA monitoring is regional monitoring planning. The goal of regional monitoring planning is to produce objective scientific data to inform management decisions at a regional, and ultimately at a statewide, scale through the development and implementation of regional MPA monitoring plans and MPA baseline monitoring programs. Regional monitoring plans developed to date include actions for baseline monitoring and guidance for long-term monitoring needs. Long-term monitoring and research activities will be designed to provide management decision support within the context of the Statewide MPA Monitoring Program and statewide adaptive management review process (see 2016 Master Plan, Chapters 4.3 – 4.5). A tremendous amount of data, often including large and varied datasets, can be generated from such programs. Therefore, an intensive phase of data analysis and reporting follows the implementation of MPA monitoring programs, which necessitates working collaboratively among many partners including principal investigators. Following data collection, monitoring results are communicated to managers and decision-makers, such as through baseline monitoring reviews, interim evaluations and assessments, and formal 10-year management reviews. Findings from these reviews, especially the formal 10-year management review in which the Commission may adopt changes in management measures, will sync back into the monitoring planning phase of the adaptive MPA management cycle (see 2016 Master Plan, Chapter 4.5).

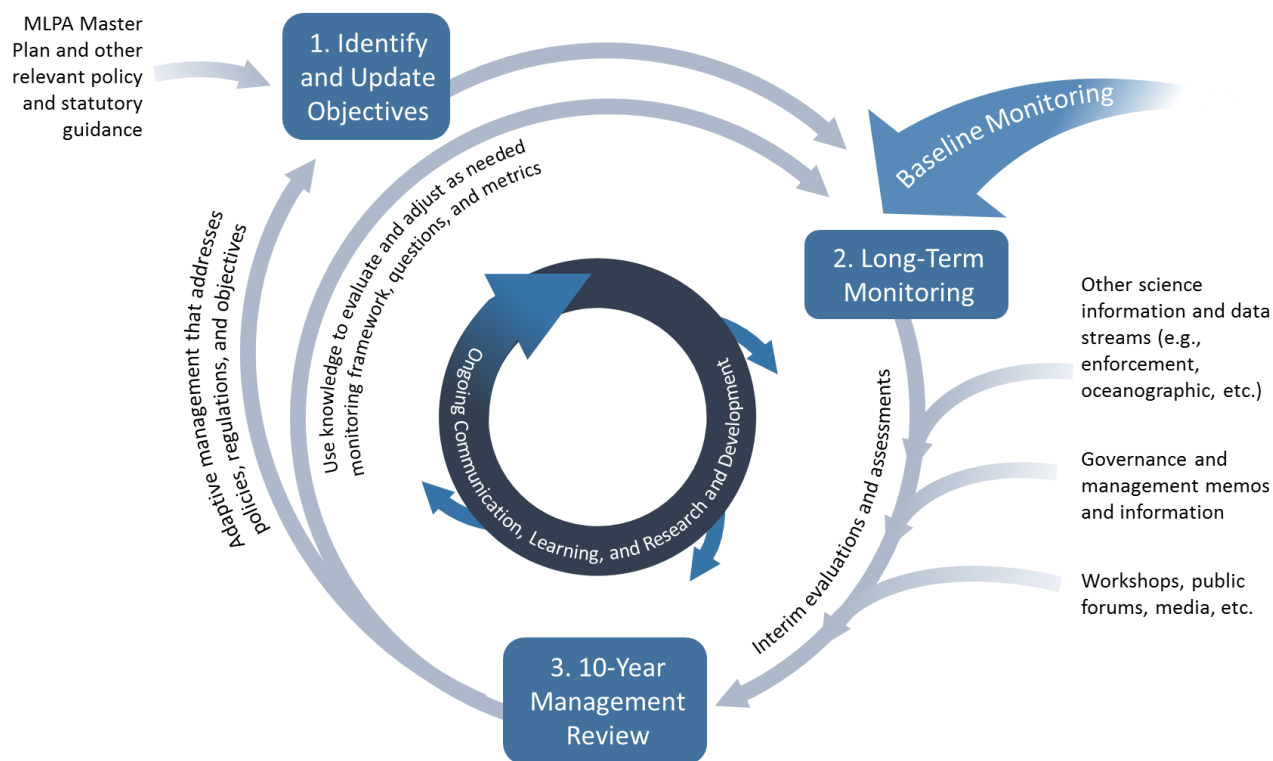


Figure 3. MLPP adaptive management process.

5.2 REGIONAL MONITORING PLAN

To develop regional MPA monitoring plans and update them over time, the MPA Monitoring Enterprise (now California Ocean Science Trust [OST]), in partnership with CDFW, created a framework for statewide MPA monitoring (Figure 4). The statewide MPA monitoring framework to date serves as the primary basis for developing and updating regional MPA monitoring plans and guiding statewide monitoring. Overall, the goals of the statewide monitoring framework are to develop metrics that track trends in ecosystem condition and evaluate MPA design and governance to inform adaptive management. Consistent application of the statewide MPA monitoring framework will allow for regional and statewide approaches to monitoring.

OST and CDFW anticipate developing a North Coast MPA monitoring plan to apply the statewide MPA monitoring framework by 2017,²⁷ based on the best available science, to reflect management and community priorities, and ensure consistency with the North Central Coast, Central Coast, and South Coast MPA monitoring plans previously adopted by the Commission.^{28,29,30} As a starting place, draft

²⁷ Ocean Protection Council. (2015). *Marine Protected Area (MPA) Statewide Leadership Team Work Plan FY 15/16 – 17/18*. Retrieved Sept 21, 2015 from <http://www.opc.ca.gov/2015/08/8122/>

²⁸ MPA Monitoring Enterprise, OST. (2010). *North Central Coast MPA Monitoring Plan*. Retrieved Apr 1, 2015 from http://oceanspaces.org/sites/default/files/regions/files/ncc_monitoring_plan_and_appendices.pdf

²⁹ MPA Monitoring Enterprise, OST. (2011). *South Coast MPA Monitoring Plan*. Retrieved Apr 1, 2015 from http://oceanspaces.org/sites/default/files/regions/files/sc_mpa_monitoring_plan_full.pdf

monitoring metrics for baseline characterization and assessment of initial ecological and socioeconomic changes were identified in collaboration with the North Coast community in March 2013.³¹

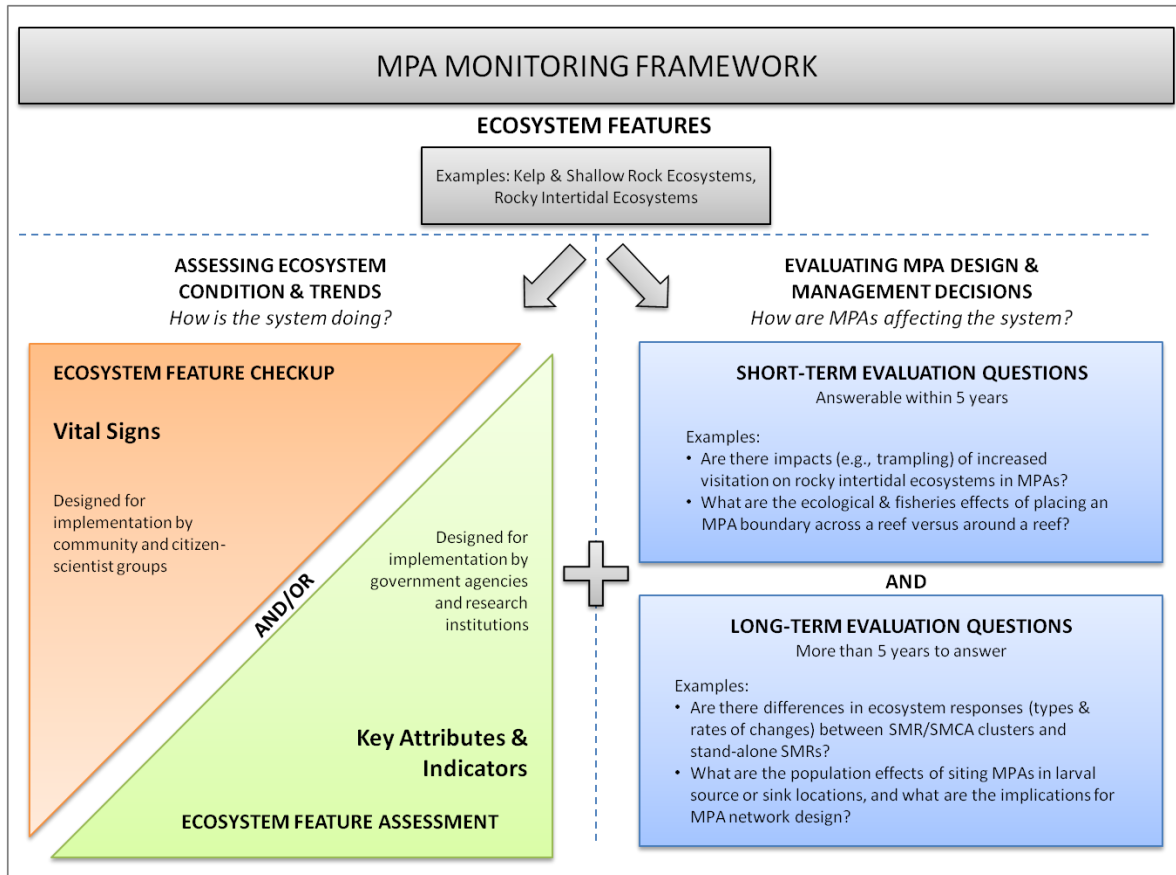


Figure 4. Statewide MPA monitoring framework, displaying the two primary monitoring elements: 1) assessing ecosystem condition and trends, and 2) evaluating MPA design and management decisions.³²

5.3 REGIONAL MPA MONITORING PROGRAMS

Informed by the MLPA goals and objectives, the MLPP developed and implemented a program of baseline monitoring. After the baseline monitoring period concludes for each region, long-term monitoring will begin and continue into the future (see 2016 Master Plan, Chapter 4.3).

Baseline Monitoring

The North Coast MPA Baseline Program, a collaboration between OST, CDFW, Ocean Protection Council (OPC), and California Sea Grant (CASG), launched in March 2014 to assess the baseline ecological and socioeconomic conditions of the North Coast regional MPA network. The North Coast MPA Baseline Program includes 11 projects selected for funding to monitor habitats including kelp

³⁰ MPA Monitoring Enterprise, OST. (2014). *Central Coast MPA Monitoring Plan*. Retrieved Apr 1, 2015 from http://oceanspaces.org/sites/default/files/regions/files/central_coast_monitoring_plan_final_october2014.pdf

³¹ OST, CDFW, OPC, and CASG. (2013). *Request for Proposals: North Coast MPA Baseline Program, Appendix 1*. <https://caseagrants.ucsd.edu/sites/default/files/FINALNorthCoastBaselineProgramRFP-1.pdf>

³² MPA Monitoring Enterprise, OST. (2010). *North Central Coast MPA Monitoring Plan*. Retrieved Sept 21, 2015 from http://oceanspaces.org/sites/default/files/regions/files/ncc_monitoring_plan_and_appendices.pdf

forests, subtidal rock and soft bottom habitats at various depths, rocky shores, and beaches as well as commercially and recreationally important species and seabirds. Projects are also documenting human uses, socioeconomic dimensions of MPAs, and examining patterns of ocean currents across the region. The North Coast is also the first regional baseline monitoring program in California to incorporate traditional ecological knowledge, which will be shared as part of understanding the historical and current ocean conditions in the region. The North Coast region is the last of four regional MPA baseline programs, and is currently ongoing in the North Coast. A State of the Region report similar to that produced for the Central Coast region³³ and North Central Coast region³⁴ which includes a summary of the North Coast MPA Baseline Program and other related monitoring activities during the first five years of MPA implementation in the region, is expected in 2018.³⁵ The State of the Region report can inform potential management recommendations from the first five years of MPA implementation in the region.³⁶

Long-Term Monitoring

After the baseline monitoring period concludes for the North Coast region, long-term monitoring based on regional and statewide objectives, will begin and continue into the future (Figure 3; also see 2016 Master Plan, Chapter 4.3). Long-term monitoring will seek to understand conditions and trends of marine populations, habitats, and ecosystems across regions towards a statewide network scale. For more information on North Coast MPA monitoring, please visit the North Coast page of the OceanSpaces website.³⁷

5.4 INFORMING ADAPTIVE MANAGEMENT

MPA monitoring results, as well as additional information potentially collected from other scientific data, governance and management review, workshops, and public forums could be used to inform interim evaluation and assessment activities. These activities may take place at the regional scale and serve to inform the public about the state of the network and build understanding support for the MPAs. These assessments and evaluation can also feed into the formal 10-year management review (see 2016 Master Plan, Chapter 4.5).

³³ OST and CDFW. (2013). *State of the California Central Coast: Results from Baseline Monitoring of Marine Protected Areas 2007-2012*. California, USA. Retrieved Apr 1, 2015 from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=133101&inline>

³⁴ OST and CDFW. (2015). *State of the California North Central Coast: A Summary of the Marine Protected Area Monitoring Program 2010-2015*. California, USA. Retrieved Dec 21, 2015 from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=133100&inline>

³⁵ OPC. (2015). *Marine Protected Area (MPA) Statewide Leadership Team Work Plan FY 15/16 – 17/18*. Retrieved Sept 21, 2015 from <http://www.opc.ca.gov/2015/08/8122/>

³⁶ Ibid.

³⁷ OceanSpaces. *North Coast*. Retrieved Apr 1, 2015 from <http://oceanspaces.org/monitoring/regions/north-coast/planning>

6. Enforcement Plan

In order to facilitate enforcement, the CDFW proposes using a multi-tiered effort that targets high-risk areas (i.e., areas prone to infractions) with higher levels of enforcement while maintaining sufficient enforcement in all MPAs. In certain areas, CDFW will rely upon formal and informal partnerships to increase the number of “eyes-on-the-water,” person-hours of enforcement, and visibility of enforcement personnel. In some cases, formal memoranda of understanding will be developed to allow fund transfer between partner agencies. Table 5 lists MPA-specific enforcement considerations for each MPA in the North Coast region.

Table 5. Enforcement considerations.

MPA Name	Primary Enforcement Method	Special Considerations ³⁸
Pyramid Point SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • Smith River Rancheria Exempt
Point St. George Reef Offshore SMCA	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • Elk Valley Rancheria Exempt • Smith River Rancheria Exempt
Southwest Seal Rock Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Castle Rock Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
False Klamath Rock Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Reading Rock SMCA	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • Yurok Tribe Exempt
Reading Rock SMR	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Samoa SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small skiff Patrol • Ocean/vessel Patrol 	<ul style="list-style-type: none"> • Wiyot Tribe Exempt
South Humboldt Bay SMRMA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Kayak Patrol 	<ul style="list-style-type: none"> • Wiyot Tribe Exempt
Sugarloaf Island Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
South Cape Mendocino SMR	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Steamboat Rock Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Mattole Canyon SMR	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Sea Lion Gulch SMR	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None

³⁸ California Code of Regulations, Title 14, Section 632(a)(11) and (b)(1-2, 6, 8-9, 15-16, 20-21, 25, 27)

MPA Name	Primary Enforcement Method	Special Considerations³⁸
Big Flat SMCA	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • 18 Specific Tribes Exempt
Double Cone Rock SMCA	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • 17 Specific Tribes Exempt
Rockport Rocks Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Vizcaino Rock Special Closure	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Ten Mile SMR	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Ten Mile Beach SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • 17 Specific Tribes Exempt
Ten Mile Estuary SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Kayak Patrol 	<ul style="list-style-type: none"> • 17 Specific Tribes Exempt
MacKerricher SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Point Cabrillo SMR	<ul style="list-style-type: none"> • Small Skiff Patrol • Ocean/Vessel Patrol 	None
Russian Gulch SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol 	<ul style="list-style-type: none"> • High Dive Activity
Big River Estuary SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Kayak Patrol 	<ul style="list-style-type: none"> • 17 Specific Tribes Exempt
Van Damme SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Small Skiff Patrol • Ocean/Vessel Patrol • Kayak Patrol 	<ul style="list-style-type: none"> • High Dive Activity
Navarro River SMCA	<ul style="list-style-type: none"> • Shoreline Patrol • Kayak Patrol 	<ul style="list-style-type: none"> • 17 Specific Tribes Exempt

6.1 PERSONNEL AND EQUIPMENT

CDFW has eight enforcement staff located within the North Coast region, covering the area between the Oregon Border and Point Arena. The two lieutenants and six wardens have a primary emphasis on at-sea and shore-based marine patrols within this area, and there are additional inland wardens that address non-marine issues along the same area of the North Coast. These wardens may respond to inland hunting, fishing, pollution, habitat loss, and other related enforcement issues. This group of marine emphasis and land-based wardens can be diverted from normal regulatory activities to respond to MPA activity. However, such diversions may cause delays in service or coverage and increased costs for overtime shifts. Current MPA enforcement is accomplished using existing personnel resources, and positions cannot be redirected to concentrate on MPA enforcement due to duties and responsibilities currently facing enforcement. Therefore, current staff may not be able to adequately handle the added responsibilities of enforcement of these MPAs without assistance.

MPAs are patrolled by many techniques including large patrol boats, small patrol skiffs, aircraft, and foot patrols by wardens along the coast. Each MPA has special needs requiring specialized patrol

efforts. For example, areas closer to ports will require less effort to access, but due to their proximity to population centers, these areas are likely to have a higher use than remote areas. Conversely, remote areas may have fewer users, but require a more significant travel for enforcement officers to access. New and emerging technology options such as remote surveillance, Vessel Management Systems, and other technologies may provide options for increased efficiency of enforcement efforts.

Table 6. Personnel and equipment.

Pyramid Point to Big Flat MPAs		Double Cone Rock to Navarro Estuary MPAs		Totals
Land-Based	Patrol Boat	Land-Based	Patrol Boat	
1 Lieutenant	0 Lieutenants	1 Lieutenant	0 Lieutenants	2 Lieutenants
4 Wardens	0 Wardens	2 Wardens	0 Wardens	6 Wardens
1 Patrol Skiff*	N/A	1 Patrol Skiff**	N/A	2 Patrol Skiffs
N/A	0 Patrol Boats	N/A	0 Patrol Boats	0 Patrol Boats
Individual MPAs		Individual MPAs		
Pyramid Point SMCA Point St. George Reef Offshore SMCA Southwest Seal Rock Special Closure Castle Rock Special Closure False Klamath Rock Special Closure Reading Rock SMCA Reading Rock SMR Samoa SMCA South Humboldt Bay SMRMA Sugarloaf Island Special Closure South Cape Mendocino SMR Steamboat Rock Special Closure Mattole Canyon SMR Sea Lion Gulch SMR Big Flat SMCA		Double Cone Rock SMCA Rockport Rocks Special Closure Vizcaino Rock Special Closure Ten Mile SMR Ten Mile Beach SMCA Ten Mile Estuary SMCA MacKerricher SMCA Point Cabrillo SMR Russian Gulch SMCA Big River Estuary SMCA Van Damme SMCA Navarro River SMCA		

*Eureka skiff "Lingcod" 28' RHI

**Fort Bragg skiff "Chinook" 32' Almar

6.2 TRAINING

Wardens working within the North Coast region of California will receive training as necessary on the MPA regulations and the MPAs in their patrol districts. This training will include, but is not limited to, area boundaries and area-specific regulations.

6.3 ADDITIONAL CDFW ENFORCEMENT RESOURCES

CDFW has no large patrol boats stationed along the north region coastline, although two patrol skiffs are available to be deployed at all of the major ports in the North Coast. Patrol by large patrol boats may be conducted with patrol boats coming from outside of the area. However, this diverts resources from other study areas. CDFW also has a fleet of single and twin engine fixed wing aircraft that work in conjunction with both marine and land-based wardens to help identify and investigate violations.

6.4 CONTINGENCIES AND EMERGENCY PLANNING

Details on contingencies for natural disasters and/or unforeseen changes in local conditions will be added if necessary.

7. Additional Resources

Please refer to the following documents for additional historical information pertaining to the North Coast Regional Management Framework.

1. Regional Profile for the MLPA North Coast Planning Region³⁹
2. North Coast Regional Goals and Objectives⁴⁰
3. Overview of North Coast MPA Planning Process⁴¹
4. North Coast Process Diagram⁴²
5. MLPA Master Plan SAT List of Species Likely to Benefit from MPAs in the NCSR⁴³
6. Marine Life Protection Act, North Coast Study Region, Final Environmental Impact Report and Draft Environmental Impact Report⁴⁴
7. North Coast Regulatory and Environmental Review Process Documents^{45, 46}

³⁹ MLPA Initiative. (2010). *Regional Profile of the North Coast Study Region (California-Oregon Border to Alder Creek)*. Retrieved Apr 1, 2015 from <http://www.dfg.ca.gov/marine/pdfs/rpnc0410/profile.pdf>

⁴⁰ MLPA Initiative. (2010). *Goals, Regional Objectives, Stakeholder Priorities, and Design and Implementation Considerations for the MLPA North Coast Study Region*. Retrieved Apr 1, 2015 from <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentVersionID=33653>

⁴¹ MLPA Initiative (2011). *North Coast Project*. Retrieved Apr 1, 2015 from http://www.dfg.ca.gov/marine/pdfs/nc_overview.pdf

⁴² MLPA Initiative (2010). *North Coast Region Process Outline*. Retrieved Apr 1, 2015 from http://www.dfg.ca.gov/marine/pdfs/guide_diagram.pdf

⁴³ MLPA Master Plan Science Advisory Team. (2010). *List of Species Likely to Benefit from MPAs in the NCSR*. Retrieved Apr 1, 2015 from http://www.dfg.ca.gov/marine/pdfs/binders_nc/b2_3.pdf

⁴⁴ MLPA Initiative. (2012). *Final Environmental Impact Report, California Marine Life Protection Act Initiative, North Coast Marine Protected Areas Project - Entire Report*. Retrieved Jul 28, 2015 from http://www.dfg.ca.gov/marine/mpa/impact_nc.asp

⁴⁵ CDFW (2012). *Regulatory and Environmental Review Process Documents*. Retrieved Aug 10, 2015 from http://www.dfg.ca.gov/marine/mpa/regulatorydocs_n.asp

⁴⁶ California Fish and Game Commission (2012). *Marine Protected Areas, North Coast*. Retrieved Aug 10, 2015 from <http://www.fgc.ca.gov/regulations/2012/index.aspx#632nc>

8. Literature Cited

- Allaby, M. (1998). *Concise Oxford dictionary of ecology*. Oxford: Oxford UP.
- Fox, E., Poncelet, E., Connor, D., Vasques, J., Ugoretz, J., McCreary, S., Monié, D., Harty, M., & Gleason, M. (2013a). Adapting stakeholder processes to region-specific challenges in marine protected area network planning. *Ocean & Coastal Management*, 74, 24-33.
- Fox, E., Hastings, S., Miller-Henson, M., Monié, D., Ugoretz, J., Frimodig, A., Shuman, C., Owens, B., Garwood, R., Connor, D., Serpa, P., & Gleason, M. (2013b). Addressing policy issues in a stakeholder-based and science-driven marine protected area network planning process. *Ocean & Coastal Management*, 74, 34-44.
- Gleason, M., Fox, E., Ashcraft, S., Vasques, J., Whiteman, E., Serpa, P., Saarman, E., Caldwell, M., Frimodig, A., Miller-Henson, M., Kirlin, J., Ota, B., Pope, E., Weber, M. & Wiseman, K. (2013). Designing a network of marine protected areas in California: Achievements, costs, lessons learned, and challenges ahead. *Ocean & Coastal Management*, 74, 90-101.
- Kelleher, G., & Kenchington, R. A. (1992). *Guidelines for Establishing Marine Protected Areas*. Gland, Switzerland: IUCN in Collaboration with Great Barrier Reef Marine Park Authority.
- Pomeroy, R. S., Parks, J. E. & Watson, L. M. (2004). *How Is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness*. Gland, Switzerland: IUCN.
- Saarman, E., Gleason, M., Ugoretz, J., Airamé, S., Carr, M., Fox, E., Frimodig, A., Mason, T., & Vasques, J. (2013). The role of science in supporting marine protected area network planning and design in California. *Ocean & Coastal Management*, 74, 45-56.