



# THE CATALYST

The Newsletter for Interpretation in California State Parks

SUMMER 2021

Volume 21 No. 1

## INSIDE

Learn About  
Marine Protected  
Areas

Become a  
Community  
Scientist

Enjoy 3-D  
Augmented  
Reality  
Activities!

Hilton's Aeolid is a nudibranch sea slug found in many of California's coastal marine protected areas. *Photo by Carolyn Belak*



*The Catalyst* is published periodically by California State Parks, © 2021.

Opinions expressed are those of the author and not necessarily those of California State Parks.

By submitting a manuscript to *The Catalyst* the author assumes full responsibility for any copyright infringement.

Please contact the publisher for permission to reprint any item appearing in *The Catalyst*.

**ISSN 1089-9286**

For address changes or additional subscriptions, contact the Interpretation and Education Division:

**(916) 654-2249**  
[interp@parks.ca.gov](mailto:interp@parks.ca.gov)

**Publisher**

Stacey Yankee  
 Interpretation & Education  
[stacey.yankee@parks.ca.gov](mailto:stacey.yankee@parks.ca.gov)

**Copy Editor**

Heather Holm  
 Interpretation & Education Div.  
[Heather.holm@parks.ca.gov](mailto:Heather.holm@parks.ca.gov)

## ***The Catalyst* Guest Editors**

**Erika Delemarre**

Interpreter II, MPA Outreach & Education Project Coordinator  
 Interpretation & Education Division  
[erika.delemarre@parks.ca.gov](mailto:erika.delemarre@parks.ca.gov)

**Angela Edmunds**

Interpreter I  
 North Coast Redwoods District  
[angela.edmunds@parks.ca.gov](mailto:angela.edmunds@parks.ca.gov)

**Ashley Wemp**

Environmental Services Intern  
 Santa Cruz District, Seacliff State Beach  
[ashley.wemp@parks.ca.gov](mailto:ashley.wemp@parks.ca.gov)

---

**The format of future issues of the Catalyst will be changing** To facilitate a more frequent publication of this newsletter, Interpretation and Education Division staff have decided to change to a non-topical format, opening it up to contributors to submit articles on any timely topics pertinent to interpretation or stories of happenings at their park. Illustrations are strongly encouraged, including photos, drawings, graphs, etc. Articles can be up to two pages in length (including any photos/illustrations). All articles will be reviewed by our staff before being added to an edition of the Catalyst.

---

## **Interested in Contributing?**

*The Catalyst* welcomes your original articles up to two pages in length. We prefer unpublished material, but will occasionally reprint items published elsewhere. Be sure to include information about the publication so we can get permission to use the material. You may submit an article at any time. Please include a photograph with photo credit whenever possible.

We appreciate items submitted by email. Please send photographs as separate files, not inserted into your document. You may also submit original photographs or other illustrations to *The Catalyst*. We reserve the right to edit all material. Items are selected for publication solely at the discretion of the editor and publisher. We appreciate your suggestions.

Please send article submissions to [interp@parks.ca.gov](mailto:interp@parks.ca.gov).

---

# TABLE OF CONTENTS

<b>From the Editors</b>	Page 4
<b>MPA FAQs: An Introduction to California's Marine Protected Areas</b>	Page 5
<b>California State Parks' MPA Outreach and Education Project</b>	Page 14
<b>Understanding California's Marine Protected Area Program</b>	Page 16
<b>California's Tapestry, Interview with Skip Lowry: An Indigenous Perspective</b>	Page 18
<b>MPA Collaborative: Fostering local stewardship and management of MPAs</b>	Page 20
<b>WILDCOAST: MPA Enforcement &amp; Compliance</b>	Page 24
<b>Snapshot Cal Coast: Introducing the Bio-Blitz!</b>	Page 26
<b>MPA Watch: Community Science for Stewardship of Ocean Resources</b>	Page 28
<b>Join the Respect Wildlife Campaign!</b>	Page 30
<b>Are You Sea Otter Savvy?</b>	Page 31
<b>Becoming a Community Scientist</b>	Page 33
<b>Explore My MPA: Educational Programs with WILDCOAST</b>	Page 34
<b>Exploring the Deep with Marine Applied Research &amp; Exploration (MARE)</b>	Page 36
<b>Seeing More with Seamore</b>	Page 38
<b>Dive into Point Lobos</b>	Page 39
<b>Monitoring MPAs with Reef Check California</b>	Page 40
<b>SOS: Saving Our Seals and other marine mammals</b>	Page 42
<b>Integrating Tech into MPA Interpretation</b>	Page 44
<b>Resources for Interpreters</b>	Page 47



*Photo by Alex Warham*

## FROM THE EDITORS

### **ERIKA DELEMARRE — Interpreter II**

#### **MPA Outreach & Education Project, Interpretation & Education Division**

My passion for marine conservation has led me to work and volunteer on environmental education and youth development initiatives in countries such as Vietnam, Cambodia, Australia, New Zealand, Indonesia, Palau, and Iceland. While working on and under the ocean, I have enjoyed helping people of all ages discover and explore their unique connection with the ocean. I believe in building stewardship through education and I know that together, we can empower individuals and communities to care for our global ocean. Though I am a lifelong learner and explorer, I hold a Master's in Marine Biodiversity and Conservation from Scripps Institution of Oceanography at University of California San Diego and Bachelor of Science in Public Relations from Northern Arizona University. As a PADI Divemaster and a proud member of the California State Parks Dive Team, I am forever fascinated by our big blue backyard.



### **ANGIE EDMUNDS — Interpreter I**

#### **North Coast Redwoods District**

“Home” sculpts the foundation of our human experience, building the scaffolding of our values. My homes are: San Francisco Bay, Humboldt Bay, Catalina Island, Cairns, QLD Australia. All colorful coastal communities skirted by thriving marine environments. The Pacific Ocean has consistently served as the anchor around which my interests revolve. While earning my B.S. focused on Environmental Education and Interpretation at Humboldt State University I had my first experience with MPAs—underwater, data sheet in hand, taking note of their ever-changing, fragile yet dynamic nature. As an AAUS scientific diver and NAUI SCUBA instructor I aim to expand and share my subsurface experiences while contributing to the collective understanding of our shared marine heritage. These tangible underwater experiences contributed to my work on CDFW’s MPA Education and Outreach project before becoming the MPA interpreter for the North Coast Redwoods District.



### **ASHLEY WEMP — Environmental Services Intern**

#### **Santa Cruz District, Seacliff State Beach**

My love for the ocean began at a very young age. I would go boogie boarding with my brothers and to the Monterey Bay Aquarium where I was fascinated with all of the animals. Educating people about the ocean has always been my main passion. I can’t stay away from the beach for too long and realizing I wanted to make a career out of it, I earned my B.S. in Marine Science from California State University Monterey Bay. While in school, I became SCUBA certified and began working for California State Parks as a Park Aide in interpretation at Seacliff State Beach and New Brighton State Beach. I furthered my education at Stony Brook University and earned my M.A. in Marine Conservation and Policy. This is where I dove into Marine Protected Areas and completed an internship at the Environmental Action Committee looking at data from MPA Watch. These protected areas are vital in maintaining the biodiversity along California’s coast.





# MPA FAQs

Just as California's State Parks protect the state's most valued natural and cultural resources, mostly on land, California's Marine Protected Areas (MPA) network protects these special places in ocean and estuarine ecosystems, with some overlap with State Parks.

*An introduction to Marine Protected*

*Areas* By Chenchen Shen, Environmental Scientist,



California's state fish, the Garibaldi is bright and easy to spot in the kelp forest. *Photo by CDFW/Amanda Van Diggelen*

The California Department of Fish and Wildlife (CDFW) is the primary managing agency for the state's MPA network, but with a team of less than ten staff dedicated to MPAs, it is clear that MPA management is a partnership-based effort, both by design and necessity. State Parks is a critically important partner in the MPA Management Program, centered on four focal areas: **research and monitoring, outreach and education, enforcement and compliance, and policy and permitting**. While State Parks was created nearly a century ago, California's MPA network was completed statewide less than a decade ago. Raising public awareness about the MPA network and its regulations remains a priority and a challenge, given unmarked boundaries and limited signage. State Parks' visibility and expertise in visitor engagement is especially valuable for expanding outreach about the MPA network. To facilitate a dialogue with visitors about MPAs, CDFW has compiled the following list of frequently asked questions to help get the conversation started.

# 1 What is a Marine Protected Area or MPA?

MPAs are marine or estuarine waters set aside primarily to protect or conserve marine life and its associated habitat. MPAs have varying levels of protection and allowed activities. California's MPA network has four main classifications: state marine reserve, no-take state marine conservation area, state marine conservation area, and state marine park. State marine recreational management areas and special closures are also included within the MPA network as marine managed areas.

<p><b>State Marine Reserve (SMR)</b></p> <p>An MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resources, unless authorized for research, restoration, or monitoring purposes.</p>	<p><b>No-Take State Marine Conservation Area (No-Take SMCA)</b></p> <p>An MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resources, except for take incidental to specified activities permitted by other agencies (e.g. infrastructure maintenance, sand nourishment, etc.), and for authorized research, restoration, and monitoring.</p>	<p><b>State Marine Conservation Area (SMCA)</b></p> <p>An MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resources, except for select commercial or recreational harvest specifically authorized (species and gear exceptions vary by location), and for authorized research, restoration, and monitoring.</p>
 <p>Sunset over Morro Bay SMRMA and State Park. Photo by California State Parks</p>		
<p><b>State Marine Park (SMP)</b></p> <p>An MPA where it is unlawful to injure, damage, take, or possess any living, geological, or cultural marine resources, except for select recreational harvest specifically authorized, and for authorized research, restoration, and monitoring.</p>	<p><b>State Marine Recreational Management Area (SMRMA)</b></p> <p>An area where it is unlawful to perform any activity that would compromise the recreational values for which the area may be designated. Recreational opportunities may be protected, enhanced, or restricted, while preserving basic resource values of the area.</p>	<p><b>Special Closure</b></p> <p>An area that prohibits access or restricts boating activities in waters adjacent to sea bird rookeries or marine mammal haul-out sites.</p>



A misty morning overlooking Van Damme State Marine Conserva. on Area and State Park. *Photo by California State Parks*

## 2 Why did California create an MPA network?

In 1999, the California Legislature passed the Marine Life Protection Act (MLPA) in recognition of the need to reexamine and redesign California's MPA system to increase its coherence and its effectiveness at protecting the state's marine life, habitats, and ecosystems. Six goals guided the development of California's MPA network:

- 1. To protect the natural diversity and abundance of marine life, and the structure, function, and integrity of marine ecosystems.**
- 2. To help sustain, conserve, and protect marine life populations, including those of economic value, and rebuild those that are depleted.**
- 3. To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.**
- 4. To protect marine natural heritage, including protection of representative and unique marine life habitats in California waters for their intrinsic value.**
- 5. To ensure that California's MPAs have clearly defined objectives, effective management measures, and adequate enforcement, and are based on sound scientific guidelines.**
- 6. To ensure that the State's MPAs are designed and managed, to the extent possible, as a network.**

## 3 How do MPAs work?

California's MPAs limit fishing and/or other human impacts, and over time, these restrictions may increase the size, abundance, and diversity of species that spend all or portions of their lives within MPA boundaries. Since marine species can move freely across MPA borders, MPA benefits can also spill over to surrounding fishable waters.

One of the greatest benefits of MPAs can be their role in protecting large fertile fish and invertebrates. As many marine species get larger, the number of offspring they produce grows exponentially. Given enough time, those offspring may increase the abundance of populations in MPAs and help repopulate adjacent waters.

The design of California's MPAs as a network may also increase and reinforce these benefits. With individual MPAs placed in strategic proximity to each other and encompassing a wide variety of marine habitats, California's MPA network can help preserve the connections and flow of life between marine ecosystems.

## 4 When were California's MPAs established?

California MPAs were established regionally in separate phases between 2007 and 2012:



A sunny spring day at Point Lobos State Marine Reserve.

*Photo by California State Parks*

- **September 2007** Central Coast Region: Pigeon Point to Point Conception
- **May 2010** North Central Coast Region: Alder Creek near Point Arena to Pigeon Point, including the Farallon Islands
- **January 2012** South Coast Region: Point Conception to the California/Mexico border
- **December 2012** North Coast Region: California/Oregon border to Alder Creek near Point Arena

## 5 How big is California's MPA Network? *Where are MPAs located & how do I know if I'm in one?*

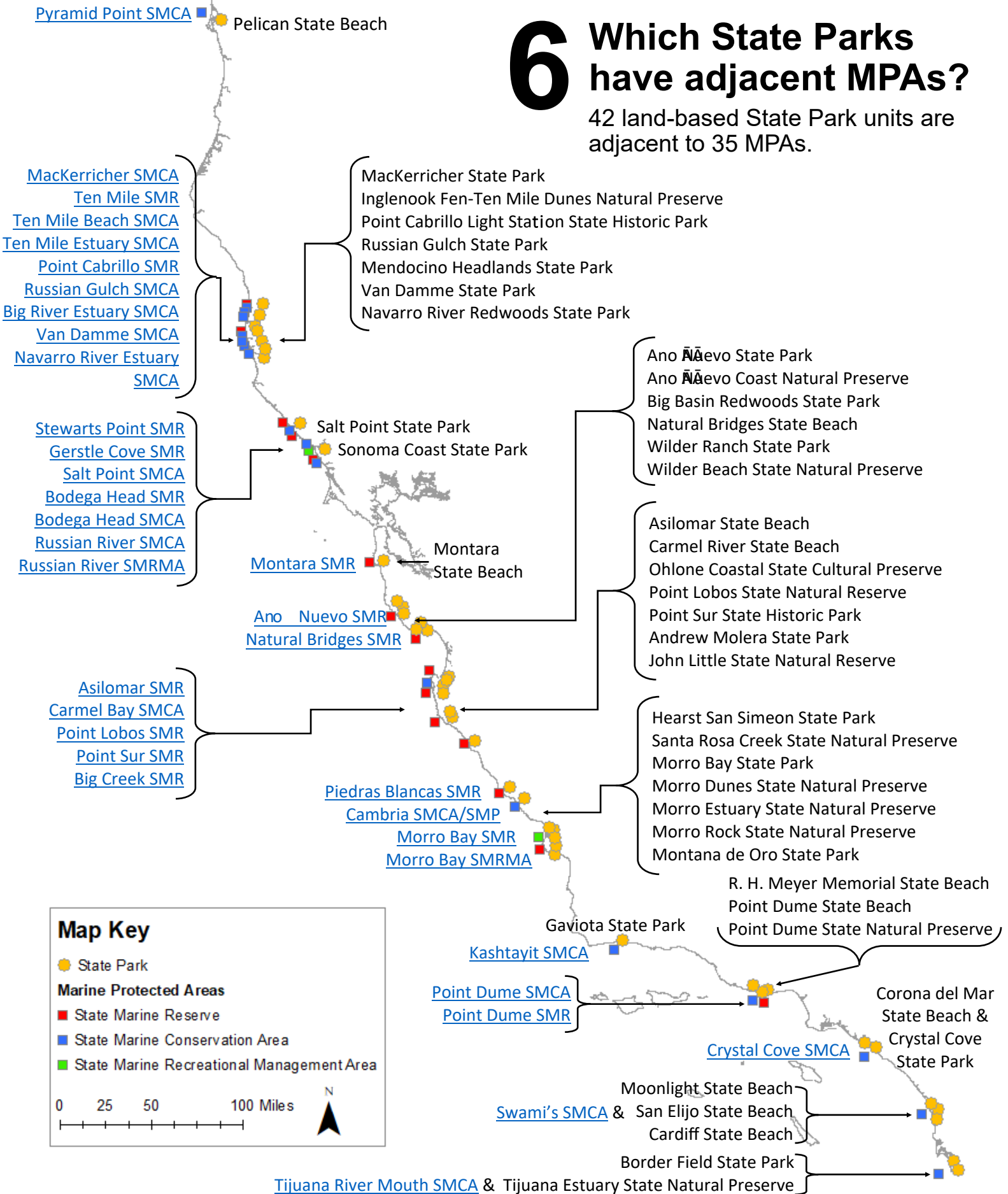
**California has a network of 124 MPAs and 14 special closures sprinkled along its entire coastline from border to border and covering approximately 16% of state waters.**

Many MPAs have onshore signage and maps. However, it is ultimately up to the user to determine if they are in an MPA. MPA maps, coordinates, and regulations are available on the CDFW MPA website (<https://wildlife.ca.gov/Conservation/Marine/MPAs/Network>). CDFW also has an interactive ocean sport fishing web map (<http://www.wildlife.ca.gov/OceanSportfishMap>) with MPA boundaries and ocean sport fishing regulations, although it requires a cell signal or wi-fi connection to access.



# 6 Which State Parks have adjacent MPAs?

42 land-based State Park units are adjacent to 35 MPAs.



## 7 Who manages California MPAs?

California's MPA network takes a collaborative management approach. The MPA Statewide Leadership Team, chaired by the Secretary of Natural Resources, is an advisory body that ensures communication, collaboration, and coordination among entities that have significant authority, mandates, or interests that relate to the MPA network. Three agencies on the Leadership Team play lead roles in the MPA Management Program. The California Department of Fish and Wildlife is the lead managing agency for the statewide MPA network, while the Ocean Protection Council serves as the MPA policy lead. The Fish and Game Commission is the regulatory authority, which designates MPAs and adopts their rules and regulations.

The Department of Parks and Recreation and its Commission are also designated as a managing and regulatory authority for State Marine Parks, including several located in San Francisco Bay and the dually designated Cambria SMCA/SMP. State Parks also collaborates with CDFW to manage 35 MPAs that are offshore of existing coastal state park units. Using tools such as interpretation and education, signage, cooperative research and monitoring, and enforcement, State Parks works in tandem with local partners to strengthen and improve the management of the MPA network as a whole relative to existing state park units.



CDFW's MPA Management Project staff hitch a ride with Wildlife Officers to University of Southern California's Wrigley Marine Science Center. *Photo by CDFW/Becky Ota*

## 8 What makes California MPAs unique?

California has taken a pioneering approach to establishing its MPAs through a science-based and stakeholder-driven process. The resulting ecologically connected and adaptively managed MPA network is the first of its kind in the US and one of the largest MPA networks in the world. California's MPA network has gained international recognition and is the first MPA network being considered for the International Union for Conservation of Nature's (IUCN's) Green List program.

# 9 What kind of scientific research is going on in California MPAs?

The State funds scientific research on MPAs to evaluate their performance and effectiveness. Baseline monitoring was conducted from 2007-2018 to establish a benchmark of ecological and socioeconomic conditions at or near the time of regional MPA implementation. Current research has entered the long-term monitoring phase, which builds on and may be compared against baseline conditions as the effects of MPAs are expected to develop over time. Research includes various surveys of fish, invertebrates, and/or algae in kelp forest, sandy beach, rocky intertidal, mid-depth rocky reef, submarine canyon, and estuary habitats. Oceanographic and fisheries socioeconomic conditions are also monitored.



Catch and release surveys are conducted to monitor rockfish populations.

## Studies are aimed at answering questions like:

- ◆ Do species differ in size, numbers, and biomass inside and outside MPAs?
- ◆ How do MPAs affect fishing effort and recreation?
- ◆ Are MPAs that are located closer together more effective than those that are more isolated?
- ◆ How do water quality and environmental stressors impact MPAs?



CDFW scientists survey red abalone at Sea Lion Cove SMCA in Mendocino County. *Photo by CDFW/Chenchen Shen*

# 10 What activities are allowed in MPAs?

Unless specifically prohibited, non-extractive activities such as swimming, wading, boating, diving, and surfing are allowed in state-managed MPAs. MPAs are intended to enhance recreational, educational, and study opportunities. To the extent possible, MPAs should be open to the public for managed enjoyment and study.

When “take” or possession of fish and wildlife occurs for research, educational, or propagation purposes within an MPA, a [scientific collecting permit](#) is required.

Boating and access are prohibited in special closures designated to protect breeding sea birds and marine mammals from human disturbance. Some special closures are year-round, while others are seasonal.



Photo by CDFW/Amanda Van Digglen

# 11 What do I do if I see an MPA violation?

CDFW’s Law Enforcement Division is the primary agency responsible for enforcing MPA regulations. **If you see an MPA violation, contact CalTIP (1-888-334-2258, [wildlife.ca.gov/enforcement/caltip](http://wildlife.ca.gov/enforcement/caltip), Text 847411) to alert a wildlife officer.** If a wildlife officer is unavailable, partner agencies such as California State Parks, National Park Service, US Coast Guard, National Oceanic and Atmospheric Administration, municipal harbor patrols, local police, sheriffs, lifeguards, and city resource officers may also assist in enforcement.

## See a violation?

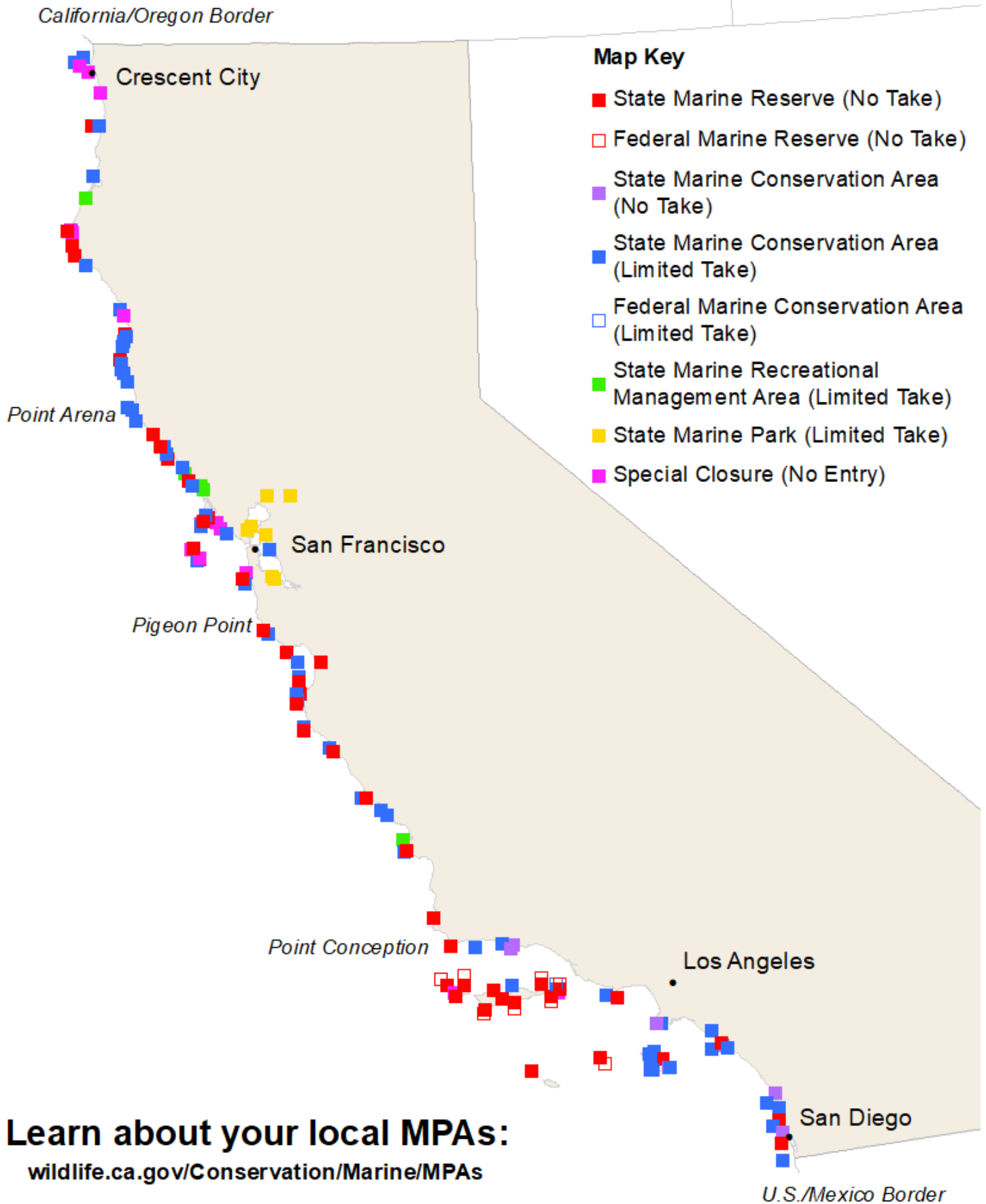
- ◆ Call [CalTIP](http://CalTIP) (1-888-334-2258) or Text 847411
- ◆ Submit an anonymous report through the CalTIP app available for free download from app stores
- ◆ Contact local law enforcement including your local California State Parks rangers

# 12 Where can I find more information?

The CDFW MPA website contains information about MPAs, including outreach materials, videos, maps, regulations, and scientific reports. The MPA Collaborative Network and the California Marine Sanctuary Foundation websites also host a plethora of outreach materials about California MPAs.

- ◆ [wildlife.ca.gov/Conservation/Marine/MPAs](http://wildlife.ca.gov/Conservation/Marine/MPAs)
- ◆ [MPAcollaborative.org](http://MPAcollaborative.org)
- ◆ [CaliforniaMPAs.org](http://CaliforniaMPAs.org)

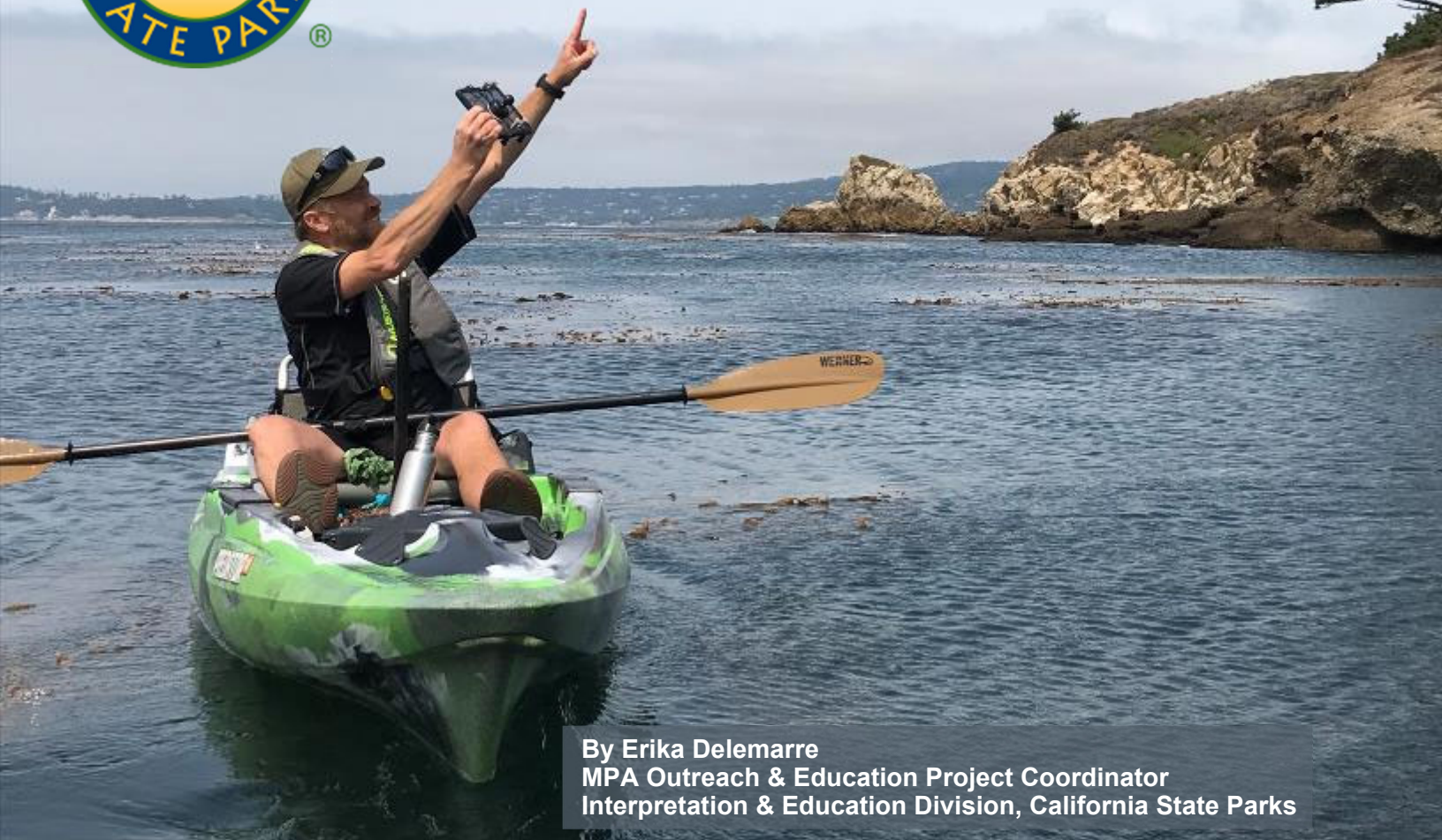
# California Marine Protected Areas (MPAs)



**Learn about your local MPAs:**  
[wildlife.ca.gov/Conservation/Marine/MPAs](http://wildlife.ca.gov/Conservation/Marine/MPAs)



# Marine Protected Area Outreach & Education Project



By Erika Delemarre  
MPA Outreach & Education Project Coordinator  
Interpretation & Education Division, California State Parks



From top left to bottom right: MPA Outreach & Education Project team members Daniel Williford at Point Lobos State Natural Reserve, Nicholle Kohls at Van Damme State Park, Parker Grand at Gaviota State Beach, and Lucy Chalgren at San Elijo State Beach. All photos for this story by California State Parks.

Funded by a generous grant from the California Ocean Protection Council (OPC), California State Parks is helping students and the public connect with the California coast by offering year-round MPA interpretive programming in eight coastal park districts:

- ◆ North Coast Redwoods
- ◆ Sonoma-Mendocino Coast
- ◆ Santa Cruz
- ◆ Monterey
- ◆ San Luis Obispo Coast
- ◆ Channel Coast
- ◆ Orange Coast
- ◆ San Diego Coast

MPA interpreters offer distance learning programs through PORTS: Parks Online Resources for Teachers and Students® Program as well as traditional in-person programming such as field trips, campfire programs, and roving interpretation along their state beaches. Collectively known as the "MPA Team," this small mighty group of interpreters played a key role in the department's response to park and school closures during the COVID-19 pandemic. **Together in 2020, the team delivered a total of 827 virtual programs and reached more than 61,000 students and members of the public.**

The MPA team also actively engages with park visitors through social media, promoting park values and MPA messaging through #MPAMonday posts, videos, and stories. The MPA Team has built several digital 3-D, augmented reality experiences including the *Dive Into Point Lobos* Timelooper app (see Page 29) and Quiver interactive coloring sheets (see Page 44).

In addition to expanding K-12 access to parks and California's MPAs, the MPA Team contributes to scientific research by participating in community science programs such as MPA Watch (see Page 28) and Snapshot Cal Coast (see Page 26). Collecting data in the field, the MPA interpreters are the eyes and ears on our coast, observing both wildlife and ecosystems, but also the activities of the people who come to enjoy them! Many MPA Team members also play active roles in their local MPA Collaboratives (see Page 20) to further marine stewardship in their local communities.

The funding from OPC also supports the purchasing of equipment for distance learning and traditional programs as well as translation of printed MPA materials and signs to include Spanish and Asian languages as needed in different regions of the state.

For more information and to access free interpretive resources, visit [www.ports-ca.us/home/mpas](http://www.ports-ca.us/home/mpas).



Clockwise from left: MPA Outreach & Education Project team members Angie Edmunds in North Coast Redwoods District, Robin Hazard at Morro Bay State Park, Alex Anderson at Crystal Cove State Park, Kat Gabrielson at MacKerricher State Park, and Sandy Tolzda at San Elijo State Beach. Not pictured: MPA team members Joe Rogers, Ashley Wemp, Martha Nitzberg, and Richard Fletcher of Santa Cruz District.



# Understanding California's Marine Protected Area Program

By Matthew Warham  
SeaGrant Fellow, Ocean Protection Council

*Photo by Alex Warham*

In 2012, California implemented one of the world's largest science-based and stakeholder-driven marine protected area (MPA) networks. The MPA network is managed to achieve conservation goals specified in its founding legislation – the Marine Life Protection Act – to protect and conserve marine life, habitat, and ecosystems, and improve recreational, educational, and research opportunities provided by marine ecosystems. The Ocean Protection Council (OPC) works with partners to effectively advance MPA management. This includes enforcement, monitoring, and education and outreach across a broad range of public and private entities that are engaged in marine resource protection and restoration activities.

The OPC is a cabinet-level state policy body within the California Natural Resources Agency that advances the Governor's priorities to protect California's coast and ocean. OPC advances innovative science-based policy and management, makes strategic investments, and catalyzes action through partnerships and collaboration. The recently approved Strategic Plan provides an ambitious collective vision for protecting the intrinsic, cultural, ecological, and economic benefits provided by California's coast and ocean.

## Introducing the MPA Statewide Leadership Team

In April 2014, the MPA Statewide Leadership Team was convened by



**OCEAN  
PROTECTION  
COUNCIL**

### MEMBERSHIP

Secretary of the California  
Natural Resources Agency

Secretary of the California  
Environmental Protection Agency

Chair of the State Lands Commission

Member of the State Senate

Member of the State Assembly

Two Public Members



the Secretary for Natural Resources Agency as a standing advisory body to ensure communication, collaboration, and coordination among entities that have significant authority, mandates, or interests that relate to the MPA Network. The founding membership of the Leadership Team was guided by the Marine Managed Area Improvement Act (PRC 36800) which describes a State Interagency Coordination Committee to ensure coordinated management of marine managed areas and includes state, federal, and key non-profit partners that are actively engaged in the MPA Management Program and are signatories on the MLPA Implementation Memorandum of Understanding. The Leadership Team will continue to add members at the direction of the Secretary for Natural Resources to ensure a comprehensive representation of key partners in the MPA Management Program.

Operationally, the Leadership Team is made up of two primary components, the Executive Committee and the Working Group. The Executive Committee, which includes the Secretary for Natural Resources and the directors of member organizations, comes together twice a year, generally in March and September, at the MPA Milestones Meeting in Sacramento.

These meetings provide opportunities for high level review of the outcomes from the Working Group, and for setting the Leadership Team's priority work areas for the coming months. The Working Group is composed of a representative from each member organization at a program manager (or higher) level.

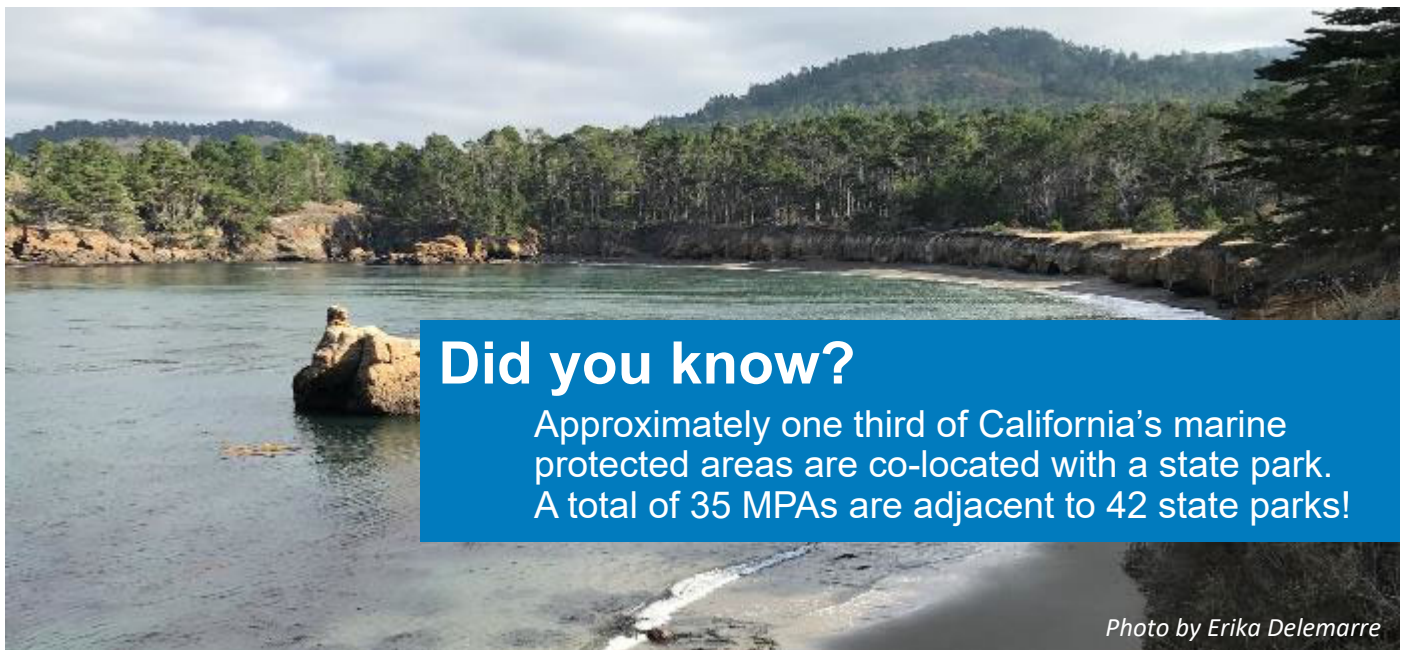
The Working Group meets at least quarterly in Sacramento to complete tasks and projects identified by the Executive Committee and to identify priority work areas for the Leadership Team for approval by the Executive Committee. The Leadership Team is administered by OPC staff.

### **California MPAs on the International Stage**

OPC is spearheading an effort to add California's globally significant MPA network to the International Union for Conservation of Nature (IUCN) Green List. The IUCN Green List is a program that promotes effective, equitable, and successful protected areas worldwide. By evaluating protected areas against a set of globally consistent criteria, the Green List program aims to improve the contribution that these areas make to the conservation of nature and associated social, economic, cultural, and spiritual values.

In 2018, California's MPA network was officially accepted into the Green List program as a candidate site. IUCN selected members of an expert assessment group will evaluate how California's MPA network meets IUCN's Green List criteria and will recommend that the network be added to the Green List when all criteria are met. If accepted, California's MPA network will be the first network of MPAs added to the list, as well as the first Green List site in the United States.

The OPC looks forward to a continued partnership with State Parks! Please feel free to direct any questions to Tova Handelman at [Tova.Handelman@resources.ca.gov](mailto:Tova.Handelman@resources.ca.gov).



## **Did you know?**

Approximately one third of California's marine protected areas are co-located with a state park. A total of 35 MPAs are adjacent to 42 state parks!

*Photo by Erika Delemarre*

# California's Tapestry

A Diversity Feature Article

## Interview with Skip Lowry:

Skip Lowry grew up in Susanville, California but considers the area between the west coast of Humboldt County to the current border of northern California and Nevada "home." Skip is a mix of European and Indigenous descent (Mountain Maidu, Pit River, German, Yurok, and Irish). Due to more European oppression experienced by Susanville area tribes as compared to the Yurok Tribe (Humboldt County), Skip's worldview comes mainly from his mother's Yurok heritage and culture. Skip is proud to be an Interpreter I for California State Parks in the North Coast Redwoods District.

### What is your position at California State Parks?

I provide interpretation and maintenance with added Indigenous cultural expertise at Sumeg Village within Sue-Meg State Park. I am a resistance movement individual that got my start with California State Parks by volunteering to do maintenance work on Sumeg Village. This eventually led to a maintenance position, which has now evolved into a position which I am able to do both maintenance and interpretation—which is unique within the Park's system.

I have been answering the call of my Yurok community and elders for many years, which has led me to act as a steward of the unique and sacred cultural site used by a sensitive cultural community. The Yurok community was recently a legislative target for elimination, meaning that there were government attempts to totally eliminate that part of who I am, within the lives of my ancestors. "Sumeg" is a word that encompasses an area much larger than what is represented within Sue-Meg State Park's designated village area. The place Sumeg has been redefined to fit within the park, when in actuality, the more recently established park is within Sumeg.

### How is Sumeg and Yurok culture connected to the ocean as a place and/or a resource?

Sumeg is located on the coast and means "always has been, always will be, always is," which means that this location is a place that has always helped humans



Skip Lowry holds abalone shell necklace at Sumeg Village in Patrick's Point State Park. Photo by California State Parks

thrive and will continue to be that way if humans act in respect for the earth. This was a place where Yurok people would respectfully be in relationship with ocean wildlife and marine resources.

Sumeg Village is located in between two very large Yurok villages. During certain times of the year, Yurok people from the neighboring and inland villages, some who did not have regular access to the coast, would come together at Sumeg to trade resources. These visitation times were identified by constantly learning and listening to the ocean's cycles.

### Is Sumeg still a site where trading occurs?

California State Parks hosts a community event each year called Sumeg Village Days, which has created partnerships with the diverse Indigenous community of the area. This event allows an annual opportunity for the trading of food and other natural resources. For example, an Elder from the inland Hupa Tribe brings acorns to prepare acorn meal, a nutritional staple traditionally traded at Sumeg. Other commodities shared include eel and salmon. This event is open to the public.

Sumeg Village is a sacred and spiritually charged place for the Yurok people where gathering and trading has been conducted since time immemorial. Unfortunately, there have been issues in the past around modern day harvesting of medicine within the park due to laws and restrictions that have not accommodated Indigenous uses of the land. To honor the name Sumeg ("always has been, always will be, always is"), requires for Yurok people to always be able to exist, access, gather, and utilize their traditional ancestral territory and ceremonial sites.

### What were you taught about the ocean growing up and how have you incorporated that into your worldview?

Within Yurok culture, we understand that there is so much purpose that was created before Yurok people

were here, that we depend on, meaning that the physical world was designed to be in relationship with humans, and the ocean is no exception. The ocean was designed for a specific spiritual engagement and relationship with humans, just like the forests. The ocean needs us just as much as we need the ocean, the forest needs us just as much as we need the forest. It's not about humans doing whatever they want, claiming resources as "ours". We belong to this place and we need to engage with it in a way that is respectful of its life. It's beautiful, dangerous, and powerful, it can be serene and gentle. It is a learning platform for humanity.

We are ocean bound people. Traditionally, coastal communities built languages through their relationship with the sea that named the marine life and places. This language wasn't always understood by inland Indigenous groups because they were not ocean bound people. Within the Yurok tribe individuals can be master eelers, fishers, or net makers—each following their individual calling.

Yurok people do not have organized religion, we have individual spirituality. Therefore, there were some individuals who felt a calling to swim into the ocean to participate in trainings that would provide them with power and therefore responsibility. In some cases, Yurok people would swim, or paddle in ocean bound canoes sometimes with sea lion skin sails to Reading Rock, which is a Marine Protected Area today.

### **What does the phrase Marine Protected Area mean to you?**

I like that MPAs exist, because the western worldview of exploitation, capitalism and dominion that immigrated here did irreversible damage very, very fast. Mass exploitation and disintegration of relationship with place demanded that we as a community, state, and nation, protect certain places. It's great that they exist, but it's sad that they had to happen. The history about why we need MPAs needs to be told just as much as the story of how great the effort is. The other important story to tell is how we stumbled by not including native perspectives in the design process.

### **Can you lend a voice to tribal engagement? What can we do in future planning to ensure that we are welcoming Indigenous voices to the table?**

To do things in Indigenous communities it takes two things: more time and more money. As native people we have a different scale of time, different emotional standpoint of trust, and generally our relationship is not transactional, it is transformational, which requires time

and depth. Indigenous people represent about 2.3% of California's population. We are all survivors of genocide and form a tight knit statewide community battling unique historical traumas. Despite this, we have grassroots ties to our wider community and there needs to be time and space for Indigenous groups to connect with one another as well as connect with individual organizations or agencies.

### **Do you see anything problematic with modern MPAs?**

Every place where there is an MPA, I guarantee there was a tribal community that had a relationship with that place. The current philosophical viewpoint of dominion that says "we are in control of the land" or "we own the land" is absolutely opposite to ideology of the Indigenous communities of California. We are caretakers. To us, our kids own this land, future generations own this land.

MPAs are a result of lack of respect for the place and the people of that place who have always been there. MPAs are an attempt to recreate the harmony that was severed between people and place. It is attempting to correct the idea that we can abuse every location because it has a bunch of awesome stuff for us to take and benefit from.

### **From your perspective, what is the most vital consideration that resource managers must make around the Indigenous use of the ocean and coastline?**

I believe a respectful replacement for the term "resource manager" would be "resource relationship devotees". It is vital to identify the authority and associated language that is established from a culture of oppression of both nature and people who are devoted to nature.

### **Are there any particular symbols or marine organisms that hold significance to you?**

Abalone represents the sacred female spiritual resistance: power, beauty, strength, endurance, and sacrifice. The story about red abalone is featured in a Yurok creation story. In the story, a man was being verbally and physically abusive to the woman he married and she was strong enough to leave the situation. The abalone is a women's shell, but can also be worn by men. When a man wears abalone during dances, the man must carry himself gently, showing the shell respect. This action shows the world and the Creator that the man can honor the woman's cosmic place in the world. It is a story that teaches men to be gentle, and purposefully compassionate. This cultural significance is one of the reasons why the decline in the red abalone population is particularly devastating to Indigenous people. It has become more difficult for young Yurok boys and girls to have a relationship with abalone because of this.



## MPA Collaborative Network

*Fostering local stewardship and management of California's MPAs*

Mendocino MPA Collaborative ROV Training showcasing the Noyo Center for Marine Science's virtual reality set-up. *Photo by MPA Collaborative Network/Nicole Palma.*

### By Nicole Palma, Program Manager MPA Collaborative Network

California's unique network of 124 marine protected areas (MPAs) and 14 special closures is the result of the Marine Life Protection Act (MLPA) Initiative, a nine-year, comprehensive public-private planning process (2004-2012) that saw immense stakeholder involvement from four regional stakeholder groups. MPA Collaborative Network Director Calla Allison served as a regional stakeholder in the creation of the South Coast MPAs on behalf of the Orange County Marine Protected Area Council (OCMPAC). OCMPAC was the first group organized to bring together area experts to collaboratively manage local MPAs on a county-wide basis. After seeing the success of this stakeholder-led, locally relevant, bottom-up approach to resource management, Calla proposed expanding this innovative idea statewide. With support from the Natural Resources Agency, the California Department of Fish and Wildlife (CDFW) and funding from Resources Legacy Fund, Calla went county by county, stakeholder by stakeholder, and built the MPA Collaborative Network (Network).

There are now 14 county-based Collaboratives that

make up the MPA Collaborative Network, an organization with a mission to empower coastal communities to advance MPA management and encourage ocean stewardship. Stretching from Del Norte to San Diego, the Network is comprised of more than 385 organizations and 600 individual members representing government agencies such as California State Parks and CDFW, commercial and recreational fishermen, tribes, non-profit organizations, elected officials, science and academia, and ocean business. As a member of the MPA Statewide Leadership Team, the MPA Collaborative Network gives stakeholders and local agencies an active voice in the ongoing stewardship and management of California's MPAs.

By bringing together a wide range of ocean experts, the Network helps strengthen cross-interest relationships and improve local initiatives.

Collaboratives are volunteer based, with members volunteering their time and resources to make valuable contributions to the management of MPAs. In fact, a study completed by Blue Earth Consultants in 2019 identified that non-state members of OCMPAC contributed support worth over \$4 million to Orange County MPA Management during

a two-year time frame. Collaboratives provide significant in-kind contributions in three primary areas central to MPA management: outreach and education, enforcement and compliance, research and monitoring.

- ◆ **14 Local MPA Collaboratives**
- ◆ **385 Organizations represented**
- ◆ **600+ Members**
- ◆ **Join today!**

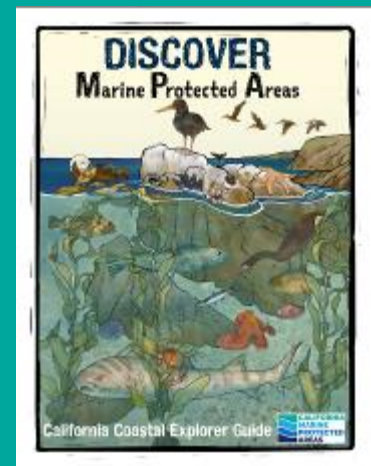
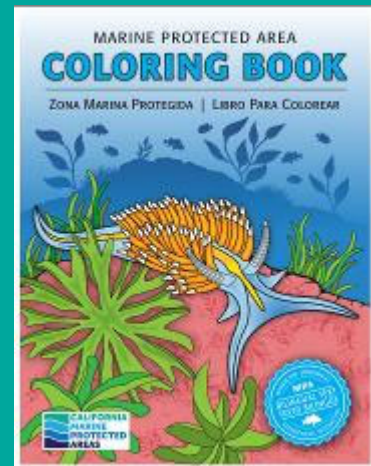
[www.MPAcollaborative.org](http://www.MPAcollaborative.org)



## OUTREACH & EDUCATION

The MPA Collaboratives have developed many diverse, locally-relevant materials for MPA outreach and education. The San Diego County Collaborative and a partnership of North Coast Collaboratives (Humboldt, Del Norte, and Mendocino Counties) each developed MPA Teacher Toolkits with conveniently packaged NGSS aligned MPA curriculum for grades K-12 to be used by formal and informal educators, such as State Parks interpreters. The Sonoma County Collaborative created the *Kashia Pomo Tribal Traditions in the MPA* video to increase the general public's understanding of how the Kashia Band of Pomo Indians are uniquely positioned through their long history and traditional practices to be an important partner in the recovery of Sonoma's coastal resources. The video was chosen as an Official Selection for the Wild and Scenic Film Festival that took place in January 2020.

The San Luis Obispo and Monterey County Collaboratives (led by co-chairs Cara O'Brien of SLO Coast District and Erika Delemarre and Pat Clark-Gray of Monterey District) created a bilingual MPA Coloring Book and a MPA Coastal Explorer Guide Activity Book, respectively. Collaboratives have also developed brochures, online and in-person trainings, additional videos, and hosted community outreach events such as the Los Angeles County Collaborative's Honor the Ocean event that highlights the Chumash Maritime Heritage and Los Angeles County MPAs. All these resources and more are freely available on the MPA Collaborative Network's website: [www.mpacollaborative.org](http://www.mpacollaborative.org).



## RESEARCH & MONITORING

MPA Collaboratives connect scientists monitoring MPAs with other professionals and community members, and are a means to disseminate monitoring results. The MPA Collaborative Network is a partner of the California Academy of Sciences Snapshot Cal Coast. Snapshot Cal Coast is an annual statewide BioBlitz that uses the community science app iNaturalist to collect an unprecedented amount of data on species diversity inside and outside of MPAs. (See article on Page 26.) The Network is also a partner of MPA Watch, a statewide community science program that trains volunteers to observe and collect data on human uses of coastal and marine resources both inside and outside of MPAs. Through a partnership with Sofar Ocean (formerly OpenROV) and National Geographic's S.E.E. (Science Exploration Education) Initiative, each Collaborative has received grant funded Trident mini-ROVs (remotely operated vehicles) to use for education and outreach and research and monitoring projects.

These small underwater drones are similar in size to a portable projector, have a depth rating of 100 meters and can record 1080p video at 30 frames per second. Live video is streamed back to the surface via a Kevlar-reinforced tether, directly to an Android controller device that the pilot uses to operate the ROV. After attending a Collaborative ROV Training, members are encouraged to utilize these shared ocean exploration tools for their own projects. This year, in collaboration with Sofar Ocean, Collaboratives will be using the Trident ROVs to broadcast engaging, livestreamed ROV dives where questions from the audience can be answered in real-time. You never know what might swim across the screen next!

## ENFORCEMENT & COMPLIANCE

Collaboratives work closely with their member and partner local enforcement officers, ensuring that allied enforcement agencies are trained and consistent when enforcing MPA regulations. This supports the sharing of unique knowledge of what is happening in the field with all involved MPA stakeholders.

Collaboratives have designed and installed MPA signage in their areas, distributed brochures with regulatory information both on and off the water, and developed MPA ambassador programs to increase awareness of and compliance with MPA regulations among the public.



Officers at the pilot MPA Enforcement Training for Officers and Allied Agencies held in Orange County. Photo by MPA Collaborative Network/Calla Allison

## GETTING INVOLVED

Everyone is welcome to join their local Collaborative and become a member of the Network. Becoming a member is easy and there is no cost to join! Just find your local Collaborative at [www.MPAcollaborative.org](http://www.MPAcollaborative.org), reach out to the co-chairs to be added to the mailing list, and attend the next meeting. Meetings are generally held quarterly and members contribute their time, knowledge, and/or resources to Collaborative projects as they are able. You can also join our statewide mailing list to receive Quarterly Newsletters from the Network.

Collaboratives provide a forum for diverse stakeholders to forge new connections and work together to enhance understanding and compliance of MPAs. We hope to see you at the next meeting! Please reach out to [mpacollaborativenetwork@gmail.com](mailto:mpacollaborativenetwork@gmail.com) with any inquiries.



# WILDCOAST: MPA Enforcement & Compliance

By Cory Pukini  
California Conservation Manager, WILDCOAST



Marine protected areas (MPAs) in California were developed to protect important habitat, cultural and archeological resources, and sustain fisheries. One of the greatest threats to the success of the MPA

network is non-compliance with MPA rules and regulations established to protect California's marine resources. Public compliance in MPAs can generally be addressed through education and outreach initiatives. However, the success of the MPA network is threatened by large urban centers adjacent to MPAs, high visitation to the state, Californians disconnected from ocean spaces, and nefarious actors.

Illegal fishing, known as poaching, persists throughout California and undermines the integrity of the MPA network.

Compounding the issue, there remains a shortage of enforcement officials and limited compliance resources (signage, printed materials, handouts) to effectively monitor the vast 840-mile California

coastline. The expansive coastline and lack of enforcement resources create an environment that is difficult to patrol because of the geographic extent, remoteness of some MPAs, and the ease of

accessibility to MPAs by watercraft. Overcoming these logistical challenges requires community engagement, local stewardship, and strong conservation policy. It is also imperative that enforcement officials, prosecutors, and the state judicial branch are aware of up-to-date MPA regulations and compliance issues and attend regular trainings to institutionalize MPAs and ensure their protection.

WILDCOAST's California MPA program addresses conservation issues and mobilizes stakeholders to take part in the enhancement of MPA compliance. Statewide

MPA enforcement and compliance workshops are periodically held to connect stakeholders with enforcement personnel, prosecutors, and allied agencies. During MPA compliance workshops, the

**WILDCOAST is an international team that conserves coastal and marine ecosystems and addresses climate change through natural solutions. WILDCOAST is addressing MPA compliance issues by:**

- ◆ **Engaging enforcement officials and prosecutors in training**
- ◆ **Advancing strong conservation policies**
- ◆ **Carrying out strategic education and outreach to underserved communities**
- ◆ **Assisting in the development of emerging enforcement technologies**



public has the chance to voice concerns pertaining to highly nuanced regional MPA compliance issues. These issues range from the need for interpretive signage at MPA public access points to reports of egregious poaching and need for added enforcement measures. MPA compliance issues highlighted by the public are relayed to MPA enforcement officials during enforcement training.

In 2019, WILDCOAST and partners across the state welcomed California State Assembly Bill 2369 (AB2369) to enhance penalties and increase fines for commercial fishing operations. This bill was a direct result of stakeholder engagement and participation in enhancing MPA compliance. Prior to AB2369, commercial fishermen caught illegally fishing in MPAs were fined between \$100-\$1,000. Oftentimes, commercial fishing operations would simply absorb fines as the cost of doing business and the need for strengthened penalties became necessary to create an economic deterrent.

Opportunities to connect with stakeholders, create capacity for grassroots conservation, and drive bottom-up management are made possible by the statewide MPA Collaborative Network. WILDCOAST is the co-chair of the San Diego County MPA Collaborative which has more than 120 stakeholders from over 60 representative groups.

WILDCOAST also strengthens MPA compliance by

assisting in the development of emerging technologies and compliance strategies, and partnered with Protected Sea to advance the Marine Monitor (M2) RADAR system. The M2 system has the capacity to identify vessels entering MPA space through RADAR technology and creates unique tracks using an advanced algorithm to help researchers and enforcement officials identify potential violations. Through on-the-ground observations, WILDCOAST is able to feed data into a machine learning platform that increases the accuracy and confidence of the system. Wildlife officers and enforcement officials now have access to the M2 system to help expand marine domain awareness and for identifying and addressing non-compliance.

It is often said that the establishment of a National Parks system was America's "best idea." The conservation of beautiful places and the resources that make them special is a powerful and proven ideology. The ecosystem services provided to humans by healthy oceans and intact ecosystems is well studied and has far reaching benefits. California's network of MPAs provides a management solution to ensure a sustainable future for the state economy, fisheries, and marine resources, and helps to combat climate change through natural solutions. We must take action to assure statewide compliance in all MPAs and protect a future for our coasts and oceans – and ourselves.

**To get involved, learn more, or take action, scan these QR codes with your smartphone:**



# SNAPSHOT CAL COAST

## Introducing the Bio-Blitz!

By Rebecca Johnson  
Co-Director of Citizen Science, California Academy of Sciences

Photo by Calla Allison

Over the last decade, the Citizen Science team at the California Academy of Sciences ([calacademy.org](http://calacademy.org)) has been developing a community of naturalists – scientists and non-scientists alike – working together to document biodiversity, connect people to their local nature, and simultaneously collect data critical to science and management. In particular, a number of ongoing Academy citizen science initiatives focus on California’s coastal ecosystems. These include Snapshot Cal Coast ([calacademy.org/calcoast](http://calacademy.org/calcoast)) – an annual California statewide effort to document our coastal biodiversity – as well as more frequent, but more spatially-limited, community bioblitzes and intertidal monitoring.

Snapshot Cal Coast is an annual statewide effort to document California’s coastal biodiversity over two weeks every summer (June 11-30 this year). Snapshot Cal Coast is a community campaign that encourages and provides opportunities for people to make and share observations of plants, animals, and seaweeds along the California coast using the [iNaturalist](#) app. We work with partners to hold a series of coastal bioblitzes over two weeks every summer. The project focuses on intertidal zones in California’s marine protected areas (MPAs), but also collects data from

any coastal influenced habitats along the California coast, including sandy beaches, bays, wetlands, and docks. Snapshot Cal Coast is led by the California Academy of Sciences, funded by the California Ocean Protection Council, with support from the MPA Collaborative Network and many, many other partners, including California State Parks.

Together we are creating a snapshot in time of where species are located along our coast. Generally Snapshot Cal Coast is held each summer during the month of June. From Del Norte to San Diego and everywhere in between, we work together to build an annual snapshot of biodiversity along the California coast that is useful for scientists at local, regional, and state levels.

At the same time we are building our community of observer and recorders interested in documenting California coastal biodiversity and helping to answer research questions in support of California MPAs. We support partners so they can hold events that work



## SNAPSHOT



## CAL COAST



*Photo by Hannah Sarver*

best for them. For some that means taking a small group of docents or summer campers out to make observations during low tide and for others that means organizing a larger public event. We are here to help and support you in designing an event that will work best at your park. If you would like to learn more about what it is like to host events from a State Parks perspective, contact Daniel Williford at Point Lobos State Natural Reserve: [daniel.williford@parks.ca.gov](mailto:daniel.williford@parks.ca.gov).

Together, we are gathering the data needed to determine species ranges now against which we can measure and monitor changes in the future. We are hoping to increase the number of State Parks partners! Are you interested? Learn more below.

Head to the coast on your own or with a group between June and September. Make and share observations of plants and animals you see, especially species on our most wanted list and in California's MPAs. Check out NOAA's tide table ([www.bit.ly/2W9B7q1](http://www.bit.ly/2W9B7q1)) to find times for low tides near you.

## How to Participate in Snapshot Cal Coast:

- # **1** Download the iNaturalist app for iPhone or Android.
- 2** Create an account to start making observations.
- 3** Follow the Snapshot Cal Coast 2021 project on iNaturalist.
- 4** Spread the word! Use our hashtag on social media #SnapshotCalCoast.

Contact Rebecca Johnson at [rjohnson@calacademy.org](mailto:rjohnson@calacademy.org) if you are interested in learning more about organizing an event or a team.



## Community Science for Stewardship of Ocean Resources



**By Angela Kemsley  
Conservation & Communication Manager,  
MPA Watch Community Science Coordinator,  
WILDCOAST**

*Photo by WILDCOAST*

California boasts the first scientifically designed network of Marine Protected Areas (MPAs) in the world, with 124 MPAs protecting 545,280 acres of wetland, coastal, and offshore habitat. Just as state parks protect resources on land, California's network of MPAs protect resources in the ocean by managing human activities within biologically important areas.

These underwater protected areas not only protect the biodiversity and abundance of marine life, but also provide amazing recreational opportunities for snorkelers, surfers, kayakers, divers, beachgoers, anglers, and anyone else who enjoys spending time at the beach. The success of these protected areas relies on compliance with MPA regulations, so monitoring human use of MPAs is crucial.

MPA Watch is a network of over a dozen

organizations that have come together to form a community science project, a special type of scientific research in which professional scientists join forces with community members to collect and analyze real scientific data. This model allows for MPA Watch programs to monitor a large geographic area while relying on volunteer data collectors from the

community. Volunteers are recruited, trained, and managed by many organizational partners. The MPA Watch network currently monitors human use in half of California's MPAs.

MPA Watch volunteers use standardized protocols to collect relevant, scientifically rigorous, and broadly accessible human use data. Data is collected by walking along the mean high tide

line of predetermined routes, referred to as transects. Along these transects, volunteers observe and record all people and boats on the beach or in the water, recording activities within appropriate categories on standardized datasheets. Data categories track onshore

**"MPA Watch is an incredible research opportunity that gives my student scientists real world science applications. They also gain ownership of marine protected area ecosystems so that they can be advocates and stewards for MPAs."**

~ Megan, San Diego teacher

and offshore as well as consumptive and non-consumptive activities including beach recreation, wildlife watching, tide pooling, surfing, offshore recreation, fishing, and boating.

In addition to engaging the public in conservation and providing educational opportunities for the new generation of ocean stewards, MPA Watch is a powerful tool for MPA management. MPA Watch compiles biannual and annual reports, available on the MPA Watch website.

Reports provide a snapshot of how humans are using MPAs in each region, as well as highlighting potential hotspots for poaching. MPA Watch reports are distributed to agencies such as the California Department of Fish and Wildlife, California State Parks, and the Ocean Protection Council. Data inform the management, enforcement, and science of California's marine protected areas, and allow our network of programs and organizations to track how the public uses coastal areas.

"MPA Watch increases eyes on the water, which improves accountability and enhances the domain awareness of MPA enforcement officials. MPA Watch volunteers are trained to call CalTIP to report potential fish and wildlife crimes and act as a force multiplier to strengthen compliance with MPA rules and regulations," conveyed WILDCOAST's California

Conservation Manager, Cory Pukini, who leads the California MPA Enforcement and Compliance Committee and also co-chairs the San Diego County MPA Collaborative.

Thanks to a grant from the Ocean Protection Council's Once Through Cooling Mitigation fund, MPA Watch has also recently partnered with California State Parks to train State Parks staff, docents, and volunteers as MPA Watch trainers and data collectors. Thus far, MPA

Watch trainings have been conducted with California State Parks in Santa Cruz, Monterey, and San Luis Obispo counties, with additional training sessions scheduled for San Diego, Del Norte, Humboldt, and Mendocino counties in 2021-2022.

MPA Watch partner

WILDCOAST has created a number of resources for educators to engage students in community science and ocean stewardship, available at [wildcoast.org/resources/educational-materials](https://wildcoast.org/resources/educational-materials) to download for free.

MPAs belong to all of us, so it is up to all of us to care for them. MPA Watch is a powerful way to help protect our coast and ocean and thanks to our numerous partners along the California coast, there is likely an MPA Watch opportunity near you. So, if taking long walks on the beach in the name of science sounds like fun or if you want to download data reports, check out [mpawatch.org](https://mpawatch.org) for more information.

**"I love that as an everyday person I can do science and help save the ocean. I have always cared about the ocean and wanted to actively do something to make a difference, but I used to think that science was too hard for me to do. MPA Watch showed me that I can be a scientist and a steward of our coast and ocean!"**

~ Alexis, San Diego MPA Watch volunteer



Santa Cruz District staff participate in an MPA Watch survey training. *Photo by California State Parks*

## PARTNERS

- California State Parks
- WILDCOAST
- Orange County Coastkeeper
- Los Angeles Waterkeeper
- Heal the Bay
- Santa Barbara Channelkeeper
- Greater Farallones Association/NOAA
- Environmental Action Committee of West Marin
- Eagle Eyes of False Klamath Cove

# Join the Respect Wildlife Campaign

By Cara O'Brien, Interpreter III, California State Parks



## ***Respecting Coastal Wildlife Begins with California State Parks!***

Increasing numbers of people have been seeking opportunities to visit the California coast and view marine wildlife. For the most part, wildlife viewing has resulted in many positive benefits, including new economic opportunities for local communities, and increased public awareness and stewardship for marine resources. However, there is growing evidence that when viewing activities are conducted inappropriately, marine wildlife can be disturbed or injured.

Frequent disturbance can adversely affect marine species. Its effects can be especially critical during sensitive time periods, such as feeding, breeding, resting, molting, or nesting. Disturbance to wildlife can cause avoidance reactions, separation of mothers from their young, increased use of energy, and unnecessary stress to individuals. Repeated disturbance may cause habituation and short- or long-term site abandonment by individuals or groups of animals.

To address the issue of wildlife disturbance, approximately fifty individuals, representing state and federal agencies, nongovernmental organizations, local businesses and citizen groups convened initially in September 2015 for the Central California Coastal Wildlife Disturbance Summit. The focus of the summit was to share research documenting wildlife disturbance, to discuss the efficacy of marine mammal regulations, and to discuss education and outreach efforts to reduce wildlife disturbance. One outcome of this summit was the formation of a multi-agency steering committee whose goal is to develop a statewide campaign to reduce disruptive human encounters with marine wildlife in coastal California. The Respect Wildlife Campaign will be adaptively managed and evaluated for long-term sustainability and success.

California State Parks in coastal areas are the perfect locations to spread the Respect Wildlife Campaign message broadly. The benefits of promoting the campaign are increased compliance with existing regulations, and ultimately, a reduction in the frequency and severity of wildlife disturbance throughout coastal California.

### Strategies

1. **Raise awareness of the impact disturbance can have on wildlife.**
2. **Influence behavior of target audience.**
3. **Encourage target audience to influence others.**
4. **Engage existing and foster new partnerships.**
5. **Unify existing wildlife protection messaging.**

### Join the Movement!

- ◆ When showcasing photos of coastal marine wildlife, choose photos that show wildlife exhibiting natural behaviors and not looking disturbed by the photographer. If there are people in the photo make sure they are exhibiting responsible wildlife viewing.
- ◆ When you provide interpretive programming, include respectful wildlife viewing tips. You can find them at [www.respect-wildlife.org](http://www.respect-wildlife.org).
- ◆ When posting on social media or sharing digital content, make sure not to share photos, videos, or memes that show wildlife that is looking directly at the camera or is clearly disturbed. Only post and share media that showcases respectful wildlife viewing and tag #RespectWildlife.



# Are You Sea Otter Savvy?

By Gena Bentall, Director, Sea Otter Savvy

Photo by Sea Otter Savvy/Gena Bentall



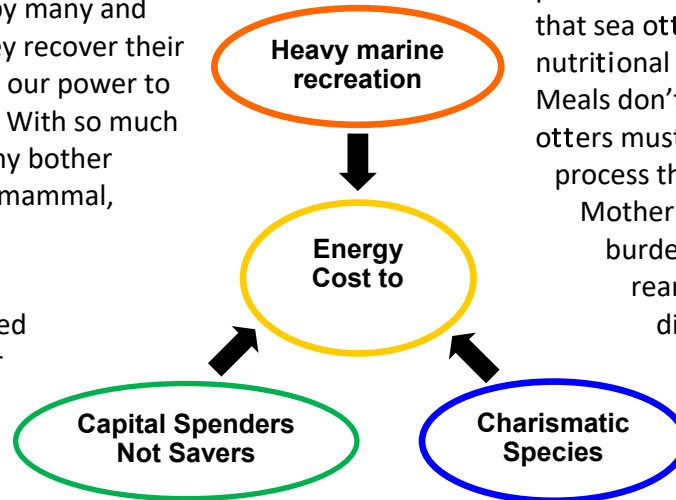
During the maritime fur trade of the 1800s, Southern sea otters were nearly eliminated from the California coast because humans coveted their fur. In the wake of this species-level disaster, our

cities, recreational activities, fisheries, and businesses have grown up and boomed in their relative absence. They are now returning to their homes along our coast to forage for clams, rear their pups, and find safety from sharks. Today, about 3,000 sea otters make their homes between Gaviota and Half Moon Bay. Their presence is enjoyed by many and begrudged by a few. As they recover their former range, we have it in our power to help or hinder their return. With so much to think and care about, why bother about the smallest marine mammal, our charismatic seashore neighbors: the sea otters?

Sea otters are often referred to as a keystone species, or a species that, if removed, causes a drastic change in an ecosystem. For example, in Elkhorn Slough, sea otters prey on crabs which feed on sea slugs. Sea slugs feed on the algae that grows on blades of eelgrass. Without sea otters, the crab population increases leading to a decline in sea slug population which leads to an increase in algae, diminishing the overall health of the eelgrass bed. Sea otters have characteristics that make them unique from other marine mammals, but also make them especially sensitive to oil spills, pollution, changes in food supply, and human disturbance.

Sea otters are unique marine creatures. They lack blubber and rely entirely on the record-setting density of their fur coat to insulate a hot-burning metabolism which maintains body temperature in the cold ocean. Without the energy reserves of a fat layer, that metabolism must be refueled continuously, resulting in the sea otters' notorious appetite (and need to consume an average of 4,000-5,000 (kilo) calories, or 25% of their body weight in food every day!)

Sea otters are capital spenders. Anyone who has lived paycheck to paycheck can understand the perils of balancing a checkbook—a task that sea otters mimic when keeping their nutritional “account” in balance every day. Meals don’t come easy, meaning sea otters must swim, dive, search, and process the prey they need to survive. Motherhood doubles the nutritional burden, and sea otter mothers rearing pups are especially at risk of disturbance.



Disturbance to sea otters results when people (paddle-sport recreationists, in most cases) approach resting sea otters, causing the

animals to feel threatened, dive, or swim away. Behaviors such as diving, swimming, grooming may be perceived as natural behaviors, unrelated to a paddler’s proximity, when in fact they are otter escape responses. Paddlers may get too close for a variety of reasons including: the pursuit of a photo or selfie, to have an “up close and personal” experience, or because they are simply unaware of the presence of sea otters, which can be difficult to spot from a paddlers perspective. A sea otters’ “first alert” signal that flight

is imminent – raised head and alert gaze – is some. mes mistaken as a photo opportunity instead of a warning to keep away.

Due to increasing frequency of disturbance to sea otters by human marine recreation activities, influential sea otter agency and organizations representatives convened for the Southern Sea Otter Research Update Meeting held in Santa Cruz during the spring of 2014. It was here that the idea of a program dedicated to creating awareness of the unique vulnerability of sea otters to disturbance was conceived. Together we agreed on the importance of fostering an ethic of good stewardship, and realized that most disturbance is the result of lack of awareness rather than intent to do harm. Most people paddling up to a raft of wild sea otters have little understanding of sea otter behavior, and no recognition that their actions may be disruptive and harmful. Members of the working group agreed that the state and federal laws (Endangered Species Act and Marine Mammal Protection Act) protecting sea otters from disturbance and harassment were ineffective at preventing chronic, daily incidents. Through the collaborative efforts of the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, Monterey Bay Aquarium, and many other partners, a new research and outreach-based program, Sea Otter Savvy, was developed.

Dedicated members of Sea Otter Savvy’s community science team collect data on the effect of human activities on sea otter behavior at seven central coast sites, including in Moss Landing, Monterey, Morro Bay, and Avila Beach. The goals of this research program include seeking a better understanding of the hidden costs of human-caused disturbance (energy costs, stress, habituation, habitat use), as well

as tracking changes in disturbance levels over time. Sea Otter Savvy has locations that are “Disturbance Hot Spots,” places where high levels of marine recreation co-occur with important sea otter habitat.

**Based on our research, among the highest rates of human disturbance to sea otters occurs in the Moss Landing/Elkhorn Slough area, where a typical resting sea otter may be startled from six to as many as 20 times in one 12-hour daylight period.**

At Sea Otter Savvy we passionately believe in outreach as the strongest force for change. Fostering awareness and providing guidelines are a start, but these are not the complete solution. The number of visitors to our central California coast is growing with no sign of slowing down. We want them to come – we encourage them to come experience our wild places and wildlife. Those of us tasked with protecting the remaining wilderness must work together to be sure that each invitation we extend is accompanied by the “rules of the house” – the courtesy that should be expected of any guest in someone’s home. We can no longer afford the luxury of the invitation without the rules. Catching up with what the tourism industry has long known, the natural places of the California coast draw multitudes, we are now in the mode of damage control. When asked what I have found most challenging about this program, I often answer, “People are going to do what they want to do. My job is to change what they want to do, and that’s hard.” It is hard, but not impossible, and we must be committed to this mission as a long game. Join us at [www.seaottersavvy.org](http://www.seaottersavvy.org) and @SeaOtterSavvy on social media. Use #seaottersavvy and #respectthenap.

## Kayaker vs. Sea Otter



“A few sea otters dive or swim away at my approach. What harm is that?”



“Being highly charismatic species with a cuddly visage that has been well-honed by the internet is tough! Hundreds of kayakers visit our homes in a single day, which adds up to a whole lot of disturbances! Not to mention, people drop in for a visit more frequently during summer months, on holidays, and during good weather.”



# Becoming a Community Scientist



*EAC/Morgan Patton*

**By Morgan Patton**

**Executive Director, Environmental Action Committee of West Marin**

**Marin MPA Watch Program Director & Golden Gate MPA Collaborative Co-Chair**

In California, our coast and ocean are some of our most treasured resources and require meaningful long-term protections to safeguard the diversity and abundance of marine life, habitats they depend on, and the overall integrity of ecosystems. Unfortunately, over the last 50 years we have witnessed record losses of marine habitats and biodiversity in our coast and ocean ecosystems due to over consumption from over-fishing; impacts of climate change including warming waters and ocean acidification; invasive species; industrial pollution from oil spills and nutrient rich runoff; and plastic pollution that has created a crisis. Like parks on land, marine protected areas (MPAs) protect wildlife and habitats with a goal to preserve the integrity of the ecosystem in order to increase overall health, productivity, and resilience.

The Environmental Action Committee of West Marin (EAC), a small nonprofit based in Point Reyes Station, identified the need to create a program to support California's MPA network. We partnered with MPA Watch and the Golden Gate MPA Collaborative to amplify our ability to support MPAs and provide outreach and education. These programs allow EAC to increase our ability to assist in protecting the diversity and abundance of marine life, the habitats they depend on, the integrity of marine ecosystems in California, and expand our community stewardship.

In Marin County, the Marin MPA Watch program has collected more than 1,000 surveys across six MPAs located in Marin and has trained more than 200 community members to conduct surveys and act as MPA advocates. Our program includes connections with our local community members and school groups to educate about MPAs. MPA Watch data builds bridges with resource managers to improve outreach,

and enforcement of MPAs. (See article on Page 28.)

In the San Francisco Bay Area, the Golden Gate MPA Collaborative raises awareness of MPAs in Marin and San Francisco counties, including the Farallon Islands. In 2019, the Golden Gate Collaborative created an online resource for statewide coastal docent programs to learn more about the network of MPAs in California. The free online classroom is an excellent tool for any California-based program to provide MPA education to volunteers and docents. The online classroom consists of seven modules that dive into the challenges our coast and oceans face, the establishment and location of California's MPAs, how MPAs work, what more needs to happen, and how to connect with local groups working to protect our coast and ocean through the support of MPAs. Visit [www.ggmpacollaborative.thinkific.com](http://www.ggmpacollaborative.thinkific.com) to access the online classroom.

The online training is used by EAC in our Marin MPA Watch program as it provides an additional layer of training to expand understanding of MPAs and the current health of our ocean and coastal ecosystems for our volunteers. Program managers seeking to amplify their MPA programs can access a wealth of resources for education, outreach, community science data collection, and online tools to enrich coastal and marine programming without reinventing the wheel.

Don't take our coast for granted, protect what you love and find a way to tap into a program to support MPAs in California. For more information about the work EAC is doing with marine protected areas, visit [www.eacmarin.org](http://www.eacmarin.org).

# Explore My MPA

## *Educational Programs with WILDCOAST*

By Lisa Gilfillan

Ocean Conservation & Education Coordinator, WILDCOAST



Students participate in a WILDCOAST Floating Laboratory off the coast of San Diego. *Photo by WILDCOAST/Krissel Rivas*

Whether you live on the coast or hundreds of miles inland, we all benefit from marine protected areas (MPAs). However, these protected areas face a slew of challenges, including poaching, urban runoff, and pollution. Additionally, residents in MPA-adjacent communities are often completely unaware that these spaces exist. WILDCOAST is approaching these obstacles with a two-pronged approach: working with MPA enforcement officials to provide trainings and on the ground support in the MPAs, and actively engaging local communities in MPAs through outreach, teacher trainings, and the youth Explore My MPA program. WILDCOAST has chosen to get students out of their classrooms and into MPAs because in the words of Freeman Tilden:

**“Through understanding, appreciation; through appreciation, protection.”**

Functioning as both strongholds of biological diversity and drivers of ecotourism and recreation, California’s MPAs are some of the most visited coastal places in the state. Despite this, many local residents are not aware of the extent and value of MPAs and there are

few MPA-based opportunities for students in underserved, park-poor, Title 1, and local indigenous communities. This is where WILDCOAST’s Explore My MPA project comes in.

Since 2012, WILDCOAST has given students and educators the opportunity to learn hands-on, explore, and connect with local MPAs, in order to help build local stewardship and strengthen conservation. Thus far WILDCOAST has engaged over 10,000 students in unique experiential learning, stewardship, and recreation activities that include guided kayak tours, boat-based field excursions and data collection, and interactive experiences with coastal and marine research.

WILDCOAST provides two field-based opportunities for students and educators: Floating Laboratories and Shoreline Laboratories.

**Floating Laboratories:** During these three-hour research trips aboard a commercial fishing vessel, students collect and analyze data on local marine ecology and human use using state-of-the-art open ocean data collection technologies. Students are



Students use a Van Doren sampler during a floating lab. *Photo by WILD Coast*

broken into three groups; Plankton, Water Quality, or Marine Science Technologies (using Remotely Operated Vehicles) and carry out laboratory exercises and record results in the field. Students present their findings and draw conclusions based on Floating Laboratory exercises and the teachings of the day.

**Shoreline Laboratories:** These full-day experiences include a graduate student-led behind-the-scenes tour of the Scripps Institution of Oceanography pier and research aquarium. They carry out human use community science data collection for the MPA Watch community science program. Finally students receive a guided kayak tour through the MPA to observe wildlife that benefit directly from the MPA and experience the recreational value of our MPAs firsthand.

The Explore My MPA program has long lasting impacts. In the words of one Mar Vista High School student: “WILD Coast’s Explore My MPA Project impacted me deeply in terms of being able to

experience the beauty of the California Coastline – even people in Utah can read books and articles about the different effects, but until you get out there and smell the salt air, taste the salt spray, feel the water under your fingers, and see the awesome sea life swim by underneath and beside you, your senses don’t fully get the big picture – going out and experiencing the benefits of MPAs creates a bond that makes you want to do it again and again.”

It’s not just students who benefit from the Explore My MPA program though. Data collected during these programs are shared with partner organizations and agencies including the California MPA Watch Program, California Department of Public Health’s Marine Biotoxin Monitoring Program, California Department of Fish and Wildlife, MPA Collaborative Network, and others. This data collected by students is then used to enhance ongoing MPA research, outreach, and monitoring to help guide overall MPA management in California, and beyond.

MPAs were/are established because the ocean and the things that live in it face many dangers. WILD Coast, and the [Explore My MPAs](#) project, contribute to research and our outreach efforts help to guide MPA adaptive management while also empowering a new generation of coastal stewards. The equation is simple, by turning off their phones and engaging youth in real hands-on research, community science data collection, and outdoor recreation we know that students are deepening their understanding, appreciation, and ultimately their protection of California’s marine natural heritage and resources.



*Photo by WILD Coast*



*Photo by WILD Coast/Diane Castaneda*

Left: Students hold a piece of bull kelp during Explore My MPA program. Right: Students conduct an MPA Watch survey in La Jolla.



# Exploring the Deep with MARE

## *Marine Applied Research & Exploration*



*Photo by CDFW/MARE*

**By Heidi Lovig, Chief Science Officer, MARE & Greta Goshorn, Biologist/Data Management Specialist, MARE**

California's statewide network of 124 MPAs safeguards marine ecosystems in order to ensure the long-term sustainability of marine populations. MPAs also act as a living laboratory to help increase the understanding of outside impacts on marine life. Some of the habitats protected by MPAs are familiar to Californians, whether you enjoy bird watching at an estuary, have visited tide pools along the coast, or spend time strolling along sandy shores. Maybe you've had the pleasure of kayaking over a dense kelp forest, or diving near a colorful rocky reef. Few people, though, are able to visit the sixth key habitat protected by California's MPA network: submarine canyons, thriving in darkness, thousands of feet below the surface.

[Marine Applied Research & Exploration \(MARE\)](#) was founded in 2003 in recognition of the need to combat the deficit in data on deep-water rocky habitats along the California coast. In order to meet important baseline and long term MPA monitoring standards laid

out by the state of California, MARE developed the remotely operated vehicle (ROV) Beagle, which can be deployed from a research vessel at sea to explore depths of the ocean beyond SCUBA depth. ROVs and unmanned submersibles are designed to withstand the immense pressure exerted at depth. The Beagle is

rated to 1,000 meters and has explored some of the most amazing underwater habitats on California's coast in an effort to characterize and document California's MPA network.

The deepest rated ROVs in the world today are rated to a whopping 11,000 meters! One ROV (ABISMO) was designed to take sediment samples from the deepest point in

the Marianas Trench, while another ROV (Argo) discovered the Titanic. However, an ROV doesn't have to be able to go quite that deep in order to explore the wonders of places like California's deep MPAs.

When it's time for an expedition, the Beagle and MARE crew are transported to the site of deep sea MPAs on a research vessel from which the Beagle is then deployed. Once it is placed in the water, the ROV



*Photo by CDFW/MARE*



Photo by CDFW/MARE

is controlled by a pilot. The pilot, equipped with a remote control, is seated within the cabin on board the ship. Communication between ROV and pilot is made possible via a long cable called an umbilical, which allows the pilot to control the Beagle's position and speed while observing the habitat over which it is flying. While cruising just above the sea floor, the Beagle captures HD video and photo imagery of deep-water regions, giving us a view of never-before-seen areas of California's deep ocean, all while collecting specimens, water samples, and water chemistry. This deep sea MPA data is then annotated by biologists for habitat type, and fish and invertebrate species, and cover.

This information is linked to the position of the Beagle, allowing a spatial view of the habitat and associated species distributions. Combined, these data are used to evaluate the effectiveness of California's MPA network and help to inform management decisions into the future.

Over a period of 14 years, the Beagle and its predecessors, under the watchful eyes of the CDFW and MARE, have completed MPA monitoring expeditions throughout California--from La Jolla Canyon off of San Diego, as far north as Point St. George off of Crescent City.

## A Window to the Deep

On the rugged Lost Coast off Petrolia, California, there lies 25 kilometers of protected ocean called Mattole Canyon State Marine Reserve (SMR), a jewel of California's Marine Protected Area (MPA) network. This unique marine reserve is 14% deep submarine canyon, revealing water clarity and a stunning ecosystem unlike anything on the North Coast. This canyon is also one of the most dynamic survey sites on California's coast. The weather in this area is fierce with large swells, strong currents, and rapid, unforgiving forecast changes. The canyon itself lies at a triple junction of tectonic plates. As the most westward of any MPA in California, this area is highly exposed to currents which gather strength as they barrel downward into the canyon. With depths ranging from 25 meters (80 feet) to 500 meters (1,600 feet), much of this MPA is beyond SCUBA depth; some of the most incredible ecosystems in this reserve exist on the deeper end of that spectrum. So how does California monitor this unique and fascinating area?

In 2014 and 2015, the Beagle made several difficult journeys out to Mattole Canyon and captured the beautiful photos in this article. Andrew Lauermann, MARE's Director of Science and Operations, ranks this "one of the most challenging and unique dive locations" he has surveyed in over 20 years. It takes hard workers like the Beagle and the talented engineers, ROV pilots, biologists, and other invaluable staff to make each expedition successful and extract meaningful data from the Beagle's footage. Without their hard work we may still not know how incredible deep-water habitats like the Mattole Canyon are, and how important these habitats are to the amazing network of MPAs.



Photo by CDFW/MARE

# Seeing More with Seamore

By Emily Pomeroy, Program Manager, Save Our Shores

Photo by California State Parks

“Then it happened... we found some marine debris!” Save Our Shores intern Julia Anderson writes excitedly. On her second dive with Seamore in April of 2019, Julia was thrilled to have found a cigarette butt along the floor of the Santa Cruz Harbor. Although we don’t normally get excited about finding litter in the ocean, this discovery was particularly exhilarating because it was the first piece of underwater debris that Save Our Shores was able to film with Seamore.

Seamore is a Trident mini-Remotely Operated Vehicle (ROV), one of two underwater drones donated to the Santa Cruz County Marine Protected Area (MPA) Collaborative by Sofar Ocean (formerly OpenROV) through National Geographic’s Science Education Exploration (S.E.E.) Initiative. Through this partnership, each of the 14 Collaboratives in the MPA Collaborative Network received grant-funded Tridents. These unique machines are shared resources for all Collaborative members to utilize. Save Our Shores, a member of the Santa Cruz Collaborative, was fortunate enough to become the host organization for Seamore.

Since receiving Seamore, ten expeditions have been completed and videos were recorded under the surface of the water. Through each dive, more is learned about the extent of debris in the local marine environment. With the data collected through these expeditions, we hope to gain insight as to how trash moves, accumulates, and persists in local MPAs due to tides, weather conditions, and other dynamics. Additionally, we are building upon our existing data collected during beach cleanups to identify the most common types of underwater marine debris and the brands, producers, or sources of litter in the Monterey Bay National Marine Sanctuary.

Our ROV expeditions are a wonderful way to build understanding of the importance of MPAs and the types of threats they face. Seamore offers a window into a world we rarely see. Diving below the surface of the water, this mini ROV shows us the immense

beauty and biodiversity that our MPA’s hold, but that few have the opportunity to experience or witness for themselves.

Videos of Seamore’s expeditions can be viewed at <https://saveourshores.org/rov-project/> and our social media accounts. We will be working on creating a live blog that people can follow to receive notifications about our most recent dives. We look forward to continuing to explore these beautiful underwater parks and sharing our experiences with others. Santa Cruz County Collaborative members are also encouraged to use Seamore for their own projects. If you are interested in joining the Collaborative and having access to these ocean exploration tools, please reach out to the Co-Chairs (contacts on [mpacollaborative.org](http://mpacollaborative.org)) to inquire about getting involved.

*A special thank you to Sofar Ocean, the MPA Collaborative Network, and the S.E.E. Initiative for developing this project and donating the ROV to our collaborative. Thank you to SOS interns Julia Anderson, Phoebe Gross, and Abby Herhold for working diligently on the ROV project.*



Krista Rojers, Alejandro Garcia, and Abby Herhold (L-R) pose in the Santa Cruz Harbor with the ROV, Seamore. *Photo by Save Our Shores*



Photo by Timelooper

# Dive into Point Lobos

By Erika Delemarre

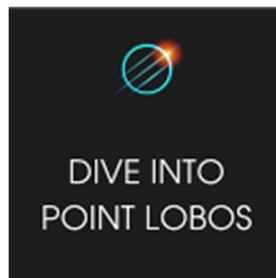
MPA Outreach & Education Project Coordinator, California State Parks

Fans of California State Parks can now virtually explore the magic of a kelp forest and the depths of a submarine canyon thanks to a new partnership with Timelooper and California State University Monterey Bay (CSUMB). Utilizing 360° cameras and three-dimensional (3D), augmented reality (AR) design, the new app highlights unique and often inaccessible underwater habitats found just off shore of Point Lobos State Natural Reserve. Curious explorers can now access these State Parks treasures from the comfort of their own homes.

The app allows users to dive deep into the marine environment found within the Point Lobos State Marine Reserve, one of the oldest MPAs both in California *and* the United States. Inquisitive explorers are invited to dive deep with CSUMB researchers as they scuba dive through a thriving kelp forest, a deep submarine canyon, and a desolate urchin barren. Along the way, app users will learn about species that live in these different marine habitats and get a better understanding of how MPAs safeguard the waters and wildlife found around Point Lobos.

Many students and members of the public are unable to don scuba diving gear to experience the beauty of Point Lobos Marine Reserve. This app provides an

opportunity for the public to explore the underwater world in a new and easily accessible way. During a time when students are restricted from taking field trips, the Dive into Point Lobos app will be an engaging tool to support their distance learning and keep families engaged with California State Parks and MPAs.



The MPA Outreach and Education Project collaborated with CSUMB's James Lindholm and the California Undersea Imagery Archive to capture the 360° underwater photography as well as fund the development of the app. Scan the QR codes below to download the Dive into Point Lobos app

for free for iOS or Android now!

This app is one of many digital learning resources developed in conjunction with Parks Online Resources for Teachers and Students (PORTS) Program. Visit the PORTS Digital Content Library for other engaging interpretive resources to share with your park



# Monitoring Marine Protected Areas with Reef Check California

By **Tristin McHugh, M.S.**  
North Coast Regional Manager, Reef Check California

*Reef Check California/Elizabeth Sullivan*

Where the Pacific Ocean meets the coast of California is one of the most diverse and productive ecosystems in the world. Hundreds of miles of a narrow continental shelf, deep underwater canyons and springtime winds promote exceptional productivity and rich biodiversity in the nearshore temperate rocky reefs. In 1999, the California Legislature voted and passed the Marine Life Protection Act (MLPA) which legally required the state of California to design, implement, and enforce a network of Marine Protected Areas (MPAs) throughout the state. The intent and goals of the network within the confines of state waters are to ensure ecosystem protection, sustain fisheries, and preserve cultural resources.

Following the passing of the MLPA, researchers and stakeholders spent the next 13 years working together to develop a network of MPAs that would extend throughout the state. One of the goals of the MPA Network was to create a monitoring protocol that aligned with scientific guidelines, and target areas that represented the diverse array of habitats present along the California coast such as kelp forests and rocky reefs, intertidal zones, seagrass beds, seamounts, and deep submarine canyons. In addition, effective implementation of the MLPA required that MPAs be large enough and spaced closely together to protect reproductive adults and facilitate the dispersal of their young into areas surrounding MPAs. Lastly, within the designated network, multiple MPAs needed to be present within coastal regions and habitat types to ensure connectivity of the network

and ensure protection should one MPA experience an environmental disaster.

The first of four installments of the MPA network in California was set in the Central Coast, then graduated to the North-Central Coast, South Coast, then finally the North Coast in 2012. Statewide, there are a total of 124 MPAs within the network, and ultimately increased the protection of California waters from 2.7% in 1999 to 16.1% in 2012. Enforcement of these protected areas is overseen by the California Department of Fish and Wildlife (CDFW) Wardens. Citizens are encouraged to notify the CDFW via the CAL-TIP hotline (888-334-2258) to report poachers and/or any illegal activity occurring within protected areas. However, education and outreach is needed for Californians to become aware of MPA regulations and avenues for them to become involved in the monitoring of these areas.

Since 2006, Reef Check California has been dedicated to monitoring temperate rocky reefs throughout the entire state of California, including the Channel Islands. By training citizen scientists in standardized underwater monitoring protocols, we are able to study these kelp forest and rocky reef ecosystems over a large geographic scale and develop a long-term data set capturing the fish, invertebrates, algae, and habitats present at each of the sites. This collaborative approach ensures high-quality data, and scientific oversight while encouraging public participation in a long-term research project. With the development of the MPA Network, Reef Check





Photo by Reef Check California

annually monitors targeted sites inside and outside MPAs to provide critical scientific data to better understand the effectiveness of the MPA Network. To date, Reef Check divers have conducted over 1,000 surveys in over 110 sites statewide. With every year that passes, Reef Check continues to build our long-term data set and involve more Californians in the process; since program beginnings in 2006, over 1,500 divers have completed the Reef Check course.

Reef Check California directly allows the MPA monitoring program to develop a local presence by educating the public through experience. MPAs in the state of California vary in their level of protection, and it is our responsibility as Californians and ocean-enthusiasts to be aware and abide by the laws present. Diving with the Reef Check program ensures that divers are aware of the regulations surrounding the location of their dives. In addition to involving the public in monitoring California's MPAs, Reef Check divers often make rare observations or critical observations pertaining to our understanding of this marine ecosystem. For example, following the marine heatwaves (2013-current), many organisms underwent range shifts

and were being observed in new locations (Lonhart et al., 2019). Because of the familiarity of Reef Check divers to their monitoring sites, and being able to distinguish a rare species, our divers have been able to capture some of these range expansions. This included the arrival of adult lobsters, barred knifejaw and crowned urchins in the Monterey Bay as well as the largemouth blenny in Southern California and diseased urchins in Northern California.

As the seas continue to change, these observations and the rapid dissemination of these findings by Reef Check divers on their data portal ([www.data.reefcheck.org](http://www.data.reefcheck.org)) and media platforms allow this critical information to be passed along to interested researchers in real time. This is only made possible by the Reef Check program educating the public on local underwater flora and fauna and creating a platform for them to share their observations and findings. The biological and oceanographic information collected by Reef Check divers during the annual monitoring of MPAs will only become more robust with time. This data will directly assist the state of California in the evaluation and adaptive management of the MPA network.



Photo by Reef Check California

#### Citations:

J. Freiwald, S. McMillian, D. Abbott, T. McHugh, K. Kozma. (2019) Reef Check California Instruction Manual: A Guide to Monitoring California's Kelp Forests, 9th Edition. Reef Check Foundation, Marina Del Rey, CA, USA. ISBN: 0-9723051-9-X

Lonhart, S.I., Jeppesen, R., Beas-Luna, R. et al. *Shifts in the distribution and abundance of coastal marine species along the eastern Pacific Ocean during marine heatwaves from 2013 to 2018*. Mar Biodivers Rec 12, 13 (2019). <https://doi.org/10.1186/>

# SOS: Saving Our Seals... and other marine mammals



**By Julia O'Hern, Ph.D.**  
**Monterey Bay Operations Manager,**  
**The Marine Mammal Center**

*Photo by The Marine Mammal Center/Brian Simuro*

The arrival of spring brings both human and animal visitors to our beaches. During this time of year, California sea lion pups wean from their mothers and begin exploring the oceans by themselves. Harbor seal pups will fill protected rookery areas as well as other beaches between March and May. The Marine Mammal Center is the world's largest marine mammal hospital with rescue centers throughout northern California. The center, in collaboration with partner organizations from the West Coast Marine Mammal Stranding Network, is busy each spring responding to pups and animals who may just be getting a little too much attention from the public.

Facilitating shared use of our California beaches is a rewarding and challenging experience because helping the public enjoy nature responsibly is an invaluable tool in promoting ocean stewardship. Below are some strategies for reporting marine mammals that you or the public may encounter while out enjoying the California coast.

First, it is important to remember that seals and sea lions belong on beaches. Unlike whales or dolphins, seals and sea lions spend part of their lives on land. Each species is a little different—some, like adult elephant seals, may only come

ashore to breed and molt, while others, like California sea lions, may come ashore throughout the year to rest. However, all of these animals will at some point use our beaches, docks, jetties and other coastal areas to rest.

At the Center, we often receive calls from the public concerned that a seal looks too dry on the beach. It is important to reassure beachgoers, especially those people who may just be visiting the coast for the first time, that these animals want to rest on land. Seals and sea lions do not need water poured on them and should not be moved back into the ocean.

Guidelines recommend the public keep a distance of 50 feet, or the length of approximately two school buses, between themselves and marine mammals on beaches. If you notice the animal is looking at you, you've created a disturbance and should give that animal even more space.

Pups are especially delicate, even the more robust elephant seals! Elephant seals are typically weaned from their mothers by the time people encounter them on our beaches. They are oceanic and deep divers... once they grow up. The snot and mucus you may see on their noses and eyes is normal.

They may not react to close human presence right away, but it is so important not to closely approach them. Elephant seal pups need to rest and recuperate in between foraging trips in the ocean.

Sea lions are especially intelligent and curious. It can be difficult not to interact with them, but if they habituate to humans, they may become a danger to the public as well as losing the skills they need to survive on their own. If a sea lion is interacting with people, it is important to call a stranding hotline number **(415-289-SEAL)** and advise the public to give that animal space.

Harbor seal mothers are skittish and will quickly abandon their pups if people or dogs are in the area. However, just because a small pup is alone on a beach does not mean that it has been orphaned. Harbor seal mothers will leave their pups for a few hours or even a full day when they go out to feed or feel threatened. Many of these seal mothers will come back for their pups once people and dogs are no longer in the area. Remember, these animals will see you before you see them! You can prevent pups from being orphaned when you and your dog give them plenty of space.

### 3 Best Tips to Safely View Pups

1. **Keep a Safe Distance.** Whether on the water viewing marine life in a kayak or seal pups on local beaches, a great wildlife viewing experience starts with keeping your distance.
2. **Use Your Zoom.** It's ok to take photos and admire the animals, but if you're so close that you're not using your zoom or they're reacting to you, then you're too close. No SEAL-FIES please!
3. **Call Us.** If you see a seal or sea lion in distress, call The Marine Mammal Center's rescue hotline at **415-289-SEAL (7325)**. The Center will monitor the animal and, if necessary, send a trained responder to rescue it safely.



### Important Phone Numbers

#### **The Marine Mammal Center:**

San Luis Obispo to Mendocino Counties  
(415) 289-SEAL

#### **West Coast Region Stranding Hotline:**

1-866-767-6114

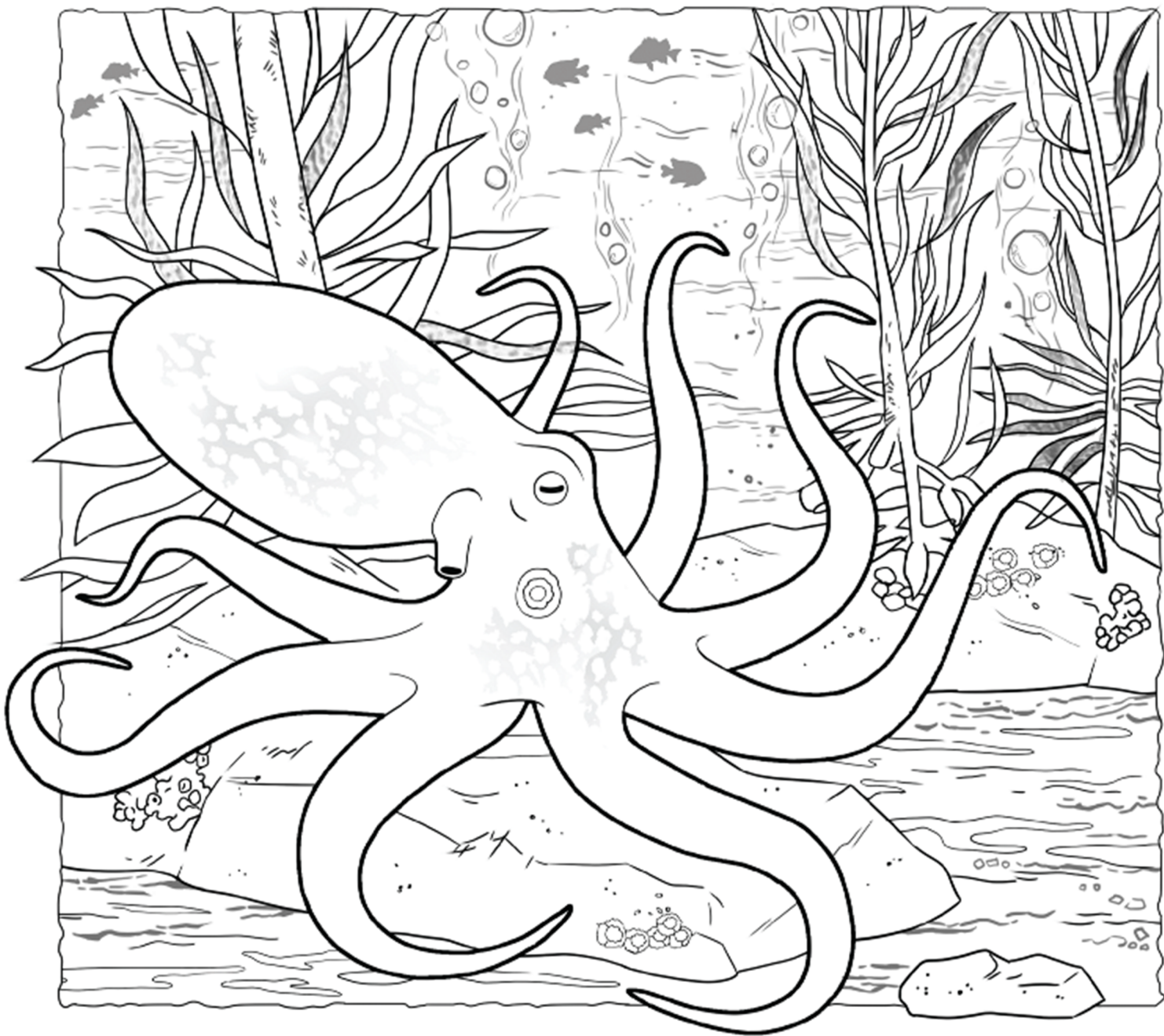
#### **Entangled Whales: 1-877-SOS-WHAL**

#### **Report harassment or other violations to law enforcement:**

**NOAA Law Enforcement: 1-800-853-1964**

### Reporting a Stranded Animal

1. **Location:** your GPS location, landmarks, cross streets, pin from your cell phone or description of how you found the animal will help responders locate the animal.
2. **Animal description:** size is especially important since this will impact the equipment and number of responders required to help the animal. The animal's color, presence or absence of ear flaps, vocalizations, and behavior are all helpful for responders in determining the species. Photos, taken from a distance, are also helpful. Please also note if there are injuries.
3. **Disturbance:** are people, dogs, other marine mammals, or vehicles nearby? This will help responders prioritize and plan for responses.



## California two-spot octopus (*Ophiodon elongatus*)

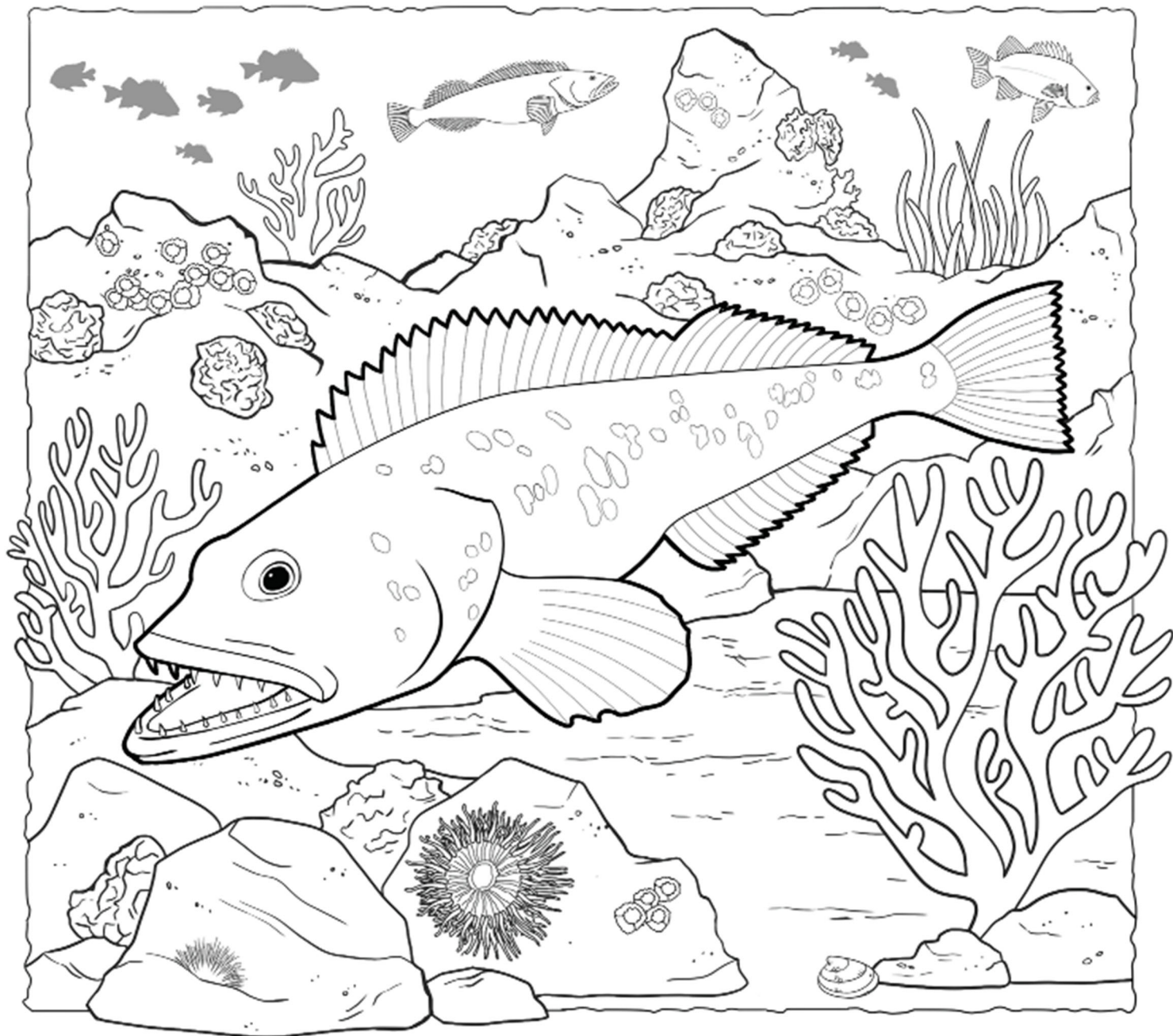
To see your coloring come to life and learn more about the California two-spot octopus, download the free Quiver app and scan this page with your smart phone or tablet!

## Pulpo de dos manchas de California (*Ophiodon elongatus*)

Para ver cómo cobra vida lo que coloreaste y para saber más sobre el pulpo de dos manchas, descarga la aplicación Quiver y escanea esta página con tu teléfono o tableta.



[mpacollaborative.org](http://mpacollaborative.org)



## Lingcod (*Ophiodon elongatus*)

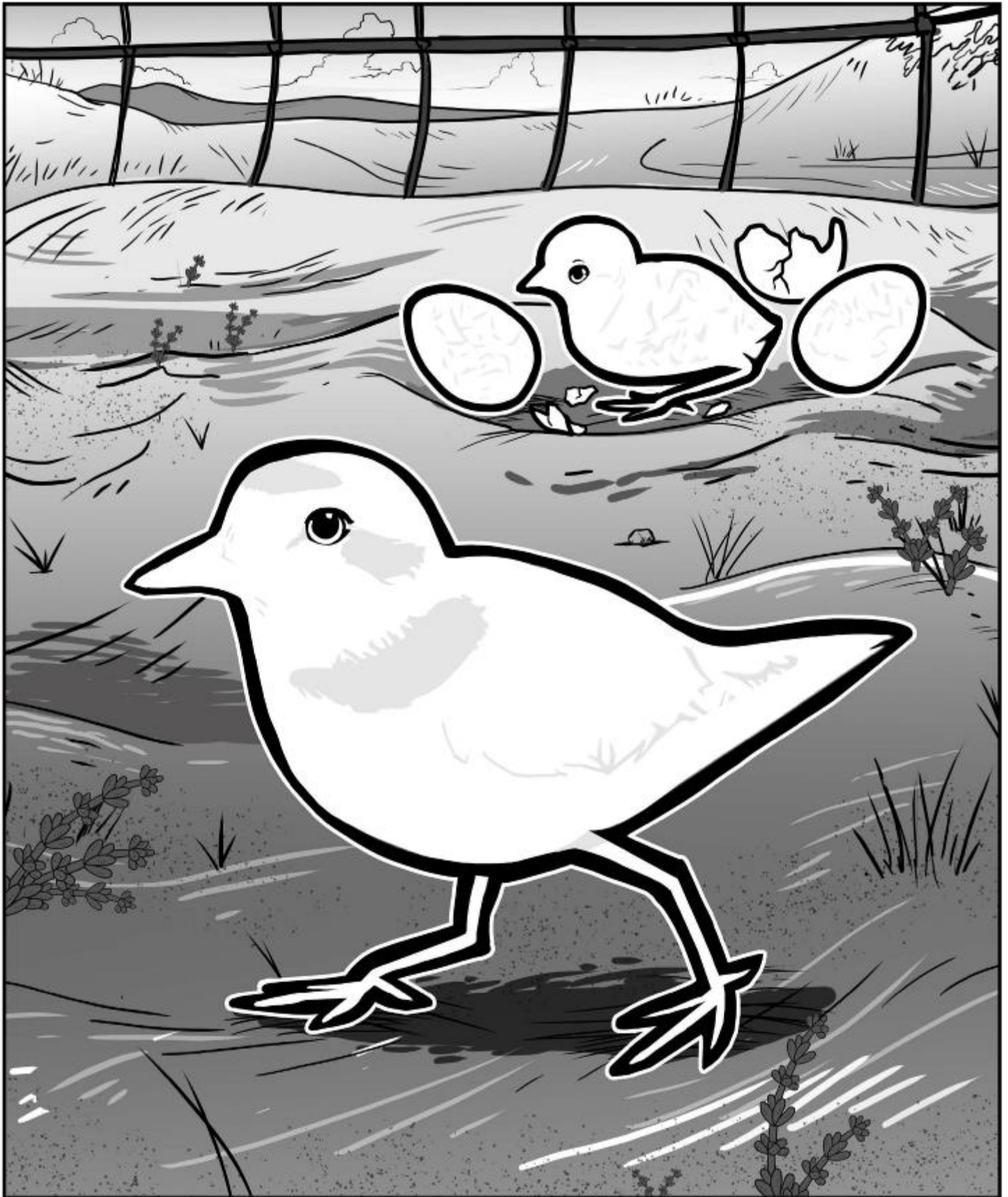
To see your coloring come to life and learn more about the lingcod, download the free Quiver app and scan this page with your smart phone or tablet!

## Bacalao (*Ophiodon elongatus*)

Para ver cómo cobra vida lo que coloreaste y para saber más sobre el bacalao, descarga la aplicación Quiver y escanea esta página con tu teléfono o tableta.



[mpacollaborative.org](http://mpacollaborative.org)



Western Snowy Plover  
visit us at  
[www.parks.ca.gov](http://www.parks.ca.gov)



AVAILABLE ON



# RESOURCES FOR INTERPRETERS



CDFW hosts all MPA resources online including MPA posters, brochures, maps, and overview sheets.

Visit: [www.wildlife.ca.gov/Conservation/Marine/MPAs](http://www.wildlife.ca.gov/Conservation/Marine/MPAs)

For an interactive ocean sport fishing web map, visit:

[www.wildlife.ca.gov/OceanSportfishMap](http://www.wildlife.ca.gov/OceanSportfishMap).

If you see an MPA violation, contact [CalTIP](http://CalTIP) (1-888-334-2258 or text 847411) to alert a wildlife officer.

The Fish Legal app provides offline MPA maps and statewide fishing regulations. Using location services, you can view your current location in relationship to nearby MPAs.

Visit: [www.fishlegal.info](http://www.fishlegal.info)



PORTS: Parks Online Resources for Teachers and Students® is proud to present our MPA Outreach and Education Project which connects students and members of the public to our state's marine protected areas. Visit: [www.ports-ca.us/home/mpas](http://www.ports-ca.us/home/mpas)

The MPA Collaborative Network aims to empower coastal communities to advance MPA management and encourage ocean stewardship. Join your local collaborative today!

Visit: [www.mpacollaborative.org/collaboratives](http://www.mpacollaborative.org/collaboratives)



Participate in Snapshot Cal Coast using iNaturalist! Your observations will create research quality data for scientists working to better understand and protect nature. Visit: [www.inaturalist.org](http://www.inaturalist.org)

MPA Watch is a network of over a dozen organizations that have come together to form a community science project to monitor human uses of MPAs. You can contribute too!

Visit: [www.mpawatch.org](http://www.mpawatch.org)



I love my  
MPA!

Look inside to learn about  
marine protected areas!



*Photo by Emily Pomeroy, Save Our Shores*



**Interpretation and Education Division**  
**PO Box 942896**  
**Sacramento CA 94296-0001**