

OLYMPIC COAST NATIONAL MARINE SANCTUARY

A Report for Sanctuary Advisory Council Members Reporting Period: JUL 11 – SEP 15, 2020

ABOUT THE SANCTUARY

Olympic Coast National Marine Sanctuary spans 3,188 square miles of marine waters off the rugged Olympic Peninsula coastline. The sanctuary extends 25 to 50 miles seaward, covering much of the continental shelf and several major submarine canyons.

The sanctuary protects a productive upwelling zone home to numerous marine mammal and seabird species, diverse populations of kelp and intertidal algae, and thriving invertebrate communities. The sanctuary is also rich in cultural resources, with over 200 documented historical shipwrecks and the vibrant contemporary cultures of the Makah, Quileute, and Hoh Indian Tribes and the Quinault Nation.

OLYMPIC COAST NATIONAL MARINE SANCTUARY NEWS AND PROGRAM UPDATES

Organized by Olympic Coast National Marine Sanctuary (OCNMS) management priorities

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TREATY TRUST RESPONSIBILITIES

Native, indigenous, and tribal collaboration survey for National Marine Sanctuary System Collaboration with tribal or indigenous cultures is an integral part of the management of our sanctuaries and monuments. To accomplish this, the Office of National Marine Sanctuaries Maritime Heritage Program is seeking to comprehensively identify our level of engagement with tribal and indigenous partners where we share the responsibility for preserving cultural heritage in our sites. The goal of this internal ONMS survey is to expand and enhance our recognition of the full spectrum of tangible and intangible underwater cultural heritage within our stewardship responsibility and implement effective management strategies to preserve them. Olympic Coast National Marine Sanctuary’s experiences working with the Hoh, Makah, and Quileute Tribes, and the Quinault Nation will be an important contribution to this effort.

COLLABORATIVE AND COORDINATED MANAGEMENT

Sanctuary leadership meets to address future needs

Sanctuary superintendents, regional directors, branch chiefs, and Office of National Marine Sanctuaries (ONMS) Leadership met virtually over four days to discuss key challenges facing national marine sanctuaries. Topics included how to increase diversity and inclusion within ONMS, strategies for increasing engagement with indigenous and tribal communities, developing an enhanced response to the challenges posed by climate change and what the sanctuary system will look like in the future.

CONDUCT COLLABORATIVE RESEARCH, ASSESSMENTS, AND MONITORING TO INFORM ECOSYSTEM-BASED MANAGEMENT

Invitation letters sent for Olympic Coast Ocean Acidification Sentinel Site Steering Committee

Invitation letters for the Ocean Acidification Sentinel Site (OASeS) Steering Committee were sent

to tribal governments, state and federal agencies, and non-governmental organizations on July 31, 2020. The Steering Committee will work toward implementation of the goals of OASeS to:

1. Facilitate identification and coordination of shared OA management priorities and seek to fill information needs;
2. Facilitate and promote strategic science collaborations in recognition of management needs; and
3. Promote ocean literacy, awareness and stewardship, with an emphasis on OA, for a diverse range of audiences.

The first OASeS Steering Committee meeting is planned for September 2020.

Olympic Region Harmful Algal Bloom (ORHAB) Monitoring Partnership Update from Anthony Odell, Research Analyst Lead

The large morphotype of *Pseudo-nitzschia* spp. has exceeded the action level from Quinault Beach to Long Beach along the Washington outer coast. The highest cell counts were found at Copalis Beach on 7/27 at 117,000 cells/L. Both large and small *Pseudo-nitzschia* spp. morphotypes are common along the entire Washington outer coast. Domoic acid levels in shellfish remain well below the closure limit of 20 ppm and continue to decline at all of the most recently tested sites along the Washington outer coast with the highest levels found at 2 ppm from the Willapa spits on 07/13.

No *Alexandrium* spp. have been observed in any of the most recent water samples collected along the Washington outer coast. PSP in shellfish is above the closure limit of 80µg/100g tissue in Neah Bay at 117µg/100g in California mussels on 07/29 and La Push—Beach 2 at 96µg/100g in razor clams on 7/19.

Dinophysis acuminata has been observed in a recent net tow sample taken from Westport. DSP in shellfish has not been found or found in barely detectable levels along the Washington outer coast with all recent samples falling within the NTD to 2µg/100g range.

The surf zone along Washington's outer coast has been largely dominated with chain-forming diatoms. A mixture of *Thalassiosira* spp., *Asterionellopsis* spp., and *Attheya armatus* have been dominant in the surf zone along Washington's outer coast.

No other HAB species were observed in recent samples.

With help from NOAA Fisheries, Olympic Coast National Marine Sanctuary continues its long-term oceanographic monitoring program despite the pandemic

After a delayed start to the 2020 field season, Olympic Coast National Marine Sanctuary (OCNMS) has deployed all ten of its seasonal oceanographic moorings off the Washington coast. Three moorings were deployed off the sanctuary's research vessel, the R/V *Tatoosh*, and the other seven were deployed off the R/V *Rachel Carson*, a University of Washington research vessel chartered by the NOAA Ocean Acoustics Program in NOAA Fisheries. The R/V *Rachel Carson* cruise also serviced three OCNMS 'SoundTraps' that are deployed on the Olympic Coast as part of a partnership between OCNMS and the US Navy. In addition, six acoustic moorings deployed NOAA's Northwest Fisheries Science Center to monitor movements of endangered southern resident killer whales, were also successfully recovered. Noise Reference Station 3, which is an acoustic monitoring asset located in deep water just outside the sanctuary and part of the broader NOAA/NPS Ocean Noise Reference Station Network, was successfully and efficiently recovered and redeployed. Thirteen water-column profiles were also obtained with the sanctuary's compact CTD

(conductivity-temperature-depth) instrument suite.



The University of Washington's R/V Rachel Carson deploying (left) SoundTrap OC-03 to record underwater sound near Cape Elizabeth, WA and (right) the OCNMS long term oceanographic mooring at Teawhit Head 42m

Olympic Coast National Marine Sanctuary reports on 2019 Area to be Avoided Compliance

When OCNMS was designated in 1994, NOAA worked with the International Maritime Organization to designate a voluntary Area to be Avoided (ATBA) to protect the sanctuary from the risk of a major oil spill. The ATBA has been modified a number of times and currently applies to all vessels over 400 gross tons, directing them to transit 25 nautical miles offshore to allow additional time for response efforts in case of emergencies. The ATBA does not apply to vessels that are conducting operations in the sanctuary, such as fishing or research. Since 1998, OCNMS has used a number of data sources and methods to monitor estimated compliance to the voluntary ATBA provisions. The estimated compliance of the ATBA for 2019, continues to reflect a high degree of cooperation by the maritime industry. While the number of vessels (> 400 GT) that transited through OCNMS, decreased from 5,609 in 2018 to 4,762 in 2019, estimates of ATBA compliance rates have been consistent over the last 3 years, e.g., 95.9% in 2017, 95.0% in 2018, and 95.5% in 2019. See <https://olympiccoast.noaa.gov/protect/incidentresponse/vesseltraffic.html>

Olympic Coast NMS gears up for Nautilus Expedition

Olympic Coast National Marine Sanctuary (OCNMS) staff are preparing for a 12-day research expedition in partnership with Ocean Exploration Trust and Oregon State University that will depart from Port Angeles on 20 Sept for work in OCNMS and adjacent Essential Fish Habitat areas. The goals of the mission are to map and explore deep sea coral and sponge habitats and methane seep communities, and the team's progress can be tracked in near real-time at NautilusLive.org.

IMPROVE OCEAN LITERACY

Washington Alliance for Better Schools' Access STEM program dives into NOAA resources

Olympic Coast National Marine Sanctuary (OCNMS) education staff supported the "Access STEM" (Science Technology Engineering Math) virtual teacher professional development, hosted by the Washington Alliance for Better Schools, engaging 44 Seattle area teachers from 12 school districts in the Puget Sound area. Access STEM recruits teachers to learn about local industries and organizations then create science and technology units based on the information they learned during their placements. This year, teachers had access to five, one-hour sessions of NOAA presentations, to learn about STEM topics plus NOAA careers and resources. OCNMS staff

provided information and resources on Pacific Northwest Bay-Watershed Education and Training and Ocean Guardian School opportunities.

Teachers explore their watersheds from their backyards

The North Olympic Watershed Science (NOW Science) program offered its first virtual teacher workshop this summer. Twenty teachers joined NOW Science partners including Feiro Marine Life Center, Dungeness River Audubon Center, Olympic Coast National Marine Sanctuary, and Olympic National Park to explore watershed and ocean connections from their backyards. The five-day workshop met each morning virtually where teachers received content and held conversations around watersheds from headwaters to oceans, human impacts to watersheds, and how those impacts affect water quality and healthy salmon populations. Ocean acidification was the main ocean challenge discussed within the NOW Science context, with sanctuary-provided resources and examples of fun experiments that teachers and students can do right from their own homes. A guest speaker from Northwest Fisheries Science Center provided examples of lab studies to better understand ocean acidification effects on salmon and other ocean organisms. Throughout the week teachers spent time outside making observations, developing questions, and creating a study design and data collection plan that they could implement, then share their results with the group, including potential action projects related to their question.

NOAA Science Camp goes virtual!

In what has become normal over this summer, NOAA Science annual in-person camp in Seattle was brought to students through NOAA Live! Webinars and at-home activities. This year, camp participants were provided the opportunity to join four interactive webinars, as well as a series of at-home activities hosted by NOAA scientists. [The NOAA Live! NOAA Science Camp webinars](#) were presented through a partnership between NOAA's Regional Collaboration Network, Woods Hole Sea Grant, NOAA Fisheries Alaska Fisheries Science Center, and Washington Sea Grant targeting grades 6-8 during the first two weeks of July. The webinars featured a different NOAA expert/topic and a moderated live Q&A with participants. These webinars and activities are intended to provide safe online interaction for students with the goal of sharing scientific content, demonstrating possible career paths, and providing something fun to help ease this time when everything is outside the norm. Sanctuary staff led webinars on Olympic Coast National Marine Sanctuary, the National Marine Sanctuary System, and the issue of ocean acidification in partnership with Northwest Fisheries Science Center, reaching 116 participants from 89 households (from 27 states, with 50 viewers from Washington state). Overall, the camp reached 439 participants for the four NOAA Science Camp webinars. The recorded webinars are available for viewing on the NOAA Live! [YouTube channel](#) and already have close to 440 views total for the two weeks of NOAA Science Camp webinars!



Nicole Harris named first Annual Olympic Peninsula Environmental Educator!



Olympic Coast National Marine Sanctuary (OCNMS) Education Specialist Nicole Harris was recognized for her outstanding work in the region with the Olympic Peninsula Environmental Educator Award. This is the first of an annual award initiated as part of the 50th Anniversary of Earth Day 2020 celebration. Working with OCNMS since 2014, Nicole plans and implements education activities for classrooms, field investigations, teacher workshops,

and presentations to local and regional organizations, hoping to inspire stewards to the marine environment. She also assists in the coordination and implementation of volunteer coastal cleanups with Washington CoastSavers. When asked, she shared that the best part of her job is that the "classroom" is the beach.

Gone Fishing in Olympic Coast Featured in National Marine Sanctuaries Webinar Series

As part of the [National Marine Sanctuaries Webinar Series](#), 235 formal and informal educators, students, and families registered for the *Gone Fishing! in Olympic Coast National Marine Sanctuary* by Daniel Studt of NOAA Fisheries. 102 people attended the live presentation. The recording of this live distance-learning program will also be shared as part



of the features events for Get into Your Sanctuary weekend (July 31-Aug. 2). 90% of attendees who completed the follow-up evaluation agreed that the content of the webinar made them understand that national marine sanctuaries and marine national monuments help protect the ocean and Great Lakes. 36% stated they plan to use this content within the next year, while 41% are not sure yet. 97% of attendees are "very likely" and "likely" to attend a future presentation in the National Marine Sanctuaries Webinar Series with 95% likely to recommend this webinar series to others.

Teachers explore ocean connections with Healthy Ocean, Healthy You Workshop

Olympic Coast National Marine Sanctuary (OCNMS) education staff conducted a three-day virtual Ocean Science workshop in partnership with Pacific Education Institute (PEI) for 16 formal teachers of third to sixth grades around the Olympic Peninsula. The workshop focused on Ocean Benefits and Ocean Literacy Principle #6: The Ocean and humans are inextricably interconnected. Teachers were introduced to an Ocean Benefits Performance Task (OBPT), a mini research project a lesson plan using scientific content of a local and relevant issue to investigate and draw evidence in support of persuasive essays meeting English Language Arts standards. OBPT includes one article, two videos, and two posters as evidence from sources all oriented around how humans benefit from the ocean and how the ocean can benefit from us. Additionally, teachers heard from two guest speakers looking at the importance of intertidal monitoring and health as well as research on the Makah Tribe Fisheries traditional halibut hook in contemporary fishing practices. As part of the asynchronous portion of the workshop, teachers conducted at-home investigations including an ocean audit of household items related to the ocean (like food, shampoos, sauces, yogurt, dog food, etc), a backyard "tidepool exploration" with a roly-poly or pill bug (our land crustacean) habitat observation, and a three-day weather investigation. Participants were excited to try the at-home investigations with their students as they encourage the connection from backyard to ocean. Teachers also enjoyed being a student on the virtual platforms, providing a chance to experience student perspectives of the challenges of online learning - a valuable lesson in empathy and patience as everyone prepares for the upcoming school year.

Olympic Coast celebrates Get Into Your Sanctuary!

Olympic Coast celebrated the riches of Olympic Coast National Marine Sanctuary (OCNMS) with two Facebook Watch Party presentations as part of the national annual Get Into Your Sanctuary weekend. The weekend long event provided opportunities to experience all of NOAA's National Marine Sanctuary System virtually

“Cooking the Quintessential Seafood Chowder” featured the winner of the Quintessential Olympic Peninsula Seafood Chowder Contest Ronald Wisner (aka Captain Ron), along with the Olympic Culinary Loop Director Steve Shively, for a live cooking demonstration. Ronald Wisner, the Executive Chef at Ocean Crest Resort in Moclips, Washington, shared his award-winning recipe, along with other secrets from his kitchen.



“Gone Fishing! In Olympic Coast National Marine Sanctuary” featured NOAA Fisheries Recreational Fishing Coordinator, Daniel Studt, who provided some great tips to enjoy sustainable recreational fishing in OCNMS. Topics included fish identification tricks, as well as safe handling, and release techniques. Ben Maxson of Windsong Charters out of Neah Bay, Washington, joined in to provide some of his fishing stories from the wild Olympic Coast!

NOAA joins Thurston TOGETHER! To host ocean acidification at home summer camp

Thurston TOGETHER! wrapped up their summer camp for students with Olympic Coast National Marine Sanctuary (OCNMS) education staff and Northwest Fisheries Science Center research staff to dive into ocean acidification (OA). Participating students were provided an at-home kit with supplies and instructions to conduct at-home OA experiments. Students then joined OCNMS educators and Northwest Fisheries Science Center researchers on Google Meetings for a conversation around this local and global phenomena. Students had a chance to learn about local research being conducted to better understand the impacts of OA on economically significant species in the Pacific Northwest. Students also had the chance to brainstorm the actions we can take at home, in our communities and broader, to mitigate the impacts of an acidifying ocean.

Sanctuary Splash: Acoustics of Cetaceans lesson plan available online

Olympic Coast National Marine Sanctuary is excited to announce that the new Sanctuary Splash Acoustics of Cetaceans lesson plan and presentation are now available online at <https://sanctuaries.noaa.gov/education/teachers/>. The interactive activity developed for fifth graders allows students to experience listening to whale vocalizations and participate in simulations of sound perception and efficiency of sound transfer through matter. Students also gain a basic understanding of how sounds are measured and recorded when studied in a marine environment, and how various cetacean species communicate and are identified by the vocalizations they make.



Climate Communication for Sanctuaries Training and Learning Exchange

Olympic Coast National Marine Sanctuary (OCNMS) education staff teamed up with sanctuary staff around the system to present “Climate Communication for Sanctuaries” webinar, introducing climate communication through the National Network of Ocean and Climate Change Interpretation (NNOCCI). The webinar, offered internally to Office of National Marine Sanctuaries staff and affiliates, included NOAA’s Climate Program Office climate messaging and process, an introduction to national marine sanctuaries climate messaging, and a quick look at the scientifically informed climate messaging of NNOCCI, as well as how these messages are implemented across sanctuaries. The NNOCCI training was a 12-week class that the group highlighted in 25 minutes on the webinar. If there is interest from the audience to dive deeper into NNOCCI climate communication

techniques and tools, a follow-up one-hour NNOCCI training will be considered later in the winter.

CONSERVE NATURAL RESOURCES IN THE SANCTUARY

Invasive European Green Crab detected near Quinault Indian Nation in WA and Haida Gwaii in British Columbia, Canada

This summer there have been indications that populations of European green crab (EGC) on the west coast of North America are expanding their range. In mid-July, a resource management officer for Gwaii Haanas National Park Reserve discovered both male and female EGC adults near Haydn Turner Campground in the Queen Charlotte Islands of BC, Canada. In late July, during the Intergovernmental Policy Committee Science Panel meeting, Quinault Indian Nation resources staff reported that mature EGC were also found during surveys with Washington Sea Grant's new coastal crab specialist in areas just south of Olympic Coast National Marine Sanctuary. These invasive species had not been found on the Olympic Coast prior to their discovery by a sharp-eyed citizen scientist visiting Hobuck Beach on Makah Tribal land in August 2017. EGC prefer low energy, soft sediment estuaries but have a high tolerance for wide ranges in temperatures and flow. The Washington state legislature has recently provided funding for a population assessment and trapping effort on the outer coast of Washington, to support and enhance the aggressive trapping efforts undertaken by Makah natural resources staff since 2018. Although slowed by necessary precautions to reduce the spread of the novel coronavirus, renewed trapping efforts are nonetheless kicking off in September since fall is a molting period and has previously yielded high catch rates for EGC within tidally-influenced coastal rivers in this region.

SANCTUARY PERMITTING

Issued Permits and Authorizations

OCNMS-2020-004 Jenny Waddell, OCNMS

Project Title: Invertebrate and Fish Community Species Composition and Diversity from Environmental DNA water samples in Olympic Coast National Marine Sanctuary

Permitted Activity: Requesting to deploy moorings to collect environmental DNA samples off of Tahola and La Push, near existing OCNMS moorings.

Project Location: Near OCNMS moorings at Cape Elizabeth and Teahwhit Head.

Permit Duration: Requested start date of August 1, 2020 through October 31, 2021

Comment: Environmental DNA has been shown to be a powerful tool for species detection, which is significantly increased by coupling this sampling to high-resolution metabarcode analyses. The ability to customize metabarcode markers to capture broad taxonomic community information as well as target taxa of particular interest makes this approach remarkably versatile and allows us to characterize biological communities in ways not possible until recently. Another advantage of eDNA sampling from filtered water is that there is no impact of sampling, making it an ideal choice for sensitive and protected areas. Finally, the ability to use automated samplers like the PPS allows for the collection of fine scale, time series datasets from difficult to access areas like OCNMS at a fraction of the cost in time and money that traditional surveys would require. The proposed statistical approach using species occupancy models will enable us to distinguish the effects of hypoxia from imperfect eDNA detection. Hypoxia and acidification are predicted to increase in the future, particularly in areas with strong upwelling as in the southern OCNMS. Understanding how biological communities respond and recover from hypoxic events is critical to be able to predict impacts on fisheries and to the coastal communities that depend on them.

OCNMS-2020-007 and OCNMS-2020-007-A1 Dr. Nicole Raineault, Ocean Exploration Trust
Project Title: Exploring methane seeps and deep sea coral and sponge habitats within Olympic Coast NMS

Permitted Activity: Exploration of methane seep and deep-sea coral and sponge habitats in Quinault Canyon, including collection of biological samples, sediment samples, and water/eDNA samples. Recovery of additional meteorite samples is also permitted.

Permit Duration: Requested start date of September 14, 2020 through October 20, 2020.

Comment: This research will aid in our understanding of methane seeps as well as deep-sea coral and sponge communities within and adjacent to OCNMS. This cruise is specifically intended to explore sanctuary resources within OCNMS, among other objectives. A part of the overall expedition will be focused on quantitative characterization of sanctuary deep sea habitats, identification of species present in OCNMS, and sampling to confirm taxonomic identifications and to describe species that may be new to science. An amendment was required to add allowance for ROV ballast discharge if a large meteorite fragment is found.

Pending Permits

OCNMS-2020-001 Dr. Sean Higgins, Columbia University Lamont-Doherty Earth Observatory
Project Title: Illuminating the Cascadia plate boundary zone and accretionary wedge with a regional-scale ultra-long offset multi-channel seismic study

Proposed Permitted Activity: Deployment of three Ocean Bottom Seismometers (OBS) on the seafloor and the abandonment of 1m² iron grate anchors.

Requested Permit Duration: Requested start date of May 1, 2021 through August 31, 2021.

Comment: This seismic survey will utilize an air gun array as a sound source, which is known to cause impacts to marine resources such as marine mammals. The National Science Foundation, as the federal funding source, is in consultation with NMFS Office of Protected Resources and seeking an Incidental Harassment Authorization (IHA) under the MMPA and a Biological Opinion (BO) under the ESA. In addition to the sanctuary permit, there will also be a consultation between OCNMS, NMFS, and NSF on the IHA and BO. Permit processing is on hold during consultations.

REGIONAL/NATIONAL MARINE SANCTUARY SYSTEM NEWS

Contract awarded to construct new research vessel for Olympic Coast National Marine Sanctuary

All American Marine, based in Bellingham, WA, has been awarded the contract to construct a 50' research catamaran to replace the sanctuary's R/V *Tatoosh*.

The vessel will serve as a valuable asset for sanctuary missions and host a variety of research missions and visiting scientists concentrating on seafloor mapping, habitat characterization, data collection on near shore oceanographic conditions, and the monitoring of the health of ocean resources and marine wildlife.

Operating for more than 25 years, the 38' R/V *Tatoosh* has served the sanctuary for much longer than its forecasted service life and is quickly reaching the end of its useful life. A larger, more stable vessel will not only expand the potential for Olympic Coast operations but also make it a more viable asset



for our partners, advancing NOS's ability to provide science-based solutions through collaborative partnerships to address evolving environmental pressures on our ocean and coasts. Olympic Coast National Marine Sanctuary expects delivery of the vessel by December of 2021.

CBS 60 Minutes "60 in 6" features Mission: Iconic Reefs

NOAA's efforts to restore seven iconic reefs in Florida Keys National Marine Sanctuary gained national attention when CBS 60 Minutes' new "60 in 6" on the Quibi app featured [Mission: Iconic Reefs](#). The story included an extensive interview with Florida Keys National Marine Sanctuary Superintendent along with representatives from primary partners Mote Marine Lab and the Coral Restoration Foundation, which conducted its interview underwater. Media attention focused on this story raises awareness of the sanctuary's mission, promotes stewardship, and may result in public and private financial support. CBS aims to expand its audience using the new format by presenting shorter stories produced specifically for viewers watching on mobile devices. Quibi reported in July that 5.6 million people had downloaded its app since the streaming service launched in April. You can watch the 60 Minutes segment here: ["60 in 6" Mission: Iconic Reefs](#)

MPA Center Publishes Report on Importance of Ecological Connectivity to MPAs

The MPA Center has published a brief report that highlights the importance of ecological connectivity to the effective design and management of MPA networks by presenting an introduction to the topic, case studies, and recommendations for moving the field forward. Written for an audience of MPA practitioners, the report identifies successes and challenges in the implementation of connectivity into MPA networks and lays out a path forward to improve the application of ecological connectivity into the design and management of MPAs. Major recommendations include: strengthening legal authorities for ecological connectivity for MPA design, communicating the benefits of connectivity, designing more ecologically connected MPA networks, and improving our understanding of how connectivity works in different systems. Through the recommended actions and the purposeful inclusion of connectivity into MPA design and management, this community can leverage the ability of ecological connectivity to improve conservation outcomes and enhance the resilience of MPA networks.

Stellwagen Bank Sanctuary Visitor Center Working Group Holds first Citizen Steering Committee Meeting

Stellwagen Bank National Marine Sanctuary and visitor center partners organized a virtual meeting to orient our new Citizen Steering Committee (CSC) to the conceptual design phase of the sanctuary's future Visitor Center in Provincetown, Massachusetts and to begin to obtain their feedback. The steering committee consists of a Provincetown Town selectperson, government representatives, business owners, chamber of commerce board members and employees, National Park Service staff and other partners and interested parties. A ConsultEcon consultant reviewed the outcome of the feasibility study, with which some of the committee were involved, and Oudens Ello Architecture provided first sketches and questions for the group to consider. CSC will complete a short questionnaire in the next couple of weeks to help the architects continue to sketch concepts before our next meeting. CSC will provide feedback and recommendations and will also act as champions for the project, reaching out to their networks to communicate about and gain support for the visitor center. The committee will also provide ideas and help for public input sessions.

Hawaiian Islands Humpback Whale National Marine Sanctuary Continues to Investigate FADs (Fish Aggregating Devices) as Potential Large Whale Entanglement Threat

As part of the Hawaiian Islands Humpback Whale National Marine Sanctuary's efforts to better understand and mitigate the threat of entanglement to humpback whales, the sanctuary has been collecting and cataloging marine debris within sanctuary waters. One gear type that the sanctuary continues to receive reports on are FADs (Fish Aggregating Devices). Over the past few weeks, the sanctuary and its partners have received reports on, removed, and collected three additional FADs, which are re-purposed gear or debris, placed in the ocean to create an ecosystem or habitat for small marine animals to attract the larger, commercially sought fish species. Over the last decade the use of FADs has increased globally as fish stocks decrease and the use of technology (e.g., transmitters to relocate the FADs) has promoted their use. In addition to cataloging the frequency of these FADs drifting in sanctuary and greater Hawaii's waters, the sanctuary has partnered with NOAA Fisheries, Florida Fish and Wildlife Conservation Commission, and others to use the same transmitters as carcass and marine debris tags. The sanctuary will be part of a virtual workshop on the use of FAD transmitters towards recovering large rafts of marine debris or marking whale carcasses for further investigation.

Soundscape of Cordell Bank and Greater Farallones region published

A new publication is available that describes the soundscape of Cordell Bank and part of Greater Farallones national marine sanctuaries. Oregon State University (OSU) graduate student and Nancy Foster Scholar, Samara Haver, completed an analysis of NOAA Noise Reference Station (NRS) 11 in Cordell Bank National Marine Sanctuary using data from 2015-2017. Her analysis shows that large ships and baleen whales are the dominant sources of sound in the sanctuary environment, and seasonal patterns of vocalizing whales drive variation in the soundscape. She included an innovative analysis, comparing patterns in presence of vocalizing whales to whales observed at the surface during visual surveys by other researchers. The work is already informing management as the sanctuaries look at next steps in ship strike reduction strategies. The NRS is a collaboration between NOAA Pacific Marine Environmental Lab, OSU, and Office of National Marine Sanctuaries. The NRS was first deployed in 2015 for two years. It has been recovered and redeployed two additional times. It will be recovered again in 2021.

West Coast national marine sanctuaries partner with FAA on pilot outreach

This summer, Monterey Bay (MBNMS) and Greater Farallones (GFNMS) national marine sanctuaries are partnering with the Federal Aviation Administration (FAA) to conduct outreach to pilots to build awareness within the aviation community of national marine sanctuaries and their regulations. The initiative is led by [The Seabird Protection Network](#), a multi-organization collaborative whose mission is to reduce human disturbance to seabirds and other marine wildlife along the California coast. The network's founding chapter is managed by GFNMS. An outreach email was distributed to ~26,000 California pilots, emphasizing the need to fly high over [NOAA regulated overflight zones](#) above West Coast national marine sanctuaries. More than 400 pilots also attended a [virtual presentation](#) that highlighted marine wildlife, national marine sanctuaries, and wildlife protection regulations. This was the first of two presentations, and will be followed by additional outreach at the beginning of the 2021 seabird breeding season.

PMNM, USFWS and NASA Collaborate to Track Coral-Killing Algal Outbreak

On August 24th, 2020, a PMNM Field Team member was selected for the highly competitive NASA

Digital Earth Virtual Environment and Learning Outreach Project ([DEVELOP](#)). This year's virtual internship from NASA's Ames Research Center in Silicon Valley will develop a digital tool that will allow managers to locate areas where the coral-smothering algae, *Chondria tumulosa*, could be detected via remote sensing. The team will be utilizing Google Earth Engine, NASA satellite products, and field knowledge to accurately identify and determine the full spatial extent of this algae. The outbreak was first discovered at Pearl and Hermes Atoll last summer. A NOAA, NASA, and USFWS working group will embark on this 10-week collaborative effort from September 14 to November 2020.

REGIONAL/NATIONAL MARINE SANCTUARY FOUNDATION NEWS

National Marine Sanctuary Foundation receives \$134,928 from NOAA to clean up debris in Florida Keys

<https://marinesanctuary.org/news/national-marine-sanctuary-foundation-receives-134928-from-noaa-to-clean-up-debris-in-florida-keys/>

Established in May 2018, [Goal: Clean Seas Florida Keys](#) is a collaboration with Florida Keys National Marine Sanctuary and Blue Star dive operators to remove underwater marine debris and educate the public about marine debris prevention. With this support, the Foundation plans to expand its [successful work](#) on the Goal: Clean Seas Florida Keys program.

National Marine Sanctuary Foundation expands goal: clean seas to Channel Islands National Marine Sanctuary

<https://marinesanctuary.org/news/national-marine-sanctuary-foundation-expands-goal-clean-seas-to-channel-islands-national-marine-sanctuary/>

Goal: Clean Seas Channel Islands is based on the successful *Goal: Clean Seas Florida Keys* program. The Foundation's new *Goal: Clean Seas Channel Islands* initiative will engage local partners and commercial lobstermen to remove marine debris, including lost traps, fishing gear, and trash from Channel Islands National Marine Sanctuary and Channel Islands National Park lands; develop opportunities and partnerships to address shoreline marine debris in the sanctuary; and implement education and outreach efforts to promote awareness and prevention of marine debris.

OCNMS Online

Visit our website at: <http://olympiccoast.noaa.gov/>.

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*Please take a few moments to peruse the site.
Your feedback is greatly appreciated.*

*Comments and suggestions can be sent to:
jacqueline.laverdure@noaa.gov.*

Ocean-Related Websites

National Oceanic and Atmospheric Administration http://www.noaa.gov/	National Data Buoy Center http://www.ndbc.noaa.gov/rmd.shtml	Washington's Ocean Resources http://www.ecy.wa.gov/programs/sea/ocean/index.html
National Ocean Service http://oceanservice.noaa.gov/	NOAA Pacific Marine Environmental Laboratory http://www.pmel.noaa.gov/	Northwest Association of Networked Ocean Observing Systems http://www.nanoos.org/
Office of National Marine Sanctuaries http://sanctuaries.noaa.gov/	CoastWatch – West Coast Regional Node http://coastwatch.pfel.noaa.gov/	NOAA Online Media Library http://sanctuaries.noaa.gov/photos
NOAA Ocean Explorer http://oceanexplorer.noaa.gov/	NOAA Marine Debris Program http://marinedebris.noaa.gov/	Encyclopedia of National Marine Sanctuaries http://www8.nos.noaa.gov/onms/park/

OLYMPIC COAST NATIONAL MARINE SANCTUARY

LEARN MORE ABOUT YOUR SANCTUARY

The Sanctuary Office Report is produced bi-monthly by Olympic Coast National Marine Sanctuary in conjunction with sanctuary advisory council meetings. To learn more about the sanctuary, please visit our website at: <http://olympiccoast.noaa.gov/>.

To learn more about the sanctuary advisory council, please visit:
http://olympiccoast.noaa.gov/involved/sac/sac_welcome.html

OFFICE OF NATIONAL MARINE SANCTUARIES (ONMS)

Olympic Coast National Marine Sanctuary is one of the marine protected areas in the National Marine Sanctuary System encompassing more than 600,000 square miles of marine and Great Lakes waters from Washington state to the Florida Keys and from Lake Huron to American Samoa. The system includes 14 national marine sanctuaries along with Papahānaumokuākea and Rose Atoll marine national monuments.

Visit the ONMS website at:
<http://sanctuaries.noaa.gov/>.

Get Involved!

To learn how to get involved in the sanctuary visit:
<http://olympiccoast.noaa.gov/involved/welcome.html>

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