



OLYMPIC COAST NATIONAL MARINE SANCTUARY

A Report for Sanctuary Advisory Council Members Reporting Period: Sep. 11 – Nov. 1, 2021

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 Indian 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

Olympic Coast staff participates in training on Engaging Native Nations

Several Olympic Coast National Marine Sanctuary (OCNMS) staff participated in a 16-hour training held by the Udall Foundation on *Engaging Native Nations*, which addressed both formal government to government consultation and less formal engagement. The training included 27 staff from nearly every national marine sanctuary site, each region and three headquarters units, including four from OCNMS. OCNMS and the MPA Center worked with Udall to develop case studies and examples focused on management scenarios encountered by sanctuaries. The training included learning about the elements for effective consultation, cross-cultural communications, and a mock consultation. OCNMS was able to share direct experiences, insights, and lessons learned on this topic with the system as well as learn from others' experiences.

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

Seattle Times article raises awareness about seasonal hypoxia on the Olympic Coast

Working with tribal representatives and regional ocean modelers, Olympic Coast National Marine Sanctuary (OCNMS) staff collaborated with *Seattle Times* graphic reporters to produce an article on how low dissolved oxygen levels affect the Washington coast and impact coastal communities dependent on marine resources, including the Quinault Indian Nation. The article, which was published in print and accompanied by an online version containing animated graphics and additional digital content, highlights climate-related changes occurring in the coastal ocean. It also links readers to data and information generated by OCNMS, the ONMS 'Earth is Blue' video production, and the treasure trove of regional ocean data and resources made available by the Northwest Association of Networked Ocean Observing Systems

Olympic Coast NMS recovers mooring array and completes 22nd year of monitoring ocean conditions

On October 18th a team composed of sanctuary field staff and partners from NOAA's Pacific Marine Environmental Laboratory and Quileute Natural Resources traveled to Cape Elizabeth, WA and successfully recovered the final two oceanographic moorings from Olympic Coast National Marine Sanctuary's mooring array. In addition, they recaptured an autonomous plankton sampler that was deployed as a pilot project for an effort to begin using eDNA to monitor sanctuary biodiversity. Despite challenging marine weather and mechanical issues, the team safely and successfully completed the mission. The team also recovered and redeployed an underwater sound recording device moored nearby as part of a partnership with the Naval Postgraduate School. The team plans to recover and redeploy three additional sound monitoring moorings during the transit of the R/V *Storm Petrel* back to Port Angeles for the winter season. Recovery of the sanctuary oceanographic moorings marks the completion of the 22nd year of monitoring along this remote, rugged coastline.



Figure 1 Survey technician, Kathy Hough prepares to recover a mooring array.



Figure 2 CTD rosette and safety gear are stowed for the return trip to port.

OCNMS teams up with NOAA Dive Center to rescue data from the seafloor

During the first week of September, five expert divers from the NOAA Dive Center joined members of the sanctuary research team on the R/V *Storm Petrel* in a mission to recover two SoundTrap (acoustic recording) moorings, along with their valuable data, from the seafloor. The moorings had been deployed as part of a multi-year collaboration to record underwater sound at four locations along the Olympic Coast. They did not surface as expected when release mechanisms were triggered during previous recovery attempts. NOAA divers, called in to assist with recovery, were delivered directly to the target locations and were able to safely clip recovery lines to the moorings, which made it possible for the team to bring the gear to the surface once the divers were safely back on board. Successfully recovered gear included the SoundTrap recording devices themselves, which appeared to be intact upon preliminary examination and were quickly returned to partners at the Naval Postgraduate School for analysis. Olympic Coast staff continue to be extremely grateful for the expert and professional assistance of NOAA Dive Center partners, and for their extreme flexibility in working through the multiple challenges presented by a remote environment, a new research vessel, and a global pandemic.



IMPROVE OCEAN LITERACY

West Coast Region climate change webinar provided to sanctuary volunteers

Olympic Coast National Marine Sanctuary staff supported the West Coast Region Climate Team webinar to the extended “sanctuary family” of sanctuary advisory council members (SAC), docents and project volunteers. The evening webinar provided an overview of the current climate science shared in the [West Coast Region Climate Impacts Profile](#). This regionally-focused summary document looks at climate trends and impacts in the California Current Large Marine Ecosystem, which encompasses all five west coast national marine sanctuaries. A robust question and answer session followed the program, which provided an overview of the current science modeling, what that could look like in national marine sanctuaries on the west coast, and what sanctuaries are doing about it. Attendees were also provided examples of actions we can take at both individual and community levels to support resilient communities and healthy marine ecosystems.

Oregon educators explore salmon survival and connections from classroom to ocean

Olympic Coast National Marine Sanctuary (OCNMS) education team joined NOAA Fisheries to virtually present NOAA resources to ten educators as part of a B-WET funded teacher training program. The ten classroom educators will be conducting salmon in the classroom with their 3rd to 5th grade students this year as part of Oregon’s National Wildlife Federation B-WET grant, integrating NOAA resources on salmon survival and ocean acidification. OCNMS education resources included ocean acidification experiments and lesson plans from The Ocean’s Recipe for Success, as well as food web connections from the Discover the Olympic Coast curriculum.

Ocean Acidification Sentinel Site presentation to Marine Resource Committees

The Grays Harbor and North Pacific Coast marine resource committees (MRCs) both received a presentation from Olympic Coast National Marine Sanctuary on the Olympic Coast Ocean Acidification Sentinel Site (OASeS). The goal of presenting to the MRCs was to raise awareness of OASeS, share what OASeS is working on since finalizing the work plan, and promote a planned symposium for 2022 to help generate support and funding. The presentation was well received, with good questions from MRC members and thanks given for keeping them informed. Regular updates on OASeS to coastal communities through the MRCs should continue to ensure broad understanding and support for this effort.



Olympic Coast National Marine Sanctuary AmeriCorps members teach first lessons of the academic year

Olympic Coast National Marine Sanctuary AmeriCorps members, Anna Marchand and Kennedy Cameron presented two virtual Discover Olympic Coast lessons at Crescent School in Joyce, WA. The lessons covered how energy flows in a food web, and who eats who in the Olympic Coast National Marine Sanctuary ecosystem. The lesson culminated with a discussion on the Southern Resident killer whale food chain, as both the 1st and 3rd grade classes have “adopted” Southern Resident killer

whales from the L-pod. These fully virtual lessons integrated abundant opportunities for students to participate by building the food webs as a class, utilizing their knowledge gained from watching the Discover the Olympic Coast video. This lesson was the first of two planned lessons coordinating with the 1st and 3rd grades' Southern Resident killer whale curriculum. Approximately 30 students and two teachers were present for the lesson. A follow up lesson for each class is scheduled for the end of the month, where the service members will go into greater depth on Southern Resident killer whales and sound.

Students learn about orcas and ocean sound

Olympic Coast National Marine Sanctuary AmeriCorps members, Kennedy Cameron and Anna Marchand, virtually returned to Crescent school in Joyce, WA to teach the second set of a two-part lesson to first and third graders. The first lesson consisted of the Discover Olympic Coast curriculum where students learned how energy flows in a food web and who eats who in the Olympic Coast National Marine Sanctuary ecosystem. The second lesson, which the members developed based on teacher interest, focused on Southern Resident Killer Whales and how they use sound. Students were able to learn about the different types of sounds that orcas make by participating in a game of "Whistle, Call, or Click" where they listened to recordings of orcas and identified what type of sound the orca was making. The students also learned how to replicate L-pod's favorite call, since both the first and third graders at Crescent have "adopted" orcas from L-pod. The lesson also touched on "background noise" in the ocean (both natural and human made) and how these sounds can impact whales. Approximately 30 students and two teachers were present for the lesson. A possible follow-up art project is being planned for the third-grade class.



CONSERVING NATURAL RESOURCES

Vessel sinking in Olympic Coast National Marine Sanctuary

The 48-foot commercial fishing vessel, *Garda Marie*, sank 1.5 miles northwest of Cape Flattery in the early morning of October 15, 2021. The US Coast Guard and a good Samaritan crew from vessel *Quinnault* responded to the incident and rescued all crew onboard. The vessel sank in 600-800 feet of water with a reported 400 gallons of diesel and 10 gallons of motor oil on board. The US Coast Guard has conducted overflights and reported no visible sheen, debris, or vessel. Trajectories show diesel to move north, away from land, and given the properties of diesel and current conditions diesel is likely already dissipated. Olympic Coast National Marine Sanctuary is engaged with the US Coast Guard, NOAA Office of Response and Restoration, and Washington State Department of Ecology on this ongoing incident.

Containers overboard outside Olympic Coast National Marine Sanctuary

The *Zim Kingston* lost over 100 containers during heavy weather at 12:49am Friday, October 22, 38 miles west of the Strait of Juan de Fuca. This incident did not occur in the sanctuary and the containers drifted north, remaining in Canadian waters, some eventually making landfall on northern beaches on the west coast of Vancouver Island, British Columbia. The U.S. Coast Guard conducted an aerial overflight Friday morning and located 35 of the containers and deployed a self-locating datum marker buoy to monitor the movement. A notice to mariners was made following the incident, no collisions or incidents have been reported. Reports of refrigerators, toys, yoga mats, and other household goods have been observed on Vancouver Island beaches. *Zim Kingston* moored 5 miles from Victoria, British Columbia and on Saturday two containers onboard were on fire. Canadian Coast Guard (CCG) led the incident command post and Resolve Salvage conducted salvage/firefighting operations. CCG evacuated 16 of the 21 crew onboard, five of the crew wished to remain on the vessel. The two containers that were on fire contained potassium amyl xanthate, a pale-yellow powder widely used in the mining industry. It is also reported that two of the containers that went overboard contained this chemical, which can spontaneously combust.

SANCTUARY PERMITTING

Issued Permits and Authorizations

OCNMS-2021-010 Global Diving and Salvage

Project Title: Survey and removal of sunken 48' Pacemaker motor vessel

Permitted Activity: Global Diving and Salvage has located the M/V *Unwind* and are proposing to salvage the vessel by safely lifting the hull clear of the water to a deck barge while minimizing the potential for release of possible pollution.

Permit Duration: Work to be conducted between July 1, 2021 and October 31, 2021

Comment: The vessel was located 5 miles offshore of La Push in 130 feet of water. While this salvage effort was permitted, it was not able to be implemented as the cost for this proposal exceeded the insurance policy. A new salvage plan with another company may be proposed to attempt removal in 2022.

OCNMS-2021-011 Brad Hanson, Northwest Fisheries Science Center

Project Title: Pacific Orcinus Distribution Survey 2021

Permitted Activity: Small vessel survey in late October to survey fall/winter distribution of killer whales, includes acoustic surveys through deployment of sonobuoys, visual surveys, and collection of eDNA.

Permit Duration: October 16, 2021 through October 29, 2021

OCNMS-2021-012 Dana Manalang, Applied Physics Lab, University of Washington

Project Title: A Multi-Platform, High-Resolution Coastal Ocean Observing Sensor Array for Researching Washington Coastal Waters and Ecosystem Response to Climate Change

Permitted Activity: Deployment, operation, and retrieval of oceanographic moorings (Cha'ba and NEMO) ~13 miles west-northwest of La Push. Sediment samples may be collected to aid in engineering design of anchor recovery system. Potential discharge of a small quantity of chemicals that serve as an antifoulant to one of the sensors deployed.

Permit Duration: November 5, 2021 through November 4, 2026

Comment: A new multi-year permit was issued for this due to change in permit holder.

REGIONAL/NATIONAL MARINE SANCTUARY SYSTEM NEWS

MPA Center and Mote Marine Lab Publish Article on Connectivity and MPAs

The MPA Center, with partners from Mote Marine Lab, co-authored the article [Advancing marine conservation through ecological connectivity: Building better connections for better protection](#), which was published in Parks Stewardship Forum on September 15. The article provides an overview of marine connectivity and why it is such an important component of MPA network design. This manager-targeted article provides valuable information for MPA managers by further providing an overview of methodologies for measuring connectivity in MPAs and by highlighting the IUCN's new "[Rules of Thumb](#)" on marine connectivity. Finally, the article features numerous case studies that demonstrate how connectivity considerations are already being used to enhance MPA design and management, including a case study from Flower Garden Banks National Marine Sanctuary's use of connectivity science as a foundation for the sanctuary expansion

2021 Get into Your Sanctuary events engaged people at home and in the water!

With the most participants of site-led events since 2016, over 1,200 people participated in either a virtual or in person offerings during the [Get into Your Sanctuary](#) (GIYS) week, August 2-8. National marine sanctuaries were brought to life through cultural immersion, recreation, and exposure to mesmerizing ecosystems below the water's surface. Of the 1,001 virtual attendees, 398 completed the follow-up GIYS evaluation. All 12 of the webinars will be captioned and available to view.

Joint ROV Cruise Surveys California Seafloor Habitats

A joint cruise between Cordell Bank (CBNMS) and Greater Farallones national marine sanctuaries (GFNMS) to survey seafloor habitat in CBNMS, GFNMS, and part of Monterey Bay National Marine Sanctuary was recently completed. The mission investigated Pioneer Canyon, Farallon Escarpment, Cordell Bank and nearby shelf and slope habitat, including areas that are subject to trawling or fishing regulations. Using the Marine Applied Research and Exploration remotely-operated vehicle, the team completed nine dives and collected visual images along 46 quantitative transects to aid in assessing the status and trends of habitats and species in the sanctuaries. Exploring, characterizing, and monitoring sanctuary seafloor habitats is critical for effective management of these sensitive areas.

NOAA scientists featured on Science Channel and discovery+ new series "Abandoned: Expedition Shipwreck"

Science Channel and discovery+ new series ["Abandoned: Expedition Shipwreck" episode](#) "Collision Course" recently featured the shipwreck SS *City of Chester* sunk in a collision with the RMS *Oceanic* in 1888 off the Golden Gate. Office of National Marine Sanctuaries West Coast Regional Maritime Coordinator, along with Historian and Archaeologist with the National Park Service were featured in the episode. The first archaeological multibeam sonar survey of the SS *City of Chester* was completed in collaboration with the Office of Coast Survey Navigation Response Team 6 in 2013. In 2014, the first archaeological survey using three-dimensional technology to record the SS *City of Chester* was completed in partnership with Bay Marine LLC and Hibbard Inshore LCC. For this mission, Hibbard's Saab Hybrid remotely operated vehicle was equipped with a Coda Octopus Echoscope sonar producing real-time three-dimensional imaging of both shipwreck sites. The episode also includes NOAA scientists working off the NOAA ship *Ferdinand R. Hassler* surveying the shipwreck SS *Oregon* lost in collision with an unidentified schooner off New York in 1886, and the HMS *Curacoa* lost in a collision with the RMS *Queen Mary* off the coast of Ireland in 1942.

Stetson Bank Long-Term Monitoring and Water Quality Cruise

Flower Garden Banks National Marine Sanctuary staff and volunteer divers completed a cruise at Stetson Bank to exchange important water quality instruments and capture repetitive photostation images for the long-term monitoring study. The divers photographed 25 repetitive photostations and made a quick assessment of the reef's overall health. Divers noted bleaching in fire-coral (*Millepora alcicornis*) on the shallower areas of the reef crest, but no evidence of stony coral tissue loss disease. The divers also noted growth in the fire-coral colonies and a noticeable decrease in sponge communities at some repetitive photostation sites. *Regal demoiselle*, an exotic species from the Indo-Pacific Ocean, were also observed in large schools at the bank. This cruise supports data collection for the annual long-term monitoring study of Stetson Bank that has been conducted since 1993. Water quality measurements provide valuable information about the stability of the ecosystem, while repetitive photostations are critical for documenting and characterizing major shifts in the benthic community.

Wisconsin Shipwreck Coast National Marine Sanctuary Designation Media Event

On October 9th, Dr. Rick Spinrad, Wisconsin Governor Tony Evers, Senator Tammy Baldwin, Manitowoc Mayor Justin Nickels, other local elected officials, and special guests joined a media event to recognize the designation of Wisconsin Shipwreck Coast National Marine Sanctuary. Held at the Wisconsin Maritime Museum in Manitowoc, the event also recognized key supporters, maintained momentum and visibility for the sanctuary, and connected sanctuary partners with NOAA leadership. A wide range of topics were discussed including the sanctuary's role in helping attract NOAA science and resources to help study and educate on climate change.

Great Lakes Offshore Multibeam Sonar Mapping Project Completed

Between April and August of 2021, staff from Thunder Bay National Marine Sanctuary led an extended offshore multibeam sonar mapping project. Working with NOAA's Office of Ocean Exploration and Research aboard two NOAA research vessels, operated by NOAA's Great Lakes Environmental Research Laboratory, the sanctuary provided geophysical and hydrographic mapping services to support archaeological exploration of the Alpena-Amberley Ridge located in central Lake Huron; this area was included in the 2014 sanctuary boundary expansion. In total, the project resulted in detailed sonar mapping of three study areas, totaling 188 square kilometers of lakebed.

REGIONAL/NATIONAL MARINE SANCTUARY FOUNDATION NEWS

National Marine Sanctuary Foundation Awards Humpback Whale Research Grants

<https://marinesanctuary.org/news/national-marine-sanctuary-foundation-awards-humpback-whale-research-grants/>

The National Marine Sanctuary Foundation awarded four mini-grants to support humpback whale research conducted within Hawaiian Islands Humpback Whale National Marine Sanctuary for the Fall 2021-Spring 2022 humpback whale season. The four grantees were each awarded \$5,000 to fund their projects. Grant recipients include the Hawai'i Marine Mammal Consortium, the University of Hawaii at Manoa- Hawaii Institute of Marine Biology, the Pack Marine Mammal Laboratory of the University of Hawaii at Hilo, and the Whale Trust (University of California-Santa Cruz). These grants will support ongoing research and conservation efforts to protect humpback whales and their habitat in the sanctuary, including monitoring population abundance, distribution and trends, behavior, and overall health.

National Marine Sanctuary Foundation Applauds Establishment of Bipartisan Congressional National Marine Sanctuary Caucus

<https://marinesanctuary.org/news/national-marine-sanctuary-foundation-applauds-establishment-of-congressional-sanctuaries-caucus/>

The National Marine Sanctuary Foundation celebrated the launch of the [National Marine Sanctuary Caucus](#), with co-chairs Rep. Jared Huffman (D-CA) and Rep. Garret Graves (R-LA). The caucus will serve as a strong voice to raise awareness of national marine sanctuaries and their critical role in conserving our ocean and preserving our nation’s cultural heritage. Its launch occurs as the nation prepares to celebrate the 50th anniversary of the National Marine Sanctuaries Act in October 2022. The 50th anniversary’s theme, “Save Spectacular,” is a year-long celebration of our great waters, inviting all people to discover the wonders of national marine sanctuaries and work together as stewards to conserve our ocean and Great Lakes.

National Marine Sanctuary Foundation Celebrates Advancement of Chumash Heritage National Marine Sanctuary Designation

<https://marinesanctuary.org/news/national-marine-sanctuary-foundation-celebrates-advancement-of-chumash-heritage-national-marine-sanctuary-designation/>

The National Marine Sanctuary Foundation joined tribal, national and community leaders in celebrating the initiation of Chumash Heritage National Marine Sanctuary’s designation process, announced today by the National Oceanic and Atmospheric Administration, and applauding members of the Northern Chumash Tribal Council for leading its nomination. The proposed Chumash Heritage National Marine Sanctuary would protect culturally sacred sites, feeding grounds for numerous species of whales and dolphins, sea otter populations, kelp forests, and is home to vital commercial and recreational fisheries. [The designation is now open for public comment.](#)

OCNMS Online

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

Visit our website at:

<http://olympiccoast.noaa.gov/>

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

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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/	Office of National Marine Sanctuaries – Earth is Blue https://sanctuaries.noaa.gov/earthisblue.html
NOAA Ocean Explorer http://oceanexplorer.noaa.gov/	NOAA Marine Debris Program http://marinedebris.noaa.gov/	National Marine Sanctuary Foundation https://marinesanctuary.org/



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/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 and 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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