



# Oregon Rocky Habitat Management Strategy Site Designation Proposal

**DISCLAIMER:** All rocky habitat site designation proposals MUST be submitted online via the Rocky Habitat Web Mapping Tool ([Oregon.SeaSketch.org](http://Oregon.SeaSketch.org)). If you require assistance with proposal submission, please contact the Rocky Shores Coordinator, Michael Moses, at [Michael.Moses@state.or.us](mailto:Michael.Moses@state.or.us).

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All proposals must be accompanied by a map and site report which may be generated under the "My Plans" tab on the Rocky Habitat Web Mapping Tool, or you can attach your own map to the proposal form. Interested parties should also review the [Rocky Habitat Management Strategy](#) to determine the eligibility of possible site designations prior to submitting a designation proposal. Entities in need of special accommodation should contact staff at the Oregon Coastal Management Program. Due to the depth of agency review, staff cannot guarantee when a proposal will be reviewed by OPAC or LCDC. Please note that a high volume of submissions may increase review timelines. Have questions? Contact Andy Lanier ([Andy.Lanier@state.or.us](mailto:Andy.Lanier@state.or.us)) or Michael Moses ([Michael.Moses@state.or.us](mailto:Michael.Moses@state.or.us)).

## Contact Information

**Please fill out the following section with primary contact information for this proposal. Contact information will be used to provide proposal review updates and ask for questions relating to this proposal.**

Name of Principal Contact\*

**Who should be contacted with updates and questions regarding this proposal?**

Brittany Poirson

Affiliation, agency, or organization (if applicable)

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## General Proposal Information & Rationale

**To the best of your knowledge, fill out the following section with the general site identification and rationale information for your proposed designation.**

### Proposal Type\*

Proposals may outline desired additions, deletions, or alterations to rocky habitat site designations, as outlined in the Territorial Sea Plan: Part Three.

- New Site Designation (addition)
- Existing Site Removal (deletion)
- Alteration to Existing Site

### What type of rocky habitat designation are you proposing?\*

- Marine Research Area
- Marine Garden/Education Area
- Marine Conservation Area

### Proposal Rationale and Goals\*

Please describe the context for why this proposal is being brought forward. **a) Please describe the site-specific goals for this proposal. b) What are the outcomes or metrics which could be measured to determine progress toward or achievement of these goals?**

#### Context:

A myriad of concurrent stressors are threatening our coastal ecosystems including marine heat waves, hypoxia, ocean acidification, declines in kelp forests, sea star population collapse, and a boom in purple urchin populations. Stressors linked to anthropogenic climate change are causing species range shifts, changes in reproductive timing, alterations in ecosystem structure, and changes in upwelling regimes (Laffoley and Baxter 2016). Long-term research is essential to detecting these changes as well as forecasting the effects of future climatic changes. From our historical datasets, we are concerned that Oregon's intertidal ecosystems are reaching a tipping-point as a result of environmental stressors from climate change (Menge pers. obs.). Continued monitoring at these established long term research sites is vital for tracking, forecasting, and managing ecological changes. Adaptive management builds on long term research to help mitigate the climate change effects on ecosystems (Castilla 2000). The work PISCO and other scientists have done at Cape Blanco for decades is fundamental to informing adaptive management decisions both locally and coast-wide.

We are advancing this proposal to address the following key issues: (1) changing ocean conditions that lead to broad changes in intertidal ecology along the Oregon coast, such as increasing marine heat waves, increasing ocean acidification, outbreaks of epizootic diseases like Sea Star Wasting Disease (Menge et al. 2016), and trophic downgrading (when ecosystems are

disrupted by the removal of top predators (Estes et al. 2011), (2) increasing human use and impact to delicate nearshore environments, and (3) lack of resources to ensure adequate enforcement of laws in the coastal areas in Oregon, especially in more remote areas such as the south coast. The combination of issues 2 & 3 are especially concerning given the potential for the combined detrimental effect of more visitors and less oversight of our natural resources.

The 2012 Oregon Resident Outdoor Demand Analysis concluded that 46.7% of the population of Curry County enjoys exploring tidepools (Rosenberger and Lindberg 2012), while 22.2% and 22.7% enjoy fishing from a boat and from shore respectively. From that same report, There were no known commercial uses in the area, except offshore fishing, which is not included in the proposal boundaries. We understand the human component of adaptive management and want to recognize the cultural and economic importance of fishing and tourism in southern Oregon. We have involved multiple stakeholders to design a Marine Research Area (MRA) that allows for the sustainable continuation of culturally and economically important activities while also ensuring adequate protections for studying the ecology of nearshore organisms and their habitat. The Territorial Sea Plan mandates the adaptive management of the nearshore and continental shelf ecosystems in Oregon, and we developed this proposal to be aligned with the State's coordinated ecosystem based management strategy.

The National Marine Fisheries Service (NMFS) has designated Oregon's rocky reefs, kelp forests, seagrass beds, and estuaries as Habitat Areas of Particular Concern (HAPC) (NMFS 2006). The proposed reserve includes two HAPC, rocky reefs and kelp forests, which are also areas of Essential Fish Habitat (EFH). There is no active management of such HAPC at this time. Our proposal would help conserve these critical habitats, which is especially important given the recent collapse of kelp forest ecosystems in southern Oregon (Rogers-Bennett and Catton 2019). These kelp forest ecosystems are critical to the functioning of the lucrative commercial fisheries in the area including Lingcod, Cabezon, and many species of Rockfish (Paddock and Estes 2000). In addition to the sensitive rocky reef ecosystems, Cape Blanco has some of the highest concentrations of seabirds in the California Current System (<https://netapp.audubon.org/iba/Reports/2454>), and therefore has been designated a "global priority" Important Bird Area by the Audubon Society due to the site's unique topography that provides critical habitat for many bird species.

#### Site Specific Goals:

We are proposing a MRA at Cape Blanco to support and formalize the long-term scientific research that has occurred at this site for decades. Our goal for Cape Blanco is for the area within proposal boundaries to remain accessible to the many stakeholders along the coast while providing protections for those natural communities. Therefore, we support continued accessibility for non-consumptive recreational activities. The site boundaries would have minimal impacts on nearshore fisheries and do not overlap with areas commonly used for legal recreational harvesting of plants and animals.

In addition to the current management applied to Marine Research Areas detailed in the Rocky Habitat Management Strategy (<https://www.oregonocean.info/index.php/opac-documents/workinggroups/tspwg-p3/2020-april-28/2020-draft-rockyhabitatmgmtstrategy042420>), we recommend the additional management actions based on our familiarity with the area:

- 1) Collection of all living and non-living resources will require a scientific permit;
- 2) Anchoring of vessels within the MRA should only be allowed by scientific permit because it could significantly compromise our protection goals;; and,
- 3) No live-fed aquaculture shall be permitted within the MRA as the goal is to keep the environment free of human impacts.

Additionally, harvest rights of federally-recognized Tribes will not be altered through a rocky habitat designation and therefore, the access and harvest rights for federally recognized Tribal Nations in this area will not be changed, altered, or reduced in any way by this proposal. While we are advocating for all harvesting within proposal boundaries to require a scientific permit, we do not support this restriction for any recognized member or representative of a Tribal Nation.

Outcomes or Metrics to determine progress toward achievement of goals:

The best indicator of the MRA's effectiveness would be that we see no human caused change over time to the ecosystem, even as human use increases. Our goal is to create a snapshot in time to maintain a highly functioning, nearly pristine ecosystem for generations to come, just as we are able to enjoy it today. The true test of progress towards long-term goals at the site will be as visitor numbers may increase in the future, human impacts to our research sites remain low, or even undetectable in our studies.

Long term monitoring of intertidal areas at Cape Blanco will continue as long as the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) funding or other external funding continues. If external funding were to cease, OSU researchers would likely continue monitoring and research activities at a reduced level. Long-term monitoring helps inform ecosystem based management of coastal areas and enables the tracking and mitigation of ecological changes that result from climate change and other perturbations (Sherman et al. 2016). The long-term monitoring results at Cape Blanco can be used to inform adaptive management strategies for this and similar sites along the Oregon coast.

How does the proposed site improve upon or fill a gap in addressing objectives/policies that are not currently addressed by other designated sites or management measures?

**Please address this question in relation to the following topics: a) Maintenance, protection, and restoration of habitats and natural communities. b) Allowing for the enjoyment and use of the area while protecting from degradation and loss. c) Preservation of public access. d) Consideration for the adaptation and resilience to climate change, ocean acidification, and hypoxia. e) Fostering stewardship and education of the area or coastwide.**

- a) Maintenance, protection, and restoration of habitats and natural communities.

Geographically, an MRA at Cape Blanco helps answer the call from researchers to link special areas together to maintain ecosystem function and important economic fisheries, especially in the face of a rapidly changing ocean environment (Brock, R.J., Kenchington, E., and Martínez-Arroyo, A. (editors). 2012, Lubchenco and Grorud-Colvert 2015).

We noted that this area of the southern Oregon Coast has no areas designated for protection and maintenance of intertidal rocky habitat ecosystems. There is one Marine

Reserve, Redfish Rocks Marine Reserve; however, this Reserve protects offshore waters and rocky islands thirteen miles south of Cape Blanco and fulfills a different management objective that does not include the coastline itself or the rocky intertidal zone. There are intertidal areas with protection approximately 55 miles north and 65 miles south of this section of coastline, but there are no protected areas near Port Orford. To the south is the Harris Beach State Park Marine Garden, which is an area in Brookings, Oregon designed to be an interpretive area for the public. To the north is the South Cove Research Reserve at Cape Arago. Protected intertidal areas are key to healthy natural communities. These existing “islands” of protection in Charleston, Oregon and Brookings, Oregon are far apart geographically, and so it is essential to connect these areas with an additional designation at Cape Blanco that emphasizes minimal disturbance to maintain and enhance natural system function. The research is clear that in addition to creating areas of refuge for species (Simard, Laffoley, and Baxter 2016), it is also critical to maintain connectivity between marine populations and thus more resilient ecosystems, especially as we face accelerating anthropogenic climate change (Brock, R.J., Kenchington, E., and Martínez-Arroyo, A. (editors). 2012). Linking rarer habitats that are critical to maintain ecosystem function and economically desirable fisheries geographically is also important, which is why the proposal for a Marine Conservation Area at Blacklock Point, just north of Cape Blanco, is also important (please note these proposals are to be considered separately).

- b) Allowing for the enjoyment and use of the area while protecting from degradation and loss.

Cape Blanco is a unique place geographically, culturally, and ecologically.

Geographically, the cape is the westernmost point in Oregon. The area is of cultural importance to south coast Tribes because it is part of the traditional homelands of the Coquille Indian Tribe and the Confederated Tribes of the Siletz. Additionally, the area has long been a research site for scientists who have studied the intertidal ecology at Cape Blanco for over two decades. The designation of the area as a MRA would not impact recreation, as most of the proposal area is quite remote. Therefore, only those who are more adventurous would likely access the proposed research area and it is unlikely the designation would significantly increase foot traffic to the area. We describe in section (e) how a MRA designation would provide an opportunity to cultivate a new appreciation for the area that researchers realize currently but the public-at-large may not.

- c) Preservation of public access.

Public access would not be altered in any way.

- d) Consideration for the adaptation and resilience to climate change, ocean acidification, and hypoxia.

Healthy and diverse ecosystems are better able to withstand stressors from climate change (Hooper et al. 2005). Protected areas have been shown to improve the health of the marine environment, preserve biodiversity, and increase the number and sizes of marine species (Lubchenco and Grotzinger 2015) that benefit consumptive and non-consumptive users. Protection facilitates adaptation and resilience to climate change, ocean acidification, and hypoxia (Simard, Laffoley, and Baxter 2016). Much is unknown about how climate impacts will unfold, since effects from climate change do not occur evenly across the marine landscape. This is largely due to multiple factors like ocean

current, exposure to storms, and marine bathymetry. This variable effect is demonstrated by the warm water blob and seasonal hypoxic areas. Some designated areas may become ‘marine climate refugia’ and can be prioritized for active management to protect them from impacts (Queirós et al. 2016). Protected areas are highly varied in name and in the type and scale of protection. We are proposing a MRA for the nearshore intertidal zone at Cape Blanco. This is a unique type of designation, and one of only a handful of such areas on the Oregon coast. The existing long-term scientific monitoring program at the site means that future studies may be able to detect the impacts of a MRA designation on issues such as adaptation and resilience to climate change, ocean acidification, and hypoxia, in comparison to other research sites outside of any protection boundaries.

e) **Fostering stewardship and education of the area or coastwide.**

Designation of the area as a MRA would foster stewardship of the area as well as curiosity about the natural world. Informational signage and a coastal network of volunteer stewards available near parking areas on high use days would make visitors aware of the MRA designation. These volunteers and the researchers themselves would also be able to provide information on the research being done in the area and the results of those studies. Locals and visitors that venture past the protected area boundaries would be able to see research in progress in the intertidal zone. We propose to design a QR code that can take visitors and users to a website delineating the proposal boundaries and regulations, and also to the details of research being done at Cape Blanco. Ideally, information about ‘research in action’ will be linked to management approaches, and sustaining a healthy coast for coastal communities and visitors alike.

## Site Information

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site.**

### Name of Proposed Site\*

**What is the general site name of the area of your proposed location? (Example: Haystack Rock, Cannon Beach)**

Cape Blanco Intertidal and Nearshore Area, Northern Curry County, Oregon

### Site Location

**What is the specific location of your proposed site (if applicable)? Use common place names, latitude/longitude, and geographic references to identify the location of the site.**

Cape Blanco is located in northern Curry County, SW Oregon, between Langlois and Port Orford, south of Sixes River mouth. It is southwest of Cape Blanco airport, and west of the Hughes Historic House. Area bounded by the approximate coordinates in degrees (derived from Seasketch; Latitude / Longitude)

Cape Blanco is located at N 42°50'08.12", W 124°33'51.16"

The proposal boundaries are roughly inclusive of these coordinates:

NW boundary: 42°50'33.7" -124°33'58.4"



N boundary: 42°50'21.4" -124°33'40"  
S boundary: 42°49'56.9" -124°33'43.8"  
SW boundary: 42°50'13.4" -124°34'6.4"

### General Site Description\*

Cape Blanco is the westernmost tip of Oregon. It is located in Curry County, five miles north of Port Orford, Oregon. Cape Blanco site coordinates are listed along with the approximate proposal boundaries (See Site Location). The proposed site boundary includes the approximate area from the start of the rocky intertidal (end of the sandy beach) on the north side of the cape, wrapping westward and to the south of the cape, stopping approximately at the east side of the small cove on the south side of the Cape. Proposal boundaries hug the shore line of the Cape and extend from the base of the Cape cliffs to a maximum depth of 14m into the subtidal zone. The rocky intertidal is physically characterized by steep rock faces and long benches extending into the water. Large and small boulders occupy large swaths of the intertidal as well. Southern Oregon geology is composed mostly of accreted terranes. These are groups of rocks that formed together and show similar composition and environmental characteristics to each other, but are not similar to the other rocks surrounding them. This geological phenomenon makes Cape Blanco a distinctive part of the Southern Oregon Coastline.

([sites.google.com/site/oregonvirtualfieldtrips/cape-blanco-iron-mountain](https://sites.google.com/site/oregonvirtualfieldtrips/cape-blanco-iron-mountain))

The rocky intertidal ecology here is unique as a result of the bathymetry off of the Oregon coast. Cape Blanco has intermittent upwelling and therefore creates a “Goldilocks zone” of nutrient supply and cooler water in the warm summer months (Krenz et al. 2011, Fenberg et al. 2015, Menge et al. 2015). Upwelling occurs when annual offshore winds push surface water off of the coast, and cold, nutrient-dense water flushes in from the bottom of the sea floor (Huyer 1983). In the California Current Large Marine Ecosystem (CCLME), upwelling occurs primarily in summer and relaxes in the late fall (Huyer 1983). The upwelling conditions at Cape Blanco allow for high recruitment and survival of algae and invertebrates. The area within the proposal boundaries consists of large boulders and rocky benches that provide habitat for a diversity of plants and animals. Common species found in the intertidal at Cape Blanco include a variety of algae (most conspicuously, red algae and a variety of kelps), invertebrates (mussels, barnacles, sea stars, and crabs, among many others), birds (Black Oystercatchers, Gulls, Terns, Kingfishers and others), and fishes (including economically important species such as Lingcod, Cabezon, and many species of Rockfish).

See attached Appendix III. Photos of Cape Blanco for visual characterization of the site.

### Site Boundaries\*

**Provide a written description of the intended boundaries and scope of the proposed area (e.g. intertidal area, subtidal area, depth contour, etc.) All proposals must include a map of the proposed site boundaries.**

The proposed site boundaries are delineated in the Seasketch online mapping tool, and detailed descriptions are listed in the Site Location and General Site Description sections. The proposed



area includes 55.8 acres of land including the intertidal area, rocky shallow subtidal (up to 14m depth), offshore rocks and islands, and some nearshore kelp beds.

The rocky habitat included in this proposal is defined in the Rocky Habitat Management Strategy as follows:

- a. Rocky Shoreline - all rocky habitat between the statutory vegetation line described in ORS 390.770 and extreme low water (encompasses cliffs, tidepools, and rocky intertidal). These areas may be reached by foot from shore (regardless of hazard or convenience).
- b. Rocky shallow subtidal - the portion from extreme low water out to -5m depth is considered to be part of the rocky shoreline and is classified as submerged bedrock or boulders. This subtidal region is generally a geologic extension of rocky intertidal or cliff areas along the shore.
- c. Offshore rocks and islands - An offshore rock or island is defined as any rock that extends in elevation above mean high water and is disconnected with the mainland at mean high tide.
- d. Intertidal - Rocky habitat area between extreme high water line and extreme low water line

#### Site Access Information\*

##### **How is this site commonly accessed?**

There are two main access points to the Cape Blanco intertidal area. The main access point is a trail down the north side of the Cape connected to the parking lot east of the lighthouse. The north trail leads to a sandy beach that stretches along the cape to the east and west. Following the beach westward, the sandy beach becomes a rocky shoreline. We are proposing that site boundaries start roughly where the rocky terrain emerges on the shoreline.

The second access point is on the south side of the cape. There is a small sandy trail that winds down the headland to a large sea stack from the same parking lot. The sandy beach turns into a rocky shoreline as you go west. We are proposing that the south side of the boundary starts roughly at the east edge of the small cove to the west of the main sandy beach and continues westward along the cape.

#### What is your understanding of current management at this site?\*

##### **This may include site ownership, management authorities, and other key stakeholders.**

Cape Blanco State Park and intertidal area is managed by the Oregon Parks and Recreation Department (OPRD) under multiple statutes and regulations, including OAR 736-020, General Ocean Shore State Recreation Rules. Adjacent offshore submerged lands and marine plant resources are owned and managed by the Oregon Department of State Lands (DSL) under authority of ORS 274. The surrounding area is undeveloped but includes a historic lighthouse and the Hughes Historic House, managed by the Cape Blanco Heritage Society. There is also a public campground at the Cape, managed by OPRD.

Offshore rocky habitats above Mean Higher High Water (MHHW) are managed by U.S. Fish and Wildlife Service (USFWS), including the migratory bird treaty act (16 U.S.C. 703-712), the



Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421), and the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-j). Offshore rocky habitats below Mean Lower Low Water (MLLW) are owned and managed by DSL (ORS 274). ODFW manages the marine natural resources and scientific take permits (OAR chapter 635)

Local and Migratory seabirds using Cape Blanco as refuge and nesting areas are managed by USFWS authorities under the Migratory Bird Treaty Act (16 U.S.C. 703-712), the Fish and Wildlife Improvement Act of 1978 (16 U.S.C. 7421), and the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-j). Marine mammals are protected under the Marine Mammal Protection Act (MMPA) 16 USC 1361-1407. USFWS is responsible for protecting otter species, and NOAA was given responsibility to manage all pinniped species. Other management authorities include the Federal Endangered Species Act – ESA: 16 U.S.C. §1531 et seq., managed by USFWS, the National Oceanic and Atmospheric Association (NOAA), and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Key stakeholders include but are not limited to: residents, visitors, anglers, local businesses, local tribal communities, docents to the historic lighthouse and Hughes House, and scientists from a variety of U.S. and international research institutions. Cape Blanco has long been an area of cultural significance to the Coquille Tribe and the Confederated Tribes of Siletz Indians.

## Site Uses

**To the best of your knowledge, please provide the following information *based on the current site management*.**

### Site Uses\*

**Describe the current users and uses present at the site. Uses may encompass recreational, commercial, cultural, and scientific.**

The Cape is a stunning natural feature that brings residents and visitors to the Southern Oregon coast. Current users of Cape Blanco include residents from Curry and Coos Counties, anglers, scientists, recreational users, hikers, photographers, bird watchers, lighthouse visitors, and members of local south coast Tribes and Oregon Tribal Confederations. Other users include tourists from elsewhere in Oregon, the U.S., and other countries. Recreational spaces include the lighthouse, beaches, rocky shores, and forested lands near the Cape that offer trails, campgrounds and historical buildings. Cultural uses include use by south coast Tribes since time immemorial and visitors to the lighthouse and the Historic Hughes House.

Non-consumptive uses within the proposal boundaries itself include hiking, dog walking, sightseeing, birdwatching, whale watching, photography, tidepooling, school field trips, scientific surveys and studies, and drone-flying. Information gathered from Curry County residents indicates that 59.1% of the population participates in beach activities and 46.7% of the population enjoys exploring tidepools (Rosenberger and Lindberg 2012).

Consumptive activities within our proposed boundaries include fishing, agate hunting, beachcombing, marine invertebrate and algae collections (non-permitted), and scientific collections (permitted). Curry County residents enjoy fishing from a boat (22.2%) and from

shore (22.7%) for non-commercial consumption. 16.8% of the population enjoys crabbing, and 13.6% enjoy clamming/shellfish harvesting (Rosenberger and Lindberg 2012). There are currently no known commercial uses in the area, except offshore fishing, which is not included in the proposed boundaries.

Scientific activities on Cape Blanco include intertidal surveys, whale migration tracking, Black Oystercatcher and Marbled Murrelet monitoring, oceanographic monitoring, invasive species tracking, and geological surveys by a number of academic institutions and state agencies (Savage et al. 2000, Tynan et al. 2005, Krenz et al. 2011, Augyte and Shaughnessy 2014, <https://terra.oregonstate.edu/2017/11/home-from-the-sea/>).

## Site Infrastructure

**Please summarize existing site infrastructure. For example: large parking lot, public restrooms, 10-foot stairway leading to cobble beach, etc.**

Cape Blanco State Park includes a six mile partially paved roadway leading to a parking area from the Oregon Coast Highway (U.S. 101). The parking lot is due east of the Cape Blanco Lighthouse, situated directly on the cape. The lighthouse infrastructure includes a visitor center and gift shop. A few miles east, the Historic Hughes House sits on a terrace and is open to the public for tours in April through October. On the cape, there are many trails for horseback riding and hiking. Cape Blanco Campground, managed by OPRD, includes 52 sites with electricity and water, four cabins, a horse camp, flush toilets, and showers. Two access trails lead to the intertidal on the north and south side of the main parking lot by the lighthouse.

## Potential Future Site Uses

**Please describe potential future site uses of the proposed site if there was no change to current site management. Much like current uses, future uses may encompass recreational, commercial, cultural, and scientific, as well as others not listed.**

We are concerned about increasing visitor use to the ecologically vulnerable habitats along the Oregon Coast (<https://www.registerguard.com/news/20200211/oregons-state-parks-break-camping-record-again>). As human use will likely increase at Oregon State Parks, we anticipate an associated increase in non-consumptive and consumptive activities as listed above (see Site Uses). Future uses are anticipated to be similar to current uses, which are mostly recreational, with an increase in nature-based tourism activities if trends in visitation to the Oregon Coast continue to increase.

## Impacts on Site Uses

**How will altering this site's management designation impact existing and potential future uses? Please outline the potential positive and negative impacts to current and future users as well as the degree of impact. How does the proposed site management balance the conservation of rocky habitat resources with human use?**

The management designation of the site as a MRA will impact current and future consumptive uses, requiring a scientific permit for extraction of all living or non-living resources. Current and future non-consumptive uses will not be impacted as access to the site will remain the same as it is currently. The site may experience increased use of the area by the public, as the designation is an indication of the value of the natural resources there. However, the proposed area sees limited foot traffic at the moment due to its remoteness, so levels of use and access may remain similar after the designation. Increased visitor levels are not expected to negatively impact non-consumptive uses or natural resource availability, as long as visitors are respectful of the area. The creation of a volunteer site-based stewardship program (in partnership with the proposed designation at nearby Blacklock Point and potentially other designated rocky habitat sites coastwide) would improve compliance with the management recommendations of the MRA, and minimize human impacts on the valuable natural resources we seek to protect. Since the area is sensitive to human impacts, we propose the following:

- 1) Monitoring of trails from the parking lot to the beach, and volunteer-led trail repairs if deemed necessary (as a part of the joint stewardship program mentioned above);
- 2) Clear signage to the nearest toilet facilities from the parking lot (added to existing signage board), to ensure visitors know where restrooms are located (signage developed and posted by OPRD staff);
- 3) A small map with key site features and information both about respectful recreation in rocky shores, the species present, cultural heritage, and scientific findings in the area. Signage to be developed by PISCO along with other scientific and tribal partners, and posted by OPRD staff; and,
- 4) A summary of permitted and restricted activities at the site as well as MRA boundaries (signage to be developed as a joint effort between OPRD, ODFW, and PISCO, and posted by OPRD staff).

We recommend the development, training, and implementation of a joint-volunteer stewardship program with nearby Blacklock Point. This volunteer program would be essential in assisting ORPD with management and educational activities on-site such as trail maintenance, visitor education, compliance and safety monitoring, and cooperation with management in enforcement of proposed regulations. Formal designation by the state of the area will help volunteer groups raise grant funds and other sources of support for long-term stewardship.

## Key Natural Resources

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site.**

### Rocky Habitat Present\*

**Please include as much information as possible on the specific types and composition of rocky habitat present at the site (e.g. rocky intertidal with extensive tidepools, adjacent rocky cliffs, and rocky subtidal).**

The Cape Blanco proposal area consists of 54.2 acres of subtidal habitat, 82% of which is rocky substrate, and the remaining area consists of sandy substrate. The rest of the proposal area includes 55.8 acres of intertidal substrates including Rock (49.4%), unclassified (42.9%),

Boulder (4%), Fine Unconsolidated Substrate (3.6%), and Coarse Unconsolidated Substrate (0.1%). The rocky intertidal substrate has extensive tidal channels along with static and meandering tidepools.

### Key Resources\*

**Describe current rocky habitat resources present at the site. These may include, but are not limited to: kelp beds; pinniped haulout or pupping areas; seabird colonies; presence of threatened/endangered/protected species; intertidal diversity (invertebrates, marine plants, etc.).**

#### **Kelp Beds:**

Within our proposed site boundaries, there are kelp beds primarily composed of bull kelp (*Nereocystis luetkeana*). These areas have been surveyed historically by the ODFW (Merems 2011). Most of the kelp within our proposed area is just south of Cape Blanco, and there are two small kelp beds to the north. These beds have historically been present at the site and support a diversity of different organisms both structurally and energetically, by providing food and habitat for fish and invertebrates (Steneck et al. 2002). Our proposal includes only a small area of the kelp beds; the density of kelp will vary year to year with natural changes in nutrient availability and other environmental factors. With protection from a MRA designation, it is possible to mitigate the effects of human consumption on the kelp forest ecosystems.

#### **Pinniped haulout or pupping areas:**

Per the 1984-1985 Assessment of pinniped populations in Oregon (Brown 1988), Stellar Sea Lions (*Eumetopias jubatus*), Harbor Seals (*Phoca vitulina*), and California Sea Lions (*Zalophus californianus*) use Cape Blanco for respite. During all observation sessions, no pups were observed in the area. Data on pinniped haulout and pupping data are sparse for this area, but will hopefully be improved by a robust volunteer group monitoring program, as described in other sections of this proposal.

#### **Seabird colonies:**

Cape Blanco has some of the highest concentrations of seabirds in the California Current System (<https://netapp.audubon.org/iba/Reports/2454>), and therefore has been designated a “global priority” Important Bird Area by the Audubon Society due to the site’s unique topography, which provides critical habitat for many bird species. Cape Blanco has a high seabird diversity compared to surrounding areas, providing nesting sites for more than 72,400 seabirds of ten different species (Naughton et al. 2007), including an area that encumpasses 43% of Oregon’s Common Murre breeding population (Naughton et al. 2007).

Juvenile Peregrine Falcons (*Falco peregrinus*) have been observed nesting at Cape Blanco by local birdwatchers. Other species of seabirds that are present at Cape Blanco or near-shore are: Pigeon Guillemot (*Cepphus columba*), Tufted Puffin (*Fratercula cirrhata*), Black Oystercatcher (*Haematopus bachmani*), Pelagic and Brandt’s cormorants (*Phalacrocorax spp*), and Common Murre (*Uria aalge*).

Seabird data were collected from an extensive species search through published and unpublished literature and data. Several species were identified in the 2000 USFWS Census data (<https://netapp.audubon.org/iba/Reports/2439>) or annual data from the eBird Observation Dataset published by the Cornell Lab of Ornithology (Levatich and Ligocki 2020).

**Presence of threatened /endangered/protected species:**

See attachment: Appendix IV: Presence of Threatened-Endangered-Protected Species at Cape Blanco

**Intertidal diversity:**

The intertidal species diversity at Cape Blanco is extremely high due to the aforementioned “Goldilocks zone” of upwelling (Krenz et al. 2011, Fenberg et al. 2015, Menge et al. 2015), previously described in the Site Information section of this proposal.

Invertebrate species observed at Cape Blanco are abundant and span across many different taxa. Characteristic species observed at Cape Blanco include: Mussels (*Mytilus* spp.), Dogwhelks (*Nucella* spp), Ochre sea stars (*Pisaster ochraceus*), Gooseneck barnacles (*Pollicipes polymerus*), Acorn barnacles (*Balanus* spp), Thatched barnacles (*Semibalanus* spp.), Buckshot barnacles (*Chthamalus dalli*), Purple sea urchins (*Strongylocentrotus purpuratus*), Green anemones (*Anthropleura* spp), and many species of worms, isopods, amphipods, sponges, crabs, and snails.

Not only is there a high diversity of invertebrate animals at this site, there are many species of red, brown, and green algae, and seagrass (a vascular plant) present which provide habitat for other intertidal organisms. Species observed in the 2019 PISCO intertidal community surveys include but are not limited to: Iridescent Weed (*Mazzaella* spp.), Black Pine Seaweed (*Neorhodomela* spp.), Feather Boa Kelp (*Egregia menziesii*), Rockweed (*Fucus distichus*), Strap kelp (*Lessoniopsis littoralis*), Dwarf Rockweed (*Pelvetiopsis limitata*), Sea Cabbage (*Saccharina* spp.), Surfgrass (*Phyllospadix scouleri*), and Sea Lettuce (*Ulva* spp.).

Because a small area of nearshore subtidal area is included in our proposed site designation, data on the presence of specific fish species determined by the ODFW Nearshore Strategy (Oregon Conservation Strategy 2016) were used to characterize the fish populations near Cape Blanco. ODFW annual monitoring projects at Redfish Rocks Marine Reserve (located 13.6 miles south of Cape Blanco) identified the following species present in recent years: Striped perch (*Embiotoca lateralis*), Kelp greenling (*Hexagrammos decagrammus*), Lingcod (*Ophiodon elongatus*), Cabezon (*Scorpaenichthys marmoratus*), and 9 different species of Rockfish (*Sebastes* spp.). We can assume that these species are also present at Cape Blanco due to the similar reef structure and close proximity to Redfish Rocks. Additional nearshore species may be present but data on subtidal fish are sparse for this site. Our designation does not include off-shore waters, but near-shore reefs may include critical habitat important in the life cycles of the species listed above.

**Flora and Fauna\***

**List the animal and plant species you know exist at this site along with relative abundance.**

Although few comprehensive data sets exist for all flora and fauna of Cape Blanco, data sets on specific functional groups (birds, invertebrates, algae, fish, etc.) were found through literature searches in published and unpublished data sets. The species listed above are present based on the best available resources including: PISCO annual intertidal surveying and research, eBird Observation Datasets and Audubon site reports, USFWS Census Data, ODFW annual monitoring projects (SCUBA, Hook-and-Line, ROV, and Longline collection efforts), and observations from users of Cape Blanco familiar with the site-specific species. Some data from the Redfish Rocks Marine Reserve (13.6 miles south) was used as ubiquitous to Cape Blanco due to the highly connective nature of marine environments and similar topography and shelf geology at both Redfish Rocks and Cape Blanco. Data on bird species are likely understated as data from the most recent professional census we could find are now thirteen years old. However, eBird data compiled by birdwatchers on the Cape Blanco State Park hotspot checklist as recently as December 2020 (<https://ebird.org/barchart?r=L629009&yr=all&m=>) indicates 207 species have been documented at the site, of which over 50 are known to utilize rocky shoreline habitats. Included in this list is one “threatened” bird species listed in the federal and state ESA (Marbled Murrelet) and 8 species listed as “strategy species” of conservation concern in ODFW’s Nearshore Strategy (see Appendix IV). In addition, Peregrine Falcons (*Falco peregrinus*) have been observed nesting at Cape Blanco.

Professional research studies on fish, invertebrates, and algae at Cape Blanco (up to and including 2019) represents an accurate and detailed inventory of the species at Cape Blanco today. As part of this work, PISCO scientists have been conducting research at Cape Blanco for more than 20 years, giving us great familiarity with the species present at this biodiverse location.

Mammal data are especially sparse for this location, but seals (*Phoca vitulina*), sea lions (*Eumetopias jubatus* and *Zalophus californianus*), black bears (*Ursus americanus*), and raccoons (*Procyon lotor*) have been spotted in the intertidal and evidence of their use at Cape Blanco has been observed (scat or other markings indicative of movement through the rocky shoreline).

Please see the attached Appendix V. Biological Species Data for Cape Blanco for the full list of species found at or near Cape Blanco.

## Unique Features

**Does this site include any unique or special features in relation to the Oregon Coast? This may include high quality examples of rocky habitats, etc.**

Cape Blanco is historically, geologically, and ecologically unique. The striking white cliffs of the Cape, for which Cape Blanco was named, are stunning and draw photographers from all over the world. Visitors as well as locals flock to this State Park for the breathtaking views north and south down the coast, the diversity of landscapes, and the well maintained historical buildings. The oldest lighthouse in Oregon still stands on Cape Blanco, and scores of visitors come to see this structural marvel that has been in continuous operation since December 20, 1870 ([www.enjoyportorford.com/capeblancolighthouse.html](http://www.enjoyportorford.com/capeblancolighthouse.html)). Additionally, the area is of immense cultural significance to the Coquille Indian Tribe and the Confederated Tribes of Siletz Indians,

and is within the ancestral lands of these people, proving that Cape Blanco has been in use by humans since time immemorial.

Geologically, the Cape Blanco headland is relatively flat and 60 meters above the ocean, and is continually rising due to uplift of marine sediments (Bishop and Eliot 1996). Southern Oregon geology is composed mostly of accreted terranes which are unique from the other rocks surrounding them. This geological aspect is rarely seen elsewhere ([sites.google.com/site/oregonvirtualfieldtrips/cape-blanco-iron-mountain](https://sites.google.com/site/oregonvirtualfieldtrips/cape-blanco-iron-mountain)). Cape Blanco is the westernmost point in Oregon, which accounts for the unparalleled upwelling that is found in this area, directly impacting the natural communities of the rocky intertidal that rely on upwelled nutrients for biological productivity. Wind speeds also contribute to the unique environment at Cape Blanco, with speeds regularly reaching up to 100 miles per hour (Palmer 2014).

Ecologically, Cape Blanco is exceptional due to the biogeographic break that occurs at this site. This break is characterized by longer periods of upwelling to the south, and shorter periods to the north (Broitman et al. 2008). Upwelling occurs when annual offshore winds push surface water off of the coast, and cold, nutrient dense water flushes in from the bottom of the sea floor (Huyer 1983). In the CCLME, upwelling occurs primarily in summer and relaxes in the late fall (Huyer 1983). The intermittent upwelling that occurs at Cape Blanco causes high biological productivity, which is critical for sustaining the diverse and unique ecology of the site (Krenz et al. 2011, Menge and Menge 2013). The intertidal here is characterized by a diverse collection of red seaweeds, kelp species and a wide variety of sessile and mobile invertebrate species. The site itself includes vertical rock walls that provide habitat for narrow bands of California mussel (*Mytilus californianus*), the dominant mid-zone sessile invertebrate, along with a few species of barnacles. The algae cover and mussel beds provide refugia for a diversity of crabs, sea stars, worms, isopods, chitons, snails, and many other organisms that make up a healthy and functioning ecosystem. Charismatic megafauna such as river otters and several species of whale have been spotted just offshore of this magnificent site.

Culturally, we understand that the area has great significance to the indigenous people that have inhabited the area for millenia. Although, as euro-settlers, we are not privy to the deep knowledge, connection, and resources important to Oregon's Tribal Nations, we would be remiss not to mention that this is an area of significance and uniqueness to indigenous culture and identity.

## Values and Resources

### **Please discuss site values and resources and how a change in designation will impact them.**

Site values and resources are discussed at length in other sections of the proposal, but will be briefly summarized here (see Key Natural Resources and Site Uses sections). Site values and resources include the wild character of the area, cultural uses, intact natural resources, the particular landform (high sea cliffs of the cape), diverse and vibrant rocky intertidal communities, seabird colonies, kelp beds, historical structures, and a wide array of recreational uses.

Site values such as healthy seabird and coastal bird populations are threatened by current uses, and would be addressed by the proposed designation. The implementation of a visitor program would mean additional education on how to use the area without disturbing the wildlife. The site designation as a MRA would positively impact site values and resources such as seabird populations, but also maintain values such as wild character, intact natural resources, nearshore kelp beds, and healthy natural ecosystems.

Possible negative impacts could stem from increased visitors to the area. Trampling of sensitive intertidal communities can have a negative impact if visitor numbers are high enough (Brosnan and Crumrine 1994). Designation of the site as a MRA would signal high natural value of the area and could attract additional visitors. However, with adequate volunteer stewardship of the area and increased information signage and programming, it is unlikely significant negative impacts would result from the designation. It is important to note that increased visitor use of the area is likely to result regardless of designation, so by making the area a MRA, an effective volunteer program can be established to prepare for an increase in visitation and interest in recreation at Cape Blanco.

## Regulations & Enforcement

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site. Due to the complexity of site regulation and enforcement, this section will not be used to evaluate proposal completeness, but will be considered for the merit of this proposal. Agencies will address gaps where information is available.**

### Management Consideration

**How was enforcement/compliance of management considered in the design of this site proposal? If possible, please estimate the cost to implement this change in site management.**

We understand that funding for enforcement is limited, and management changes were carefully considered while drafting this proposal. Existing management at Cape Blanco is handled by the OPRD with assistance from ODFW, Oregon DSL, Oregon State Police (OSP), and USFWS. Enforcement of current laws and regulations is limited by agency and state budgets, and we recognize that adding further regulations at this time might be difficult due to the further constraints of state budgets due to the COVID-19 crisis. While we are proposing that all consumptive activities occurring within proposal boundaries require a scientific permit, we do not believe that this will strain the infrastructure of regulation enforcement that exists.

We support community building and outreach efforts by existing community groups and entities in southern coastal Oregon to spread awareness of any regulation changes that occur. Other models for education and outreach have been widely successful at other locations along the coast (e.g., Friends of Cape Falcon, Haystack Rock Awareness Program, Makai Watch, Friends of Otter Rock, Friends of Cascade Head Marine Reserve, Cape Perpetua Collaborative, and the Red Fish Rocks Community Team), and we feel as though these models could also work at Cape Blanco with minimal cost or oversight from the state, especially if staffed with a collaborative volunteer group. Therefore, we propose the development of a volunteer stewardship program shared between Cape Blanco and Blacklock Point. The program would also serve to increase the

sense of ownership and place for volunteers as it would require cooperation with community partners, local individuals, Tribal Nations, land and resource management agencies, law enforcement agencies, and funders.

At this time, we are not able to provide detailed estimates of the cost of implementation of these suggested site management changes. Based on similar programs, we believe that the cost of this type of program would be feasible to raise for this site. Once the proposal reaches the final stages of approval we will begin to work closely with Blacklock partners to identify budgets, funders, and concrete action plans to determine a management budget that balances the need for fiscal responsibility with the implementation of the MRA.

## Enforcement Changes

**In comparison to current site management, what changes would be necessary to enforce the proposed management measures? This may include the addition or removal of infrastructure, personnel, etc. Include the estimated financial impact of the proposal. Some designations incorporate larger financial or programmatic support. Please identify any entities or funding sources that may be available to continually support this proposal. This information is not required for a proposal to be accepted, but review bodies would like to be informed of any support that is already in place or expected for the site.**

For the successful implementation of a Cape Blanco MRA, we anticipate minor changes to the current site management. Some additional oversight may fall to ODFW to approve additional scientific permits and to OPRD staff to monitor use of the area, but we do not think that these changes will be overly burdensome to manage. We will work to establish a community consortium to monitor proposal area use and offset programmatic budget increases, until a time when the state funding allows for sole State financial support. We also propose to create a volunteer stewardship program to help with management changes and visitor educational programs (see Management Consideration Section), and to foster partnerships between stakeholders and state agencies. The main tool for enforcement is education of regulations, and we will focus on increasing visitors' awareness of the fragile natural resources and sharing best practices for responsible recreation.

We propose no addition or removal of infrastructure at Cape Blanco, as both the lighthouse and camping areas have adequate infrastructure to support visitors to the site. A small billboard exists at the beach access parking lot at Cape Blanco already, and we propose to add information on the proposed MRA boundaries and regulations.

Continued intertidal monitoring is supported by the Menge lab at Oregon State University and Portland Audubon (coordinating the Oregon Black Oystercatcher Project), among other research institutions. Research efforts would be funded through sources independent of the MRA management budget.

The financial impact of these additional management recommendations are complex and we would be happy to work with the agencies above who are more experienced with balancing costs with desired outcomes as we move forward with our proposal.

## Needed Regulations

**What regulations and enforcement would be necessary to implement this change in management? What regulatory changes at the proposed site would be needed at this site? Which state/federal agencies would be impacted by this change in site management?**

A MRA may require support from ODFW staff to accommodate additional scientific proposals at this site for research harvest of natural resources. Increased intertidal and nearshore monitoring by OPRD may also be necessary to educate and enforce visitors to Cape Blanco of the updated management strategy, however we propose a more community based outreach approach, detailed in the Non-Regulatory Management Mechanisms section to offset the burden on state agencies.

Based on conversations with state agency staff and personnel at the Oregon Department of Land Conservation and Development (DLCD), we understand that funding for enforcement, outreach, and stewardship are extremely limited at this time. We do not anticipate a large increase in scientific permitting at this site based on our knowledge of existing and historical site uses.

## Improvements to Management

**How does the proposed site improve upon or fill gaps in addressing objectives/policies that are not currently addressed by coastwide regulations or management?**

Updates to the Territorial Sea Plan of Oregon were designed to address existing and future goals and policies for our coastal ocean. In this way, our proposal of Cape Blanco improves upon state objectives by making this unique and scientifically important site a MRA. The proposed site is intended to create a more holistic based management strategy that creates cooperative relationships between state agencies and local stakeholders.

We hope that this proposal would bolster a local or coastwide approach to collaborative care of our coastal habitats. We envision a shared management approach to include meetings between state agencies and residents to identify problems and collaborate on sustainable solutions. Shared stewardship would spread awareness and solicit solutions to large existential threats to our coastal ocean such as climate change, ocean acidification, and other challenging human-made threats like increasing tourism, soil erosion, and agricultural run-off. This collective approach to adaptive management could then be a guide for the establishment of similar coalitions in other coastal regions in Oregon.

## Non-Regulatory Management Mechanisms

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site.**

## Management Mechanisms

**What non-regulatory mechanisms are required at this site in order to meet the goals of the proposed designation? These may include, but are not limited to, public access management, on-site enhancement, and educational intercepts.**

We recommend the following non-regulatory mechanisms for this proposal:

- (1) Signage no larger than 11" x 17" detailing information about the rules and regulations specific to the site, along with a map indicating proposal boundaries. We would like this information posted on an already existing message board at the site, to not build additional infrastructure on the cape (signage development and posting details listed in detail in the impacts of site uses section).
- (2) A QR code posted on the message board that would allow users to see an interactive map of the MRA on smartphones that could delineate the exact boundaries of the MRA and notify these users of the harvest restrictions within the boundaries (QR code would likely be developed by partners within DLCD, PISCO, and OPRD).
- (3) Developing a community volunteer stewardship program between PISCO and Oregon Shores and other successful volunteer programs on the Oregon coast to coordinate outreach efforts on especially high use days at Cape Blanco (especially throughout the summer). We envision these stewards providing information on responsible and safe uses of the area. Other functions would include but not be limited to:
  - (a) How to tidepool responsibly and information about the rocky intertidal zone;
  - (b) Inform visitors of updated regulations at the site;
  - (c) Communicate with OPRD and OSP about potential use violations in the proposal area;
  - (d) Assist with monitoring of site and natural resources; and,
  - (e) Assist with maintenance of site infrastructure.
- (4) Update the website where users can view different rocky shores designations along the Oregon coast, interactively ([geo.maps.arcgis.com/apps/MapJournal/index.html?appid=74d5b07bc0a44a85aa6f010d1203d533](http://geo.maps.arcgis.com/apps/MapJournal/index.html?appid=74d5b07bc0a44a85aa6f010d1203d533)). This should show all the areas that are each type of designation and include the regulations for each area. Right now the only other websites with similarly comprehensive maps and information are [eregulations.com](http://eregulations.com) and [oregonmarinereserves.com](http://oregonmarinereserves.com). (Website updates should be led by DLCD or other agencies working on a coordinated online tool to inform users of current regulations)
- (5) Develop a Memorandum of Understanding (MOU) between local government and law enforcement for implementation at Cape Blanco, modeled after the Haystack Rock Awareness Program MOU and developed in conjunction with the Blacklock Point MOU (MOUs would be developed by Oregon Shores and PISCO with the guidance of local governments, OSP, and the Haystack Rock Awareness Program).
- (6) Work to secure sustainable funding sources for a Cape Blanco and Blacklock Point joint Coastal Stewardship program (Led by volunteer stewards, PISCO, and Oregon Shores).

We propose a volunteer stewardship program for the following reasons: The Curry County State Parks Master Plan from 2003 advocates for using volunteers as site-specific management measures that do not require creation of new regulations. Additionally, The Rocky Shores

Communication Strategy from 1995 calls for a coastwide shoreline interpretive program, which has yet to be implemented. The establishment of a volunteer program at Cape Blanco could fulfill this component of the Rocky Shores Strategy. We believe this could be one step to fostering the collaborative relationships between local stakeholders and state agencies called for in the enforcement changes section. This volunteer program will be a joint effort for both the Blacklock Point proposed conservation area and the Cape Blanco proposed MRA. Volunteers would be stationed at the main parking lot as well as at “fringe” intertidal zones on both the north and south side of the Cape, where most visitors will be using the intertidal.

## Support for Management Mechanisms

**How do you propose to support these mechanisms? Some designations incorporate larger financial or programmatic support. Please identify any entities or funding sources that may be available to continually support this proposal. This information is not required for a proposal to be accepted, but review bodies would like to be informed of any support that is already in place or expected for the site.**

The Oregon Shores Coastwatch Program (OS CW) and the Shoreline Education for Awareness (SEA) groups are existing volunteer networks with membership on the south coast of Oregon. They will be key players in developing a volunteer stewardship program at this site and have expressed interest in being involved with such a plan at nearby Blacklock Point. These organizations specialize in volunteer recruitment and training, and are poised to expand the Oregon coast volunteer stewardship programs that exist elsewhere on the coast, allowing for more comprehensive stewardship of Oregon coastal ecosystems. We will work with these partners to incorporate some of the interested volunteer work force from Blacklock Point and other nearby protected areas at Cape Blanco on especially busy coast visitor days. Ideally, when state budget forecasts improve, funds could be spent on creating a management structure for this program to ensure the long lasting success of a coordinated coast-wide interpretive program.

Members of the PISCO lab at Oregon State University along with Tom Calvanese at the Port Orford Field Station have been doing outreach on the south coast for several years, and regularly interact with coast visitors while doing research. We anticipate this more informal approach to outreach and stewardship efforts would continue indefinitely.

Funding exploration would be aimed at entities such as The Ford Family Foundation, The Pew Charitable Trusts, The Gordon and Betty Moore Foundation, Oregon Community Foundation, Oregon Coast Visitors Association, Travel Oregon, the U.S. Fish and Wildlife Foundation, Wild Rivers Coast Alliance, the Audubon Society, and several others. Non-monetary support would be sought from the Charleston Marine Life Center of the University of Oregon, The Oregon Coast Aquarium, the Hatfield Marine Science Center of Oregon State University, The Marine Studies Initiative at Oregon State University, The South Slough National Estuarine Research Reserve Education and Coastal Training Programs, and the Northwest Aquatic and Marine Educators (NAME) in development and sharing of information and education materials specific to the Cape Blanco rocky shores are.

Finally, to bolster the volunteer stewardship program we plan to connect and partner with the Wild Rivers Land Trust, the Coos Watershed Association, Curry Watersheds Partnership, Kalmiopsis (Curry County) chapter of the Audubon society, Salmon Trout Enhancement program volunteers, Redfish Rocks Community Team, Port Orford Senior Citizens center, students and student organizations in the Port Orford-Langlois area schools. We also plan to work closely with the Blacklock Point designators and Oregon Shores to create a joint volunteer program.

## Stakeholder Engagement

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site.**

### Letters of Support

**Before submitting your proposal, please attach any materials or letters of support gathered as part of the development of this proposal. You may include meeting resources, campaign materials, etc.**

### Stakeholder Collaboration

**Describe the steps taken to develop this proposal in collaboration with stakeholders. a) Please describe the community support and opposition for this proposal. b) Please list the communities, organizations, and groups that have worked to develop and support this proposal, as well as those in opposition of the proposal.**

PISCO fostered community involvement at every stage of this proposal by reaching out to Cape Blanco users, including community members, visitors, residents, and local businesses. Our proposal was developed with all users of Cape Blanco in mind and has continuously incorporated stakeholders to create a management strategy that will be agreeable to all. We frequently met with groups that had members on the south coast such as The Audubon Society, Oregon Shores, The Oregon Kelp Alliance (ORKA), and SEA.

We have overwhelming support from the many Port Orford citizens who attended our listening session on November 13, 2020. All of the members in attendance were enthusiastic about the proposal at Cape Blanco and suggested no revisions to the proposal as written.

After receiving positive feedback from this group, we reached out specifically to Port Orford Sustainable Seafood (POSS) to gain insight into the consumptive uses of the area. We heard their concerns about fishing access and revised our proposal to not include any critical fishing areas, allowing local anglers to continue their use of the nearshore area. We minimized the extent of offshore areas included within our proposal boundaries because of this important feedback from POSS.

Additionally, we met with representatives from the Coquille Indian Tribe to discuss the significance of the Cape Blanco site. The Coquille Indian Tribe has been present at Cape Blanco since time immemorial, and it is a historically and culturally important area that remains in use to this day.

After discussing with POSS and members of the Coquille Indian Tribe to address their specific perspectives, we worked with members of Oregon Shores to host another community meeting on December 15, 2020 for residents to give more detailed feedback on our proposal. This second meeting gave us a chance to talk directly to concerned stakeholders, answer questions about specific management changes, and discuss how local uses of this area will be impacted.

The South Coast Rocky Shores Group/Oregon Shores has been instrumental in developing our proposal. Because we are working on adjacent sites (Blacklock Point and Cape Blanco), we have shared species information, talked about the ecological impacts of such a designation, and collaborated to reach out to south coast community members.

The Portland Audubon helped us develop and distribute one page “fact sheets” that have been distributed in paper and electronically to residents and visitors of the Port Orford and Langlois communities (see Appendix VII).

### Feedback from Stakeholders

**List and explain both positive and negative opinions received regarding this proposal. While preparing this proposal and conducting stakeholder outreach, describe the main comments of support and issues of concerns voiced regarding this proposed change in site management/designation.**

We co-led a community feedback meeting for local Coos and Curry County residents on November 13, 2020 with ORKA and Oregon Shores personnel. The meeting was attended by 10 residents who were all very positive about the potential proposal. After that meeting, we reached out specifically to POSS while drafting the proposal boundaries for their input on fishing impacts of the MRA. After a conversation with one of their co-managers, we revised the proposal boundaries to exclude the nearshore area that is a popular spot for local anglers. The removal of the popular fishing areas around Cape Blanco allowed us to gain the support of the local fishing community.

Stakeholder feedback on this proposal has been extremely positive overall. Please see Appendix VI. Letters of Support for full endorsements for the Cape Blanco MRA proposal. We also received several testimonials in response to our Cape Blanco area proposal from interested stakeholders:

**June Mohler Mitman | [pterygophora@earthlink.net](mailto:pterygophora@earthlink.net) | Zip Code: 97365**

“Cape Blanco is very unique, especially for intertidal animals, plants, and algae. Because of how far west it extends into the Pacific, it has represented the southern range limit for many northern species and the northern range limit for many southern species. This makes it an important place for research. It is also a beautiful, usually quiet place to visit, that is seldom crowded.”

**Judy Dannen | [elbow11@comcast.net](mailto:elbow11@comcast.net) | 97045**

“I have been visiting Cape Blanco for over 40 years and my husband has had family living there for much longer. Cape Blanco was the first place I camped in Oregon even before relocating

here and I must say it is my happy place. My husband and his family had fished both the Sixes and the Elk rivers there but I find solace in the uncrowded beaches and the expanse of the rocky cliffs. We always see gray whales swimming and I have been followed by sea lions as I walk the coastline. I've spotted river otters in the Elk and bald eagles over the Sixes. I love watching the pelicans swoop over the waves and have seen a variety of seabirds. This is where my children developed their love for the Oregon coast as well. I think this pristine area of the Oregon coast deserves protection from any development to protect the fragile ecosystem that thrives there.”

**Dr. Susan Masta, Biology professor, Portland State University and Jay Withgott, Environmental science textbook author | [withgott@comcast.net](mailto:withgott@comcast.net) | 97219**

“The two of us have made numerous visits to Cape Blanco, including for tidepool study, birding, and hiking. We’ve had very productive tidepooling in the accessible stretches here, with high diversity and density of intertidal life and a somewhat different mix of species than elsewhere. The invertebrate life and nearshore fish also support good numbers of seabirds and waterfowl. As a birder scoping from the top of the bluffs I have counted mind-boggling numbers of Surf Scoters and White-winged Scoters in particular at this location. The location is notable because the two sides of the cape, north and south, seem to have different conditions in terms of currents, waves, and wind shelter, which may well have ramifications for the underwater communities and may help create a high diversity of habitats overall. The position of rocky intertidal and subtidal habitats at the end of a long cape in a somewhat remote region within a large state park means that they have some degree of natural protection already. Additional legal conservation measures could help ensure an exceptionally high-quality ecosystem and could boost the reproduction of fish and invertebrates, making Cape Blanco a sort of keystone location in a network of reserves.”

## Public Outreach

**List and describe engagement opportunities where the public has had the opportunity to learn about and/or comment on this proposal (e.g. conferences, meetings, tabling events).**

We have completed considerable outreach to the public, especially to residents of Curry County to garner support of our proposal. In collaboration with South Coast Rocky Shores Group/Oregon Shores and ORKA, we organized two virtual meetings for residents of Port Orford and the surrounding communities to talk about local Rocky Habitat Management Strategy (RHMS) proposals on the south coast. These meetings were attended by residents, Tribal members, local business owners, politicians, public officials, community volunteer groups, researchers, and conservation organizations. The meetings were designed as listening sessions so that residents could give us feedback on our proposal boundaries and suggested management strategies. After the first meeting in November we reached out to local businesses like Port Orford Sustainable Seafood (POSS) and South Coast Tours LLC to further discuss the implications of our proposals. After the conversation with POSS, we revised our proposal boundaries to exclude a popular fishing area that would impact local anglers.

After this boundary change, we worked with South Coast Rocky Shores Group/Oregon Shores to organize another public meeting and chance for residents to give feedback on our revised proposals. We hosted a second meeting on December 15, 2020 and invited the public again, with an emphasis on reaching out to and inviting members of local Tribes and people involved in local businesses and commercial fishing. This second meeting was well attended and our Q&A session gave us an opportunity to discuss concerns and questions with people in a conversational manner.

In collaboration with Portland Audubon, we developed one page flyers of our proposal sites for distribution to visitors and locals to the areas (See Appendix VII). We have conducted written communication with many stakeholders in this process, namely the Coquille Tribe, POSS, local volunteer organizations, and private citizens. We have also maintained consistent contact and collaboration with other groups working to designate areas of the coast such as SEA, ORKA, Lincoln City and Portland Audubon, Strategies 360, South Coast Rocky Shores Group/Oregon Shores and others.

Much of our outreach has been led by South Coast Rocky Shores Group/Oregon Shores. The group sent a questionnaire to south coast residents to gauge support for this process and our potential proposals. The responses were very positive, and we learned that many residents have an intimate relationship with coastal environments and generally would like to see some human activities (like off-leash dog walking and harassing birds) more tightly controlled. South Coast Rocky Shores Group/Oregon Shores has been conducting active outreach on the behalf of several south coast proposals since June 2020. South Coast Rocky Shores group/Oregon Shores has also been in contact via written communication with a variety of interest groups, locals, and government agencies. Finally, South Coast Rocky Shores Group/Oregon Shores wrote and submitted letters to the editor or press releases about the RHMS and proposed south coast site designations to the principal newspapers of record in Coos and Curry Counties: The World/Bandon Western World, Port Orford News, and Curry Coastal Pilot.

## Additional Information

**To the best of your knowledge, please provide the following information on your proposed rocky habitat site.**

### Local Knowledge

#### **How does this proposal incorporate local knowledge?**

As detailed in the Public Outreach and Stakeholder Feedback sections, we have worked diligently to develop this proposal with input from residents, Tribal representatives, and groups with local knowledge of Cape Blanco. We conducted outreach sessions specific to the Coos Bay, Langlois, Port Orford, and Gold Beach communities. These outreach events served as listening sessions for us, where we solicited feedback on the type of proposal we were planning and the site boundaries. We received valuable feedback and testimonials about human uses, changes to flora and fauna, impacts of increased visitation, and natural history anecdotes of Cape Blanco. To be inclusive of all community members, we also reached out via written communication for those who may not have the technology or capability to join via video call. We also engaged with state agencies such as OPRD, DLCD, and ODFW for information regarding current

management, flora and fauna present at the site, and how this designation could benefit or harm the current and future users of this site.

The local knowledge of this site helped us to create optimal proposal boundaries that serve the needs of residents, anglers, beachcombers, Tribes, and visitors.

## Scientific Knowledge

### **How does this proposal incorporate scientific knowledge?**

This proposal is based on scientific knowledge of researchers that have been studying at Cape Blanco for over two decades. Our proposal is researched, written, and supported by scientists at Oregon State University and the University of Oregon's Institute of Marine Biology and several state and federal agencies employing non-academic scientists such as: ODFW, USFWS, and Portland Audubon. Through collaboration with these groups we feel confident that our proposal is based on sound scientific knowledge and planning for future research and enjoyment of Cape Blanco. The proposal writers are experts on rocky intertidal ecosystems and their intricacies and we worked alongside experts in different fields of research for other important aspects of Cape Blanco's ecosystem such as human dimensions, subtidal areas, seabirds, and mammals.

## Goals and Policies

### **Which goals and policies in the Rocky Habitat Management Strategy does this proposal address, and how?**

We believe that this proposal addresses all of the goals and policies of the Rocky Habitat Management Strategy (RHMS). We would like to highlight our efforts to address the following policies specifically (unless otherwise indicated, these policies are from RHMS p. 7-9)

1. "A. Consistent with Statewide Planning Goal 19, actions that are likely to affect rocky habitats shall be developed and conducted to conserve marine resources and ecological functions for the purpose of providing long-term ecological, economic, and social values benefits."

This goal is central to our proposal, as the scientific research that exists at this site is dependent on conserving the natural ecological functioning of the research area, and we believe that the MRA designation is designed to address this specifically.

2. "D. Public access shall be preserved to the maximum extent practicable and minimize user conflict."

We feel strongly that non-consumptive uses of Cape Blanco should remain as is for all stakeholders and visitors. We talk more about this in the proposal rationale and goals section.

3. "J. Marine development activities, not currently managed by a specific part of the Territorial Sea Plan, that cause significant adverse effects or permanent impacts to the form or function of submerged rocky habitats, or the fisheries dependent upon them, are prohibited."

While the prohibition of development is not stated explicitly within this proposal, we believe it to be a central part of the designation process, and stress that this policy is critical for protecting the natural coastal resources and habitats that are culturally, scientifically, and ecologically important to Oregonians.

4. “L. Foster and promote research and monitoring, compatible with the Rocky Habitat Management Strategy, including effects of climate change, ocean acidification, and hypoxia.”

Research into these large global existential threats such as climate change, hypoxia, and ocean acidification is a key part of our program, and we hope that scientific guidance is used to help guide mitigation efforts along the coast. Baseline monitoring of habitats and ecosystems is an essential part of climate change research, and is part of the reason we are proposing this long-term research area at Cape Blanco.

5. “M. All affected Oregon federally recognized tribes shall be provided the opportunity for consultation regarding any development action taking place in the rocky habitat areas.”

We fully support this statement, and have consulted with tribal members before the submission of this proposal. We have outlined our position on this in the Outreach section of this proposal, and have included a statement in the proposal rationale and goals section.

6. “N. Impacts of management actions to cultural resources in rocky habitats shall be minimized, or mitigated, in consultation with affected Oregon federally recognized tribes and as determined by the State Historic Preservation Office. “Temporary impacts” are adverse impacts to waters of this state that are rectified within 24 months from the date of the initiation of the impact. As defined by: OAR 141-085-0510 (88). Resources vital to and/or the product of the perpetuation of traditional practices, ceremonies and lifeways.”

We would like to reiterate our stance that our management recommendations and restrictions proposed herein not impact, reduce, or change in any way the agreements that the Tribal Nations have with the State.

7. “O. Management measures in this plan will take no action to affect hunting and fishing consent decrees or other agreements between the State of Oregon and any Oregon federally recognized tribe.”

While our proposal does suggest commercial and recreational harvest restrictions for fish and invertebrates, this does not pertain to any federally recognized Tribal Nation.

8. “Q. Harvest of marine aquatic vegetation is prohibited except as regulated by state agencies for appropriate recreational, scientific, restoration, and educational use.”

Scientific relevance is central to our proposal, and that includes harvest of any living or non-living resource within proposal boundaries. See Proposal Rationale and Goals - site specific goals for more information on this.

Furthermore, the main goal of the strategy is the following statement on RHMS p.1:

“aims to be a coordination and adaptive planning framework focused on the long-term protection of ecological resources and coastal biodiversity within and among Oregon’s marine rocky habitats while allowing appropriate use”

We feel strongly that our proposal supports this strategy by supporting scientific use within proposal boundaries and allowing for non-consumptive use of the area to remain as is for the enjoyment of all Oregonians and visitors. We hope that the scientific research conducted within proposal boundaries adds considerably to the adaptive planning strategy of the State.

Another goal outlined in RHMS is this: “It is essential for the continued ecological functioning and well being of Oregon’s rocky habitats that visitors interact responsibly in these areas. Fostering a culture of stewardship of rocky habitat resources will help protect the ecological, cultural and economic resources of Oregon’s rocky coastline. Targeted messaging, including information on ways that individuals and groups can take action to positively affect these rocky habitats is crucial.” (RHMS p. 5). We address this goal by creating a stewardship network with nearby proposal areas that will bolster place-based approaches to outreach and education while assisting state agencies in non-regulation management efforts. For more information on this effort, see the non-regulatory management section.

## Watershed Conditions

### **What land or watershed activities/conditions exist adjacent to this site?**

Cape Blanco exists as a state park on the westernmost tip of Oregon. A campground is located on the premises along with a historical lighthouse and the historical Hughes House. Adjacent areas are used for traditional farming and grazing activities, hiking, sightseeing, and a country music festival for a few years. The Cape Blanco State Airport operates 11 miles to the northeast of the site. Nearby land was logged for the extremely valuable Port Orford Cedar, which has declined steadily since the 1960s due to a rotting disease and overharvesting. (Ohmann 1984). Rural homes also surround the area.

Cape Blanco is flanked by the Sixes River to the north and the Elk River to the south. Both rivers have established rustic campsites along the main tributaries. Logging has continued for many years along the Sixes River, and has caused erosion issues impacting both the watershed itself and also the nearshore environment at Cape Blanco and Blacklock Point (Azhocar et al. 2008). Increased turbidity due to logging impacts affect native freshwater and anadromous fishes (Murphy 1995). Logging-caused sediment plumes enter the nearshore ocean environment and can last for days to weeks (Konar and Roberts 2009). Turbidity of the water column impacts light availability which is key for all marine species, but especially phytoplankton and kelp forests (Kiest 1993). While the designation of the area as a MRA will not change land use management, it will increase awareness of the key natural resources on the coastline and afford the ecosystem protection from other overlapping stressors.

The Elk River is a part of the National Wild and Scenic Rivers System, managed by the U.S. Forest Service (USFS), The main 17 mile branch was designated in 1988, and the remaining north and south forks were added in 2009. The Elk River hosts a fish hatchery and is home to many threatened and sensitive fish species including Chinook (*Oncorhynchus tshawytscha*),

Cutthroat Trout (*Oncorhynchus clarkii*), and Steelhead (*Oncorhynchus mykiss*). Old growth forests surround the river, helping to sustain multiple species of wildlife ([www.rivers.gov/rivers/elk.php](http://www.rivers.gov/rivers/elk.php)).

### Existing Protected Areas

#### **Are there any other overlapping protected areas within the site?**

Offshore rocks and islands within the Cape Blanco proposal area are under the jurisdiction and management of the USFWS Oregon Islands National Wildlife Refuge. These rocks and islands are managed to the mean high water tide line. Oregon DSL manages submerged lands and marine plants below the MHHW to the offshore boundary of the State of Oregon Territorial Sea. We know of no other overlapping protected areas within the proposal boundaries.

### Site Characteristics

#### **Please include descriptions of other characteristics of the site or adjacent area.**

Site and surrounding area characteristics have already been described within this proposal (see Site Information section)

### Additional Designation Rationale

#### **Please describe any other reasons you think this site warrants a change in designation.**

Cape Blanco was proposed as a Research Reserve in the original 1994 Territorial Sea Plan draft, but was not implemented. We believe that for reasons mentioned herein (specifically the high seabird nesting areas, high diversity of intertidal organisms, and the unique upwelling regime that supports the delicate ecology of the area) that this site is special for cultural, scientific, and recreational reasons.

In addition, strong community support for this proposal has been apparent in the time we have done outreach on the south coast. Select testimonials are included in this proposal and within the letters of support attached to this proposal as well (see Appendix VI).

### Other Proposals

**Should this proposal be evaluated in conjunction with other proposals your entity has submitted? The merit of all proposals are evaluated independently unless otherwise indicated by the proposing entity. Review bodies reserve the right to also evaluate proposals spatially in relation to one another.**

A proposal for a Marine Conservation Area at nearby Blacklock Point is being developed by the South Coast Rocky Shores Group/Oregon Shores Conservation Coalition. We have discussed proposal strategies and possible collaboration on volunteer outreach efforts on the south coast,

but these proposals are independent from one another, and we do not intend for these proposals to be evaluated together.

### Additional Information

#### **What other information would you like to include about this site or your proposal?**

We would like to acknowledge that Cape Blanco is within the ancestral lands of the Coquille Indian Tribe (<http://www.coquilletribe.org>) and the Confederated Tribes of Siletz Indians (<http://ctsi.nsn.us>). We would like to thank members of the Coquille Tribe for their assistance with this proposal, especially K. Rippee, M. Healy, and H. Linnell.

Additionally, we would like to thank members of the south coast communities in supporting this MRA proposal, and members of the Rocky Habitat Working Group (RHWG) for their assistance with this proposal process, in particular L. Hillman (OPRD), A. Lanier (DLCD), M. Moses (DLCD), C. Plybon (RHWG chair). Last but not least, we would like to thank J. Jones (Coast Watch) and L. Basch (South Coast Rocky Shores Group/Oregon Shores, OIMB) for their partnership in south coast outreach, for connecting us to the larger TSP Proposal community, and for the help with the development of our proposal since the initial stages.

### Additional Materials

**If there are any additional documents, materials, etc. that you feel may be relevant or pertinent to your proposal, please attach them here.**

Attachments to this proposal include:

- Appendix I.** Glossary of Terms and Acronyms
- Appendix II.** Cape Blanco Proposal References
- Appendix III.** Photos of Cape Blanco
- Appendix IV.** Presence of Threatened-Endangered-Protected Species at Cape Blanco
- Appendix V.** Cape Blanco Biological Species Data
- Appendix VI.** Letters of Support for Cape Blanco Proposal
- Appendix VII.** Cape Blanco Informational Flyer
- Appendix VIII.** Full proposal PDF



## Appendix I. Glossary of Terms and Acronyms

<b><u>Acronym</u></b>	<b><u>Full Name</u></b>
CCLME	California Current Large Marine Ecosystem
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DLCD	Department of Land Conservation and Development
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
HAPC	Habitat Areas of Particular Concern
MHHW	Mean Highest High Water
MLLW	Mean Lower Low Water
MMPA	Marine Mammal Protection Act
MOU	Memorandum of Understanding
MRA	Marine Research Area
NAME	Northwest Aquatic Marine Educators
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
ODFW	Oregon Department of Fish and Wildlife
ODSL	Oregon Department of State Lands
OIMB	Oregon Institute of Marine Biology
OPRD	Oregon Parks and Recreation Department
ORKA	The Oregon Kelp Alliance
OS CW	Oregon Shores Coastwatch Program
OSP	Oregon State Police
OSU	Oregon State University



PISCO	Partnership for Interdisciplinary Studies of Coastal Oceans
POSS	Port Orford Sustainable Seafood
QR Code	Quick Response code
RHMS	Rocky Habitat Management Strategy
RHWG	Rocky Habitat Working Group
ROV	Remotely Operated Vehicle
SCUBA	Self-Contained Underwater Breathing Apparatus
SEA	Shoreline Education for Awareness
TSP	Territorial Sea Plan
UO	University of Oregon
Upwelling	Upwelling occurs when annual offshore winds push surface water off of the coast, and cold, nutrient dense water flushes in from the bottom of the sea floor (Huyer 1983). In the California Current Large Marine Ecosystem (CCLME), upwelling occurs primarily in summer and relaxes in the late fall (Huyer 1983).
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

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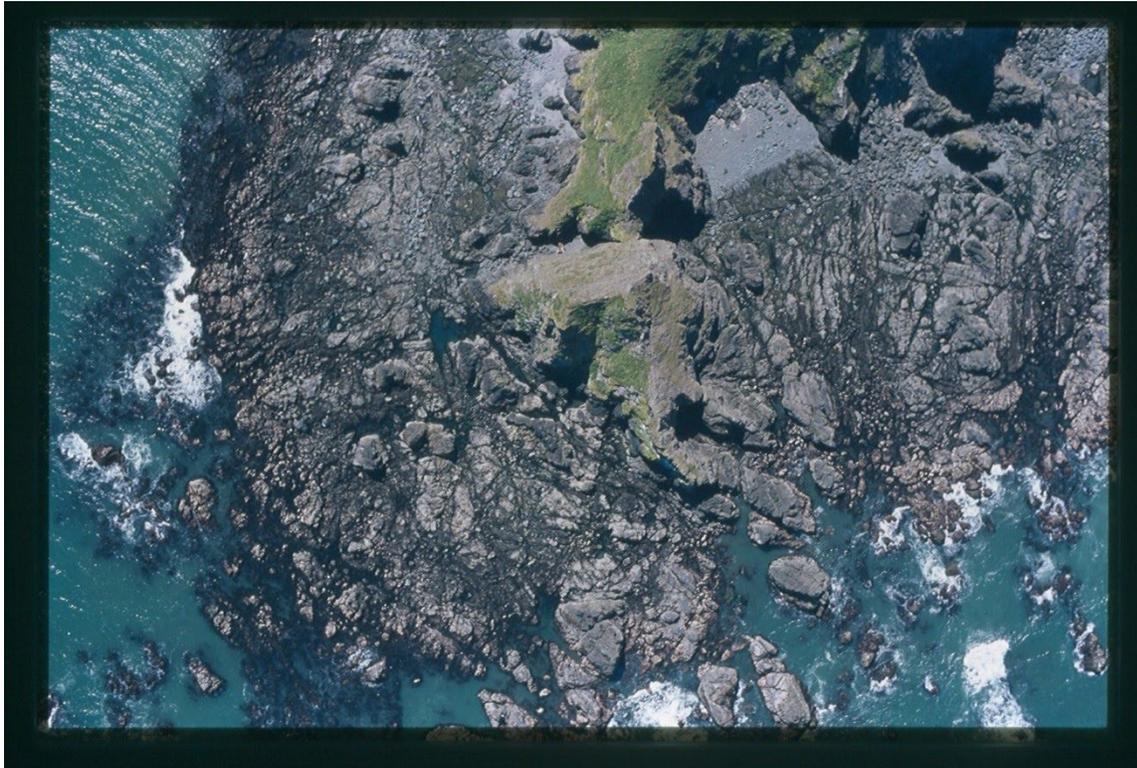
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### Appendix III. Photos of Cape Blanco



**Figure 1.** Aerial photo of Cape Blanco, includes part of proposed designated area.



**Figure 2.** Aerial Photo of Cape Blanco from the west



**Figure 3.** Photo of Cape Blanco rocky intertidal on the northwest side of the Cape. Taken by Laurel Field.

## Appendix IV. Presence of Threatened-Endangered-Protected Species at Cape Blanco

<u>Higher Taxon</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Status*</u>	<u>Notes</u>
INVERTEBRATES	Red Abalone	<i>Haliotis rufescens</i>	Species of Concern	Harvest totally prohibited in Oregon until at least 2021; (sport take only without scuba in N. California; no Oregon or California commercial fishery).
FISHES	Green Sturgeon	<i>Acipenser medirostris</i>	F T	Catch and release only
	S Oregon/N California Coast Coho Salmon	<i>Oncorhynchus kisutch</i>	F T	
	Pacific Eulachon/Smelt	<i>Thaleichthys pacificus</i>	F T, S Se	Southern DPS (distinct population segment)
	Chinook salmon	<i>Oncorhynchus tshawytscha</i>	F T	These species have been sighted in the Elk River near Cape Blanco
BIRDS	Black Brant	<i>Branta bernicla</i>	Se	ODFW strategy species list
	Harlequin Duck	<i>Histrionicus histrionicus</i>	Se	ODFW strategy species list
	Red-necked Grebe	<i>Podiceps grisegena</i>	Se	ODFW strategy species list
	Black Oystercatcher	<i>Haematopus bachmani</i>	“USFWS species of high conservation concern” Se	Declines in nesting pairs. Species may act as an indicator of intertidal ecosystem health. Species conservation requires limiting human disturbance, and protecting core habitats on the south coast where much of the population resides (Liebezeit et al. 2020). Also an ODFW strategy species.
	Caspian Tern	<i>Hydroprogne caspia</i>	Se	ODFW strategy species list
	California Brown Pelican	<i>Pelecanus occidentalis californicus</i>	Se	ODFW strategy species list
	Marbled Murrelet	<i>Brachyramphus marmoratus</i>	F T, S T, Se	Species-distinctive “keer” calls detected at site, also recorded multiple times in the Cape Blanco eBird checklist
	Peregrine Falcon	<i>Falco peregrinus</i>	Se	ODFW Strategy species list

MAMMALS	Sea Otter	<i>Enhydra lutris</i>	S T, F T	Occasional scout males reported in the area. River otters, <i>Lontra canadensis</i> , also have been observed to move through the area and forage in nearshore rocky habitats.
	Gray Whale	<i>Eschrichtius robustus</i>	S E	Observed near Cape Blanco
	Humpback Whale	<i>Megaptera novaeangliae</i>	S E, F E	Observed near Cape Blanco
	Fin Whale	<i>Balaenoptera physalus</i>	S E, F E	Likely migrant through area
	Orca Whale	<i>Orcinus orca</i>	F E	Southern Resident DPS, likely migrant through the area
	North Pacific Right Whale	<i>Eubalaena japonica</i>	S E, F E	Likely migrant through area
	Blue Whale	<i>Balaenoptera musculus</i>	F E, S E	Likely migrant through area
	Sperm Whale	<i>Physeter macrocephalus</i>	S E, F E	Likely migrant through area
	Sei Whale	<i>Balaenoptera borealis</i>	S E, F E	Likely migrant through area

\* F – Federal; S – State; Se – Sensitive; T – Threatened; E – Endangered (under Federal or State Endangered Species Act).



December 28, 2020

**To:** Our Fellow Oregonians

**Subject:** Support for Cape Blanco Rocky Habitat Designation  
as a Marine Research Area

The Coos Bay Chapter of the Surfrider Foundation works within the greater Coos County area focusing on a variety of programs, stewardship activities, campaigns and fun events – all for the love of local ocean, waves and beaches. The chapter serves Coos County with the longest running beach water quality monitoring program ([Blue Water Task Force](#)) in the state of Oregon.

We urge you to designate Cape Blanco as a Marine Research Area because:

1. The Oregon coast is “the people’s coast” both now and for countless future generations.
  - a. Our chapter is dedicated to protecting Cape Blanco along with all of Southern Oregon's local beaches, waterways, and engaging the next generation of coastal defenders.
  - b. Marine Research Area designations will not change public access to Cape Blanco.
2. Many of our members recreate near Cape Blanco and along the Southern Oregon coast.
  - a. We surf, sail, swim, hike, kayak, birdwatch, and enjoy other coast activities.
3. We value the diversity of life in the ocean and in near-shore habitats.
  - a. It's more than just ocean and sand and a picture perfect sunset. Whether it's guillemots and cormorants flying overhead, elephant seals securing their domain, pelican birds skirting the surf, scurrying mole crabs and sand fleas, or little hermit crabs, anemones, and sea stars in tidepools – we care about and love our rich coastal ecosystems.
4. With an increase of visitors to the coast, it's important that we have both protected areas and that we have educational areas. Cape Blanco will be used by educators for hands-on learning, and it will be a “learning place” for visitors and the local community.
5. We want to be able to continue enjoying Oregon’s South Coast. Because of climate change, ocean temperature rising, and coral dying, the ocean web-of-life is in danger. It's important that we have places for long-term research, like Cape Blanco, where scientists can continually learn how to protect the near shore Rocky Habitat for critical ocean vitality.
6. Cape Blanco area is prime Rocky Habitat and should be designated as such.
  - a. It supports a very diverse plethora of oceanic species, which makes it important to preserve and protect as it is a priceless ecosystem for marine life, cultural harvest, and for scientists to study now and for countless generations to come.
  - b. Oregon State University has done over 30 years of research at Cape Blanco. Marine Research Area site designation would support their continued work to understand our coastal ecosystems.

Sincerely,

A handwritten signature in blue ink that reads "Sam Schwarz".

Sam Schwarz, Chair  
Coos Bay Chapter Surfrider Foundation  
[chair@coosbay.surfrider.org](mailto:chair@coosbay.surfrider.org)

Letter of support for Marine Research Area designation at Cape Blanco

Dear Rocky Habitat Site Designation Group,

As an interested member of Port Orford and the Oregon Coast community, I am writing to you to urge you to support the proposal put forth by PISCO to designate a portion of Cape Blanco as a Research Reserve. This designation would ensure that while people can still enjoy the natural beauty of the site, no collecting of animals or algae occurs. This will help the ecosystem remain intact for generations of citizens and visitors to come.

The PISCO lab at Oregon State University has been conducting research at this site for over 30 years and has made discoveries that are important for our community to know about, including the identification of Sea Star Wasting Disease in the spring of 2014. As a coastal town, monitoring the health of our marine environments is necessary, and protecting Cape Blanco would provide an area specifically for this purpose.

This area is a precious ecosystem and vital to our coastal community. Please help us protect it. Respectfully with many thanks,

Crystal Roy  
Surfrider Foundation  
Port Orford, Oregon

December 28, 2020

**To:** Rocky Habitat Site Designation Group

**Subject:** Support for Cape Blanco Rocky Habitat Designation as a Marine Research Area

Oregon is a special state, and our Oregon coast is a treasure. I walk along the beach during winter storms when bull kelp is thrown onto shore by the ocean's mighty hand. I tidepool, kayak the bay and along the coast. I pick up litter, on foot and in the kayak. I occasionally crab or fish – but mainly, I go to the edge of the ocean for peace of mind . . . the clean air, the reminder that the ocean has been here – and will be here – for millennia longer than I . . . and I see myself as one living thing in the greater mosaic of life on this planet.

I urge you to designate Cape Blanco as a Marine Research Area because:

1. It is imperative (reasons listed below) to protect this area.
2. We need to scientifically monitor this area to detect both positive and negative changes as they occur over time, because then our state, local, and community leaders will be better able to make informed decisions.

WHY we need to PROTECT Cape Blanco:

- I. The reason why protecting Cape Blanco is so important is \* because \* it is critical to protecting our whole coast – our fishing communities, recreation opportunities, tourism, and our traditional ways of life.
- II. A small area like Cape Blanco does not exist in isolation.
  - A. The ocean has currents with different temperatures. Nutrients move on these currents. As that happens, ocean life follows those movements.
  - B. Birds, marine mammals, predator and prey fish move closer to, away from, travel north and south along the coast, etc. Species such a salmon and crab spend parts of their lives in different ecosystems.
  - C. Some animal and plant species (residents) stay at Cape Blanco.
- III. Protecting this rich rocky habitats protects the whole Oregon coast.
  - A. The “rich” (= diverse & unique) ecosystems are more valuable in terms of ocean health in the long run – in terms of health and numbers of fish and shellfish.
  - B. Rich ecosystems have a better chance of adapting BECAUSE they are rich.
    1. Why adaptability is important: We currently have climate change, ocean acidification, and a staggering amount of plastic pollution affecting ocean conditions and ocean life. Even if we can slow down these impactors and do remediation, species MUST adapt in order to survive.
    2. Adapting species need TIME to adapt (it takes time).
    3. Adapting species need a PLACE to adapt. That place is their habitat.
  - C. For years, we've experienced declining numbers of salmon, crab, rockfish, and other marine-dependent species. Red tides that have stopped our commercial crabbers. These are signs that our ocean-edge ecosystem is out of balance. Scientific research lets us understand WHY this has been happening and HOW we can respond to fix it.

Scientists have been doing research at Cape Blanco for 30+ years:

- I. 30+ years of research has already been invested, so scientists already know a lot about the Cape Blanco site.
- II. Marine scientists will gather long-term data to understand both the “big picture” patterns and to see changes that could quickly mean a problem for the health of our fish, shellfish, and other ocean life in the area.
  - A. Site designation would allow scientists to have a “long view” of the ebb and flows of changes in ocean life. Sometimes changes are parts of a “natural” pattern, and are normal – there may be less fish this year, but more next year. Other changes may not be normal.
- III. What the marine scientists learn at Cape Blanco will be helpful for other parts of Oregon, the Pacific Coast, and other parts of the world.

How people will benefit:

- I. The more scientists learn from Cape Blanco, the more we will know what to do to have healthier rocky habitats, beaches, estuaries, and healthier fish and shellfish.
- II. Oregonians and visitors to our coast will have a richer beach / shoreline / near shore experience because of diverse, healthy ocean-edge life and ecosystems . . . better tidepooling, ocean kayaking, birdwatching, recreational fishing.
- III. Local Tribal people have lived in close connection with the land and waters around them – it has been part of their way of life and spirituality for thousands of years.
- IV. We can know that we aren’t just doing this for us, but for our children, grandchildren, and future generations.

You should designate Cape Blanco as a Marine Research Area because it is a diverse, rich ecosystem, we need to protect it and learn from it – for our enjoyment, for our small town Oregon economies, and for our ways of life.

I reviewed proposals and participated in community webinars for 4 other southern Oregon Rocky Habitat sites – Coquille Point, Blacklock Point, Rocky Point (rumored withdrawn), and Crook Point. **All of these sites are worthy of Rocky Habitat site designation.** I was not able to submit letters for the other sites due to their earlier deadlines, but I would have written a letter of support for each one. **Each is a unique habitat, and is important for the long-term the health of our Oregon coast and coastal communities.**

Sincerely,



Jean Cassidy  
1440 Butler Road, Coos Bay, OR 97420  
541-521-4249



## KALMIOPSIS AUDUBON SOCIETY

P.O. Box 1265 • Port Orford OR • 97465

Dec. 20, 2020

To: Rocky Habitat Working Group

From: Kalmiopsis Audubon Society

Re: Support for increased protections for rocky intertidal sites on the South Coast

Greetings:

I am writing on behalf of the Kalmiopsis Audubon Society, based in Curry County, on Oregon's South Coast. Our group has about 400 local members who care about conserving habitat for birds, fish, and wildlife. Our members enjoy birdwatching and other outdoor nature study based on unique plants and animals in our local ecosystems, including our rocky shorelines.

We support the State of Oregon's strategy of marine zoning to assure that areas with the highest natural values for marine life can be protected and conserved while other areas may incur greater use—rather than allowing for incremental degradation everywhere. We also strongly support the Rocky Shores Strategy goal: "To protect the ecological values and coastal biodiversity within and among Oregon's rocky shores while allowing appropriate use."

Our members have long participated in Black Oystercatcher surveys, and so we know that rocky shorelines of Oregon's South Coast host some of the richest and most important habitat for this beloved bird, an Oregon species-of-concern. Black Oystercatchers rely almost exclusively on rocky intertidal habitats to forage, as do our Black and Ruddy Turnstones and Surfbirds. Many of our offshore rocks (part of the Oregon Islands National Wildlife Refuge system) also host rocky intertidal habitat important for these shorebirds. They also host some of the largest seabird nesting colonies in Oregon. Clean cold water and upwelling make our ocean areas especially productive, and while these nesting seabirds generally forage on small fishes, the structure of rocky intertidal habitat, including algae and invertebrate life, are important for larger marine food webs that support birds, fish, and even whales. In addition, we are aware that our most remote shorelines host remarkable seaweed biodiversity, something that calls out for more study and seems particularly important at this time when changing ocean conditions have significantly impacted some species of marine algae. Many of these algal species have little known life histories.

Because southern Oregon is an ecological transition zone between rocky shore invertebrate species communities from California ecosystems and those of the Pacific Northwest, there is highly valuable biodiversity in the intertidal zones in our local area.

In recent years, especially in this past pandemic year, we've noticed increased visitation to a number of formerly remote and little-known shoreline areas. As a result, in some places, we've seen new paths opened up, and an increase in plastic trash and human waste. Some of our members have reported removal of marine life, including mussels and seaweeds, and online videos specifically encouraging people to forage for limpets in still rich intertidal areas of the South Coast! We are aware that rocky shore habitats not far north up the coast have already been degraded by overuse and so we are concerned that these habitats on the south coast could become vulnerable.

In addition, Oregon's marine life is already confronting some of the perils of the climate crisis, with the collapse of kelp forests in many areas. Our members have reported seeing invertebrates from deeper waters, in particular purple urchins and red and flat abalone, now up in shallower areas, seeking out food. In the intertidal zone. As a result, these animals are far more vulnerable to take by humans. And these are the kinds of animals that people notice. There may well be other marine invertebrates now at higher risk owing to changing ocean conditions.

To help protect our still-rich and unique marine ecosystems, we support designation for several key areas on the South Coast for greater conservation in the Oregon Rocky Habitat Management Strategy. In general, it seems that areas that already have protection of upland terrestrial habitats should merit strong consideration for rocky shores protection, too.

That said, we also have concerns that special designation could inadvertently draw greater attention, increased visitation, and more damaging uses to now remote and little-known areas. We urge you to carefully weigh the best practices and methods for conservation of these valuable marine resources, especially given that there now seems to be insufficient capacity for enforcement of rules our South Coast area—something we have seen with seasonal closures for western snowy plovers and other state laws. This has been especially pronounced in this pandemic year with so many state parks understaffed. We urge you to draw upon knowledge of other places, perhaps from north up the coast or from natural resource professionals with experience in other vulnerable marine environments, to inform the best approaches for proactively conserving outstanding rocky shores values on Oregon's South Coast.

The most effective approach may be to actively direct visitors to "marine gardens" where tide pools or unique rocky habitat are most accessible rather than to highlight more remote, significant and pristine areas, as might happen with special designations marked on a map.

We recognize that this Rocky Shores Management Strategy public process is focused on designation of zones, but we appreciate some other important approaches to conservation of rocky intertidal areas that we urge the State to adopt together with designations. For example, we appreciate that Oregon has worked with NGO partners and has invested in providing for education and interpretation at some high use areas with vulnerable intertidal habitats; this

approach may be invaluable not only for conserving those sites in particular but for others as well. And of course, having more state park rangers to patrol, talk to visitors, and keep an eye on rocky habitat areas at state parks, would also be very helpful to protecting our intertidal zones.

### **Proposals**

To help protect our still-rich and unique marine ecosystems, we support designation, we support the following designations:

#### **Blacklock Point area as a Marine Conservation Area**

Our group has long been engaged with efforts to conserve the upland areas adjacent to the rocky shores of Blacklock Point, known as Floras Lake State Natural Area, a unique wild Oregon State Park that residents and visitors enjoy for its wildness, stunning views, unique ecological attributes—including highly unusual botany related to distinctive geology. The adjacent rocky shore and offshore areas are also unique, owing to unusual sandstone geology --with diverse rocky intertidal habitats, subtidal rocky reefs, kelp beds, and seabird colonies. Blacklock Point has been part of our Christmas Bird Count for 40 years, and is a place where people can observe many species of seabirds in a remote setting, since it takes a good walk to reach overlook points and intertidal zones. Marine Mammals also use this area. In a 2005 report, the group Oceana recognized Blacklock Point as one of 31 Important Ecological Areas in Oregon. The current land use as a State Natural area is compatible with conservation, but there are areas where vandalism has occurred, for example on sand stone cliff walls north of the point. There has also been an increase in visitation to this remote area. We support the South Coast Rocky Shores Group proposal to designate Blacklock Point as a Marine Conservation Area.

#### **Crook Point area as a Marine Conservation Area**

In the past, our group has engaged with efforts to conserve the seabird colonies adjacent to the rocky shores of Crook Point. Crook Point, including the Crook Point Unit of the Oregon Islands National Wildlife Refuge is located south of Pistol River State Park. Because the NWR is closed to the public and much of the south part of point is privately owned, access to the intertidal zone in this area is already constrained. It takes walking in from Pistol River State park more than one-half mile on a steep narrow beach (constrained by beach grass) —and then trespassing beyond closure signs —to reach this remote area, or obtaining special permission from the National Wildlife Refuge or private landowners.

For this reason, the rocky shores of Crook Point may host pristine and “reference quality” intertidal habitats. From what we understand, the areas has a high concentration of diverse intertidal habitat types. Also the area from here south to the north end of Boardman State Park hosts high marine algae biodiversity. In addition, the nearshore rocks here have hosted some of the most significant colonies of Leach’s Storm petrels on the West Coast, and is recognized as an Important Bird Area. Marine mammals are also known to haul out here. In a 2005 report, the group Oceana recognized Crook Point as one of 31 Important Ecological Areas in Oregon.

The current upland uses of Crook Point are generally compatible with conservation of outstanding intertidal natural resources, but potential future development could put these values at high risk. We hope that MCA designation could help protect these resources into the future if it could help to require positive mitigation measures to avoid polluted runoff that

would degrade and damage marine life. Ideally, this designation would not antagonize private property owners whose current land management is compatible with the high conservation values of the rocky intertidal zone; hopefully they will continue to derive benefit from hosting visitors who cherish the unique opportunity to access this remarkable and hard to reach rocky shore and beach area. We support the South Coast Rocky Shores Group proposal to designate Crook Point as a Marine Conservation Area.

### **Cape Blanco as a Marine Research Reserve**

The intertidal zone around Cape Blanco is also extraordinary. One of the westernmost points in the lower 48 states, Cape Blanco is an important geographic and topographic feature in our region —jutting out into the ocean so as to structure and demarcate populations of salmon and steelhead. Our members have enjoyed low tide field trips to explore this area with marine biologists —learning about some of the remarkable and beautiful denizens of its intertidal zone. This rocky shore area is adjacent to the beloved Cape Blanco State Park, famous for its lighthouse, and so it is subject to greater visitation and potential impacts than other areas.

Cape Blanco has been the location of an important PISCO research site for over 30 years. Ongoing monitoring here helped scientists to recognize early on the sea star wasting disease that became so consequential for the entire West Coast.

We support PISCO's proposal to designate Cape Blanco as a Marine Research Reserve. This designation would help ensure that people can continue to enjoy the remarkable natural beauty of the site, but would preclude collecting of animals or algae. This will help the ecosystem remain intact for generations of citizens and visitors to come.

We appreciate the State of Oregon's proactive approach to marine conservation. Thank you for the opportunity to provide public input, and we look forward to learning more about this public process as it moves forward.

Sincerely,



Ann Vileisis  
President Kalmiopsis Audubon Society

Todd D. Buchholz  
1440 Butler Road  
Coos Bay, OR. 97420

December 29, 2020

I write to urge you to designate Cape Blanco as a Marine Research Area because:

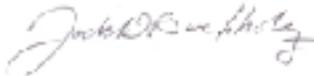
As a retired Fisheries Scientist, I know a 30+ year data set is invaluable for informed decision making. Climate change is real, and the effects to our ocean environment is evident today. The research being conducted at Cape Blanco will continue to provide us with tools to best address climate change in these critical near-shore areas.

The South Coast is expected to see more and more visitors in the coming years. Tide pools and near-shore rocky habitats are a major draw for our guests. Too many people can have very detrimental impacts to these sensitive areas. Designating Cape Blanco as a Marine Research Area will provide another layer of protection for this amazing resource.

I have lived, worked and recreated in Oregon my entire life. We Oregonians are first in the nation for protecting our beautiful and amazing landscapes for the benefit of all, and for future generations. This is the Oregon Way!

Thank you for all your time and energy being a champion for our beautiful coast and its fantastic animal life, lovely vistas and public access.

Please keep doing it, the Oregon Way!

A handwritten signature in cursive script, appearing to read "Todd D. Buchholz".

Todd D. Buchholz



**Bruce Menge**  
Wayne and Gladys Professor of Marine Biology  
OSU Distinguished Professor of Integrative Biology  
Oregon State University, 3029 Cordley Hall, Corvallis, Oregon 97331-2914  
T 541-737-5358 | F 541-737-3360 | <http://zoology.science.oregonstate.edu>

December 31, 2020

To: Rocky Habitat Working Group  
From: Dr. Bruce A. Menge, Oregon State University

Re: Support for a Marine Research Area at Cape Blanco

To whom it may concern,

I am writing on behalf of myself, my lab at Oregon State University, and The Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) in support of the proposal to protect Cape Blanco as a Marine Research Area. My laboratory group and I have been doing research at Cape Blanco and other sites in the Port Orford area for about 25 years. Our goal has been to amass data sets that will enable a determination of if, and how these coastal ecosystems are responding to climate change. Research conducted has included many experiments and observational studies as well as continuous monitoring of the ecosystems in this area. Recent analyses show that despite the appearance of long-term stability, the system has become increasingly unstable and may be nearing a tipping point into a different configuration.

Protecting Cape Blanco as a Marine Research Area will allow us to continue this important work for many years to come. The proposed designation would ensure that while people can still enjoy the natural beauty of the site, no collecting of animals or algae can occur. This will help the ecosystem remain intact for future generations of scientists, citizens, and visitors and ensure that our long-term monitoring can be maintained with integrity.

Best wishes,

A handwritten signature in black ink that reads "Bruce Menge".

Bruce Menge

31 December, 2020

Dear Reviewers of Rocky Habitat Site Designation proposals:

I am writing in strong support of the proposed Marine Research Area designation for Cape Blanco by PISCO – the Partnership for Interdisciplinary Study of Coastal Oceans. I have been following the development of this proposal and can attest to its scientific merit, balance, and thoroughness, as well as support of this proposal by local individuals and communities here on the southern Oregon coast.

Cape Blanco is an oceanographically dynamic, key location for several reasons, including that it serves as a marine biogeographic transition area, demarking the northern- or southern-most extent of the geographic range of many marine intertidal plants and animals. The rocky habitats around the cape also serve as important shelter, resting, haul out, nesting, recruitment, or nursery areas and sources of prey food for many species, from seaweeds to sea lions, including species that are commercially harvested or of particular resource management concern.

The site designation proposal advanced by PISCO strikes a very fine balance between protecting marine resources and continuing to allow human uses, without impacting longterm research activities at this key sentinel site on the Oregon coast.

Further, nearshore rocky habitats, their occupants and resources, at least on the northern side of the cape are subject to episodic threats and impacts from erosion, sedimentation, and runoff of soils from land clearing actions in the adjacent upper watershed of the Sixes River; fine sediment fractions of this soil enter the nearshore ocean as dense plumes and eventually settle to the sea floor, causing sublethal and lethal effects on rocky habitat flora and fauna including already severely impacted canopy forming kelps and kelp forests. This issue deserves priority attention by state agencies for research to provide science-based information for restoration and management of these rich, critical habitats and resources.

There is a considerable history of marine research at and near Cape Blanco. PISCO has been conducting periodic sampling for decades as part of long term ecological monitoring of the rocky intertidal there. This and related research by the Menge-Lubchenco lab at Oregon State University, and others, is key to understanding the status, trends and dynamics of rocky intertidal ecosystems and their oceanographic drivers, as well as how these dynamics are changing under the influence of changing ocean-climate conditions. It is essential that Cape Blanco and other places with long time series data sets be protected so that we are able to continue to monitor, predict trends in, and adaptively manage rocky intertidal communities with ecosystem-based approaches, in places without undo direct human influences.

Colleagues and I are still attempting to ascertain why this region – the Curry and Coos county coasts -- was the last on the entire Pacific coast of North America to experience the effects of the Sea Star Wasting Syndrome marine epidemic that decimated populations of over 20 species of intertidal and subtidal sea stars, in particular the sunflower star, *Pycnopodia helianthoides*,

and whether conditions in this region might have interacted to serve as some type of partial refuge from this epidemic. *Pycnopodia* was recently (early December 2020) listed as critically endangered globally by the IUCN – International Union for the Conservation of Nature. The effects of these sea star population crashes are still playing out in nearshore rocky habitats with some unknown consequences. However we suspect that Cape Blanco and its influences on regional oceanography may provide clues about why this marine epidemic was so late arriving in this region.

I first visited Cape Blanco as a 12 year old boy with my family. The rocky intertidal here left a permanent impression on me. I worked one summer as a seasonal park ranger at Cape Blanco and other south coast state parks in the Cape Blanco Management Unit. I have also participated in the development and implementation of longterm ecological monitoring of rocky intertidal, kelp forest, and other marine benthic communities. This includes efforts that were formative in the development of the ongoing National Park Service, Limpets, OPIHI, MARINe, and PISCO rocky intertidal monitoring programs. Starting in the early 1980s I took part in surveys of rocky intertidal and subtidal habitats and species, particularly canopy forming kelps, kelp forests, urchin barrens, sea urchin and abalone populations at over thirty sites along the Pacific coast of North America, from northern Baja California, Mexico, to Puget Sound, Washington. This includes rocky intertidal and kelp forest dive surveys around Cape Blanco and offshore islands and other promontories and rocky habitats on the south coast. I continue to dive and free dive around the cape and other rocky coasts when conditions allow. I also continue to maintain non-extractive/non-impact long-term monitoring of sea stars and other species. Since 1993 I have taught university level and public education field courses and continue to lead intertidal field trips for area school and community groups at Cape Blanco and other nearby rocky habitats, which are an invaluable living laboratory and field classroom. It is imperative that Cape Blanco rocky habitats receive the protections afforded by the proposed Marine Research Area designation.

I strongly encourage your consideration of the proposal by PISCO to designate Cape Blanco as a Marine Research Area under the Oregon Rocky Habitat Management Strategy.

Sincerely,

Larry Basch, Ph.D.  
Research Associate (courtesy appointment),  
University of Oregon, Oregon Institute of Marine Biology  
Charleston, Coos County, Oregon  
lbasch@uoregon.edu