Appendix B: Rocky Habitat Classification

1. ENVIRONMENTAL CONSIDERATIONS

a) Scale (Sizes)

The scale of the marine environment is vast, yet the scale of definable habitats and human use can be much smaller, often at a very precise location. The marine environment thus requires that management account for the tremendous differences in scales of reference. Management, monitoring, and research must accommodate for broad regional distinctions and characteristics, as well as fine-scale geographic and ecological resolution.

b) Linkage (Connectivity)

Areas or locations in the ocean are linked by the continuously flowing masses of water and by migrating, roaming, or drifting marine plants and animals. Marine life in any given area is sustained by nutrients dissolved in the water column. Phytoplankton, which fix solar energy, are effectively part of the water mass, and eggs and larvae from organisms at one site are frequently borne long distances to the habitat sites in which they ultimately settle. There are virtually no points within the marine environment that are completely disconnected from the system. Similar habitat conditions at distantly separated sites in a given region may have the same or very similar biotic communities. Likewise, pollutants from one source can affect marine areas far away. This linkage is modified by time. While some species take full advantage of marine advection and reproduce widely, the reproductive mode of other species is quite localized, which means that settlement or colonization at distant sites may take many years until appropriate conditions prevail.

c) Dynamics (Changes)

The dynamic conditions of the marine environment continuously change with a host of variables: tidal height, seasonal sunlight, storms, waves, water depth, upwelling, upland runoff, seafloor type or topography, etc. Oregon's marine environment is particularly influenced by the seasonal outflow of fresh water from the Columbia River and other coastal streams, and by upwelling created by summer winds. Large-scale events, such as El Niño, regularly punctuate these routine dynamics and increase complexity. These dynamic variables influence rocky habitat areas and their management.

2. ROCKY HABITAT TYPES

a) Rocky Upland

These habitats include rocky cliffs, sandstone bluffs, the upland extension of rocky intertidal benches or boulder fields, and other rocky substrates immediately inland from

intertidal areas. Some of these areas may receive saltwater spray or mist from the adjacent intertidal areas and may contain marine organisms. Rocky upland habitat provides isolated nesting and resting habitat for seabirds, as well as haulout sites for Pinnipeds.

Many rocky upland sites are in public ownership: State Parks and Recreation, U.S. Forest Service, Bureau of Land Management, or U.S. Fish and Wildlife Service. Others, such as the Sea Lion Caves area or the cliffs south of Cape Arago, are in private hands. Most are planned and zoned as part of the respective coastal county land use plan. Rocky uplands are included as coastal shorelands under Statewide Land Use Planning Goal 17.

b) Rocky Intertidal

Rocky habitat area between the extreme high water line and extreme low water line.

Rocky intertidal areas encompass a variety of hard, rocky sites, covered and uncovered daily by the tide and areas subject to splash and spray many feet above the water level. Most are wave-eroded bedrock platforms with associated remnant rocks and boulders. At some sites, boulder fields at the base of a rocky cliff predominate. Exposure to ocean waves varies from site to site: most are exposed or semi-exposed; a few are partially protected.

All rocky intertidal sites below mean high tide are held in trust by the State Land Board for the owners: the people of Oregon. Management is complex; the areas are administered jointly by the Department of State Lands exercising ownership responsibilities on behalf of the State Land Board and by the Oregon Parks and Recreation Department for public recreation under the Beach Bill (1967). The Department of Fish and Wildlife regulates harvesting, collecting, or taking of animals.

c) Rocky Shallow Subtidal

At some sites, submerged bedrock or boulders form reefs in direct association with rocky intertidal areas. This subtidal region, between extreme low water and the -5 meter depth contour, are generally geologic extensions of rocky intertidal or cliff areas along the shore.

These features within the territorial sea are held in trust by the State Land Board for the owners: the people of Oregon. The Department of Fish and Wildlife regulates harvest of fish and shellfish through general and site-specific regulations.

3. OFFSHORE ROCKY HABITAT TYPES

Areas detached from the main coastline including submerged reefs and exposed rocky islands within state jurisdiction (0-3 nautical miles) that are located seaward of the extreme low water line.

These sites are generally accessible only by boat. These reefs and rocks have valuable habitat that may be similar to those nearer to shore, but physical isolation at sea generates a unique set of management requirements and opportunities.

a) Offshore Reefs

The reefs in Oregon's territorial sea are submerged rock formations (but may also include individual rocks that project above the surface) with a variety of compositions: bedrock with pinnacles reaching toward the surface, boulders, cobbles, and, in some cases, intermixed gravel or sandy patches. All are exposed to high-energy ocean currents, waves, and mixing. Rocky reef depths can range from extreme low water out to the deepest limits of the territorial sea. If the reef is contiguous with an adjacent rocky intertidal area, then the portion from extreme low water out to -5 m depth is considered to be part of the rocky shoreline and is classified as rocky shallow subtidal (see above). These reefs provide diverse, valuable habitat for marine life.

Offshore reefs within three miles of shore are under the jurisdiction of the Department of State Lands (DSL) as submerged lands. DSL has general authority to lease submerged lands and specific authority to lease for marine plant harvest, which grows only on a rocky substrate. Sport and commercial harvest of fish and shellfish is regulated by the Department of Fish and Wildlife.

b) Offshore Rocks or Islands

Offshore rocks and islands occur singly (*e.g.*, Tillamook Rock), in small clusters (*e.g.,* Redfish Rocks), or in association with many other rocks and submerged reefs (*e.g.*, Orford Reef). 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.[28]

Birds and mammals use these rocks for breeding and rearing of young, shelter, and feeding. The degree of use and habitat value to a species or mix of species varies depending on differences in geologic composition, soil cover, vegetation, slope angle or orientation, relationship to other habitat areas, distance from shore, proximity to human use, etc. These rocks are center points for a wider range of feeding, foraging, and reproductive activities, which may take animals hundreds, if not thousands, of miles from the site. In some cases, these rocks are nesting sites for birds, which migrate from South America or New Zealand and are thus of international importance in species protection.

Above mean high water, almost all offshore rocks are designated as wilderness and managed as part of the National Wildlife Refuge system administered by the U.S. Fish and Wildlife Service. Below mean high water, the Oregon Department of State Lands

[28] As defined by the U.S. Fish and Wildlife Service.

has jurisdiction over the seabed. The Oregon Department of Fish and Wildlife regulates all fish and shellfish harvest throughout both tidal elevations.