Appendix A: Glossary of Terms

algae, marine: this term is used loosely in this plan to include all the so-called "seaweeds," especially of the intertidal area. Marine algae range in size from the simple microscopic blue-green algae and diatoms that float in the water to the many species of large brown and red algae that are so recognizable as "seaweed" in tide pools. Marine algae include several species of kelp but in Oregon the bull kelp, Nereocystis luetkeana, grows subtidally and has special legal status because of its value as a commercial raw material.

appropriate use: a term used to imply a balance between human use, or exploitation, of a natural resource, including its environment, and the ability of the resource to tolerate the use. For any given site or resource, managers must consider nature, sensitivity, durability, and regenerative capacity of the resource against the amount, kind, duration, and intensity of the use as well as the goals, objectives, and policies of the particular administrative or management authority including the Territorial Sea Plan.

biota: all organisms found in a specified area.

cell (rocky shore): a major shore feature with a predominant set of similar shore types. On the Oregon coast, there are two types of cells: littoral (sandy shore) cells where nearshore circulation is enclosed between headlands; rocky cells composed of headlands, capes and associated reefs or rocks.

coast: the area where land and sea meet and where the physiographic, hydrographic, oceanographic, and biological features and conditions of each strongly influence the other.

coastal biodiversity: at its simplest, a term meaning the diversity of life forms and communities that occur in the coastal zone, including nearshore ocean waters. Diversity is a concept that means "variety or multiformity, a condition of being different in character and quality" (Patrick, 1983, in Ray, 1988). There is no single way to define, measure, or evaluate diversity of life; rather there are at least four interrelated ways:

X species diversity, which refers to the variety and abundance of species in an ecosystem;

X ecological diversity, which refers to the variety of types of biological communities found on earth;

X genetic diversity, which refers to the genetic variation that occurs among members of the same species; and

X functional diversity, which refers to the variety of biological processes or functions characteristic of a particular ecosystem. This may be the most important way of referring to biodiversity in a coastal management sense.

Coastal biodiversity refers to the richness of variety and interactions of biological resources in

the coastal zone, which is a transition zone or ecotone between the land and the sea. Coastal biodiversity therefore encompasses not only the range and multitude of sea creatures that live in the rocky intertidal zone, but also the varieties of seabirds and shorebirds, marine mammals, hundreds of species of fish, shellfish, invertebrates, marine algae or "seaweeds", plankton, and insects. More than that is the complexity of their interactions, evolved and adapted over the millenia to fit the dynamics of this transition environment.

coastal shorelands: those areas immediately adjacent to the ocean, all estuaries and associated wetlands, and all coastal lakes. (Oregon Statewide Planning Goals)

coastal zone: the area lying between the Washington border on the north to the California border on the south, bounded on the west by the extent of the state's jurisdiction, and in the east by the crest of the coastal mountain range, with the exception of : (a) The Umpqua River basin, where the coastal zone shall extend to Scottsburg; (b) The Rogue River basin, where the coastal zone shall extend to Agness; (c) The Columbia River basin, where the coastal zone shall extend to the downstream end of Puget Island. (Oregon Statewide Planning Goals).

community: the full complement of plant and animal species living and interacting in a specified habitat. Or, a "distinct and recurring assemblage of plants and animals naturally associated with each other and with a particular physical environment" (Dethier). Like human communities, the exact composition of marine communities may vary for complex reasons: seasonal changes in light, temperature, or nutrients; water depth, which affects food, light, temperature, and pressure; meeting or mixing of different water masses with different temperatures, salinity, or nutrient levels; etc.

conserve: to manage in a manner which avoids wasteful or destructive uses and provides for future availability. (Oregon Statewide Planning Goals)

conservation: the act of conserving the environment. (Oregon Statewide Planning Goals)

conservation: a principle of action guiding Oregon's ocean-resources management, which seeks to protect the integrity of marine ecosystems while giving priority to the protection and wise use of renewable resources over nonrenewable; as used in the Oregon Ocean Resources Management Plan, the act of conservation means "that the integrity, diversity, stability, complexity, and the productivity of marine biological communities and their habitats are maintained or, where necessary, restored" and "...accommodat(ing) the needs for economic development while avoiding wasteful uses and maintaining future availability.

critical marine habitat: means one or more of the following land and water areas:

a.) areas designated as "critical habitat" in accordance withederal laws governing threatened and endangered species; OR

b.) areas designated in the Territorial Sea Plan as either:

1.) as needed for the survival of animal or plant species listed by state or federal laws as "threatened", "endangered", or "sensitive". Such areas might include special areas used for

feeding, mating, breeding/spawning, nurseries, parental foraging, overwintering, or haul out or resting. This is not intended to limit the application of federal law regarding threatened and endangered species; OR

2.) "unique" (i.e. one of a kind in Oregon) habitat for scientific research or education within the Oregon territorial sea. (Territorial Sea Plan, Part Two)

develop: to bring about growth or availability; to construct or alter a structure, to conduct a mining operation, to make a physical change in the use or appearance of the land, to divide land into parcels, or to create or terminate rights to access. (Oregon Statewide Planning Goals)

ecosystem: the living and non-living components of the environment which interact or function together, including plant and animal organisms, the physical environment, and the energy systems in which they exist. All the components of an ecosystem are interrelated. (Oregon Statewide Planning Goals)

ecotone: a transition area between different habitats or environments; the Oregon coast is within an ecotone between the subarctic waters of the Gulf of Alaska and the subtropical waters of California and Mexico. Further, the waters of Oregon's Territorial Sea are coastal waters, an ecotone between the oceanic habitat in waters over the continental margin and terrestrial habitats of Oregon's coastal watersheds and shoreline.

enhancement: improvement in condition; in natural resources management referring to objective tasks undertaken to improve the condition, numbers, or prospects for survival of populations, habitats, or ecosystems.

environment: where we, and all living things, live.

habitat: the environment in which an organism, species, or community lives. Just as humans live in houses, within neighborhoods, within a town or geographic area, within a certain region, and so on, marine organisms live in habitats which may be referred to at different scales. (see also "critical marine habitat", "important marine habitat")

headlands: bluffs, promontories or points of high shoreland jutting out into the ocean, generally sloping abruptly into the water. Oregon headlands are generally identified in the report on Visual Resource analysis of the Oregon Coastal Zone, OCCDC, 1974. (Oregon Statewide Planning Goals)

important marine habitat: marine habitats that must be specifically considered when an inventory-and-effects evaluation is conducted pursuant to Goal 19: including but not limited to: habitat necessary for the survival and conservation of Oregon renewable resources (e.g. areas for spawning, rearing, or feeding), kelp and other algae beds, seagrass beds, seafloor gravel beds, rock reef areas and areas of important fish, shellfish and invertebrate concentration. (Oregon Statewide Planning Goal 19).

niche: the range of environmental variables (such as temperature, salinity, nutrients, etc.) within

which a species can exist and reproduce. The preferred niche is the one in which the species performs best in the absence of competition or interference from extraneous factors. The realized niche is the one in which it actually comes to live in a particular environment.

organism: an individual living entity or life form.

pollution: the violation or threatened violation of applicable state or federal environmental quality statutes, rules and standards. (Oregon Statewide Planning Goals)

preserve: to save from change or loss and reserve for a special purpose. (Oregon Statewide Planning Goals)

program: proposed or desired plan or course of proceedings or action. (Oregon Statewide Planning Goals)

protect: save or shield from loss, destruction, or injury or for future intended use. (Oregon Statewide Planning Goals)

population: a set of organisms belonging to the same species and occupying a clearly delimited space at the same time.

preservation: as used in the Oregon Ocean Resources Management Plan, means "that no adverse human-induced changes to a biological community or habitat should be allowed, and that human activities that could cause such changes need to be prohibited."

recreation: any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction. (Oregon Statewide Planning Goals)

rocky shores: within the context of the Ocean Stewardship Area in the Oregon Ocean Resources Management Plan, 1990, include 1.) shoreline features of rocky cliffs, rocky intertidal areas with associated rocks; and 2.) offshore features of rocks, islands, and submerged reefs within Oregon's Territorial Sea. Offshore areas do <u>not</u> include deepwater features such as Heceta, Stonewall, Perpetua, or Coquille Banks that are in federal waters.

shoreline: the boundary between a body of water and the land, measured on tidal waters at mean higher high water, and on non-tidal waterways at the ordinary high-water mark. (Oregon Statewide Planning Goals)

significance: for purposes of the required resource inventory and effects evaluation, involves context and intensity. Context will vary with the physical setting of the proposed action, and may involve interests at the local, regional, state, or federal level. Intensity refers to the severity of the effect; that is, the magnitude and duration of the effect. The intensity of an effect should be weighed along with the likelihood of its occurrence. An effect may be significant even when its chance of occurrence is not great, but when the resulting effect would be severe if it occurred. Significance does not lend itself to a formula or quantifiable test when used to describe natural resources (unlike statistical analyses where "significance" does lend itself to mathematical

expression).

site: a specific geographic feature or location within a cell. They may be a rock or cluster of rocks, a particular cove or cliff, or other specific feature. These sites may also have a mix of rocky shore types and even have sandy or cobbled beaches when mapped at this scale.

species: a population or collection of populations of closely related and similar organisms capable of interbreeding freely with one another but not with members of other species under natural conditions.

submersible lands: lands lying between the line of ordinary (mean) high water and the line of ordinary (mean) low water. (ORS 274.005(8))

territorial sea: the ocean and seafloor area from mean low water seaward three nautical miles. (Oregon Statewide Planning Goals)

tidal submerged lands: lands lying below the line of mean low tide in the beds of all tidal waters within the boundaries of this state are heretofore or hereafter established. (ORS 274.705(7))

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Appendix C: Acronyms and Abbreviations

BLM Bureau of Land Management (U.S. Dept. of the Interior)

CZMA Coastal Zone Management Act of 1972 (federal)

DLCD Department of Land Conservation and Development

DEQ Department of Environmental Quality

DOGAMI Department of Geology and Mineral Industries

EPA U.S. Environmental Protection Agency

FAA U.S. Federal Aviation Administration

MHHW Mean Higher High Water

MHW Mean High Water

MLW Mean Low Water

MLLW Mean Lower Low Water

MMS Minerals Management Service (U.S. Department of the Interior)

MSL Mean Sea Level

NMFS National Marine Fisheries Service (NOAA)

NOAA National Oceanic and Atmospheric Administration (U.S. Dept.of Commerce)

NOS National Ocean Service (NOAA)

OAR Oregon Administrative Rules

ODFW Oregon Department of Fish and Wildlife

OPAC Ocean Policy Advisory Council

ORS Oregon Revised Statutes

PRD (Oregon) Parks and Recreation Department

USACOE U.S. Army Corps of Engineers

USC U.S. Code

USCG U.S. Coast Guard

USFWS U.S. Fish and Wildlife Service (U.S. Dept. of the Interior)

Appendix D: Notes on Tidal-Related Shore Lines

Most ocean shore boundaries are determined by tidal definition, such as Mean Low Water. These boundaries are not fixed, visible marks on the ground; rather, they result from the location of the water's edge during a particular time in the tidal cycle or the average of that location at the designated time as measured over a given time period. A somewhat technical process is used to standardize these tidal levels and determine where they might be located at any particular place. The continual variability of the tidal level on an hourly, daily, monthly, seasonal and even longer time cycles and the interplay of this level with the seabed and shoreline of any given location all complicate the discussion.

Many state and federal laws refer to such terms as "mean sea level," "ordinary high water," "mean low water" and others. The lines or boundaries created along the shore by these tidal levels are rarely shown in detail on maps or charts and instead are shown in more general terms on large scale maps. Even more rarely are they marked or surveyed in the field. Should the need arise, it will be an expensive and time-consuming undertaking for Oregon and the appropriate federal agencies to actually map and locate these boundaries on the ground. For now, however, the tidal level definitions create conceptual and jurisdictional boundaries to guide ocean planning.

The following definitions and explanations are taken from the publication Tide and Current Glossary, 1989, published by the National Ocean Service and other references.

Extreme Low Water (ELW): The lowest elevation reached by the sea as recorded by a tide gauge during a given period. The National Ocean Service routinely documents monthly and yearly extreme low water for its control stations.

Mean High Water (MHW): A tidal datum. The average height of all high water heights observed over the National Tidal Datum Epoch.

Mean High Water Line (MHHL): The line on a chart or map representing the intersection of the land (shore) with the water surface at the elevation of mean high water.

Mean Higher High Water (MHHW): A tidal datum. The average of the higher high water height of each tidal day observed over the National Tidal Datum Epoch.

Mean Higher High Water Line: The line on a chart or map representing the intersection of the land (shore) with the water surface at the elevation of mean higher high water.

Mean Low Water (MLW): A tidal datum. The average of all the low water heights observed over the National Tidal Datum Epoch.

Mean low Water Line (MLWL): The line on a chart or map representing the intersection of the land (shore) with the water surface at the elevation of mean low water.
Mean Lower Low Water (MLLW): A tidal datum. The average of the lower low water height

of each tidal day observed over the National Tidal Datum Epoch.

Mean Lower Low Water Line (MLLWL): The line on a chart or map representing the intersection of the land (shore) with the water surface at the elevation of mean lower low water.

Mean Sea Level (MSL): This commonly used term really refers to local mean sea level and is defined as the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; e.g., monthly mean sea level and yearly mean sea level. MSL is not the standardized plane of reference adopted by the United States and Canada (see next term).

National Geodetic Vertical Datum of 1929 (NGVD 1929): A fixed reference adopted as a standard geodetic datum for elevations determined by leveling. Observations at twenty one stations in the U.S. and five in Canada were used to establish a "first-order" leveling net that is fixed and does not take into account the changing stands of sea level. This NGVD is fixed over a broad area and thus does not correlate to local sea level and should not, therefore, be confused with mean sea level. The U.S. Geological Survey uses this datum as the reference for land elevations on topographic maps. Oregon law (ORS 390.755 et seq) establishing the "vegetation line" as the landward edge of the "ocean shore" refers to NGVD 1929.

National Tidal Datum Epoch: Specific 19-year periods adopted by the National Ocean Service as the official time segment during which tide observations are taken and calculated to mean (average) values for tidal datums. The most recent epoch is the period 1960-1978.

North American Vertical Datum of 1988 (NAVD 1988): A new geodetic datum implemented by the National Ocean Service to replace NGVD 1929.

Ordinary: A nontechnical term synonymous with mean. Thus, ordinary low water is the equivalent of mean low water.

Appendix E: Oregon's Ocean Management

OREGON REVISED STATUTES (ORS 196.405 - .515)

OREGON OCEAN RESOURCES MANAGEMENT

196.405 Definitions for ORS 196.405 to 196.515. As used in ORS 196.405 to 196.515, unless the context requires otherwise:

(1) "Council means the council established in ORS 196.438.

(2) "Exclusive Economic Zone" has the meaning set forth in Proc. 5030 whereby the United States proclaimed jurisdiction over the resources of the ocean within 200 miles of the coastline.

(3) Ocean shore" has the meaning given the term in ORS 390.770.

(4) "Panel" means a project review panel established under ORS 196.453.

(5) "Plan" means the Oregon Ocean Resources Management Plan.

(6) "Territorial sea" means the waters and seabed extending three geographical miles seaward from the coastline in conformance with federal law.

(7) "Territorial Sea Plan" means the plan for Oregon's territorial sea and ocean shore adopted as set forth in ORS 196.471 [1987 c.576 ə6; 1991 c.501 ə2]

196.407 Policy for ORS 196.408. It is the policy of this state to:

(1) Work with the States of Washington and California to explore the possibility of development of communication information systems including a computerized system of coastal and marine resource information.

(2) Work with the States of Washington and California to develop compatible programs of ocean oil spill response, damage assessment and compensation.

(3) Work with the States of Washington and California and federal agencies to develop compatible programs to complement federal programs which protect marine birds and marine mammals.

(4) Cooperate and coordinate with adjacent states to develop a regional approach to obtaining fisheries information. [1989 c.895 ə2]

196.408 Duties of state agencies. (1) State agencies shall, to the maximum extent practicable, coordinate development of coastal and ocean information systems with those of adjacent states. (2) State agencies with responsibility for oil spill and hazardous material response, damage assessment and compensation in the marine environment shall, to the maximum extent practicable, coordinate Oregon's plans, programs, policies and techniques with

those of adjacent states.

(3) State agencies which have jurisdiction over water areas, the seabed and resources adjacent to offshore rocks and islands shall coordinate with adjacent states and federal agencies to develop programs and regulations to manage uses and activities of ocean areas adjacent to coastal cliffs and offshore rocks and islands managed within the National Wildlife Refuge System.

(4) State agencies with responsibility for marine fishery resource management shall coordinate with fishery managers in adjacent states to develop a uniform fish catch and monitoring system. [1989 c.895 ə3]

196.410 Legislative findings for offshore oil and gas leasing.

The Legislative Assembly finds:

(1) Oregon's territorial sea encompasses all the rocks and island of the Oregon National Wildlife Refuge, borders all beaches, headlands and rocky intertidal areas and includes areas heavily used for commercial and recreational fishing. Navigation lanes for barges and vessels pass through the area.

(2) Oregon's territorial sea is rich in marine life. Its renewable resources support significant portions of the coastal economy. It is a dynamic, hazardous marine environment within which oil spills cannot be contained.

(3) Oregon's nearshore zone is extremely high in biological productivity, reflected by the variety and value of commercial and sport ocean fisheries catch. The Oregon coast provides a significant habitat for migrating seabirds and mammals. Oregon is unwilling to risk damaging sensitive marine environments or to sacrifice environmental quality to develop offshore oil and gas resources. [1989 c.895 ə4]

Note: Sections 5 and 6, chapter 895, Oregon Laws 1989, provide:

Sec. 5. Prohibition of certain leasing in territorial sea until June 30, 1995.

(1) Notwithstanding the provisions of ORS 274.710 to 274.860, 520.240 or any other provision of law, any form of leasing for purposes of exploration, development or production of oil, gas or sulphur is prohibited in the territorial sea.

(2) The provisions of subsection (1) of this section do not apply to exploration for academic research purposes or geologic survey activities of the State Department of Geology and Mineral Industries.

(3) Any exploration for oil, gas or sulfur in the territorial sea allowed under ORS 274.705 to 274.895 by the State Land Board or the Division of State Lands shall conform to any standards of the Oregon Ocean Resources Management Program established under ORS 196.405 to 196.515. [1989 c.895 ə5]

Sec. 6. The provisions of section 5 of this act are repealed on June 30, 1995. [1989 c.895 ə6]

196.415 Legislative findings for ocean resources management.

The Legislative Assembly finds that:

(1) The Pacific Ocean and its many resources are of environmental, economic, aesthetic, recreational, social and historic importance to the people of this state.

(2) Exploration, development and production of ocean resources likely to result from both federal agency programs in federal waters of the outer continental shelf and initiatives of private companies within state waters will increase the chance of conflicting demands on ocean resource for food, energy and minerals, as well as waste disposal and assimilation, and may jeopardize ocean resources and values of importance to this state.

(3) There are many state agencies with particular regulatory or program interests in the ocean, its resource and uses but no comprehensive management plan or process to insure that state interests are protected and promoted both within state waters and beyond.

(4) The fluid, dynamic nature of the ocean and the migration of many of its living resources beyond state boundaries extend the ocean management interests of this state beyond the three geographic mile territorial sea currently managed by the state pursuant to the federal Submerged Lands Act.

(5) Existing federal laws, the Coastal Zone Management Act of 1972, the Coastal Zone Management Act Reauthorization Amendments of 1990, the Magnuson Fisheries Management Act of 1976, and the Outer Continental Shelf Lands Act of 1978, recognize the interests of coastal states in management of ocean resources in federal waters and provide for state participation in ocean resource management decisions. The Coastal Zone Act Reauthorization Amendments of 1990 require that all federal coastal activities affecting natural resources, land uses and water uses in the coastal zone must be consistent with the federally approved Oregon Coastal Management Program.

(6) The 1983 Proclamation of the 200-mile United States Exclusive Economic Zone has created an opportunity for all coastal states to more fully exercise and assert their responsibilities pertaining to the protection, conservation and development of ocean resources under United States jurisdiction.

(7) It is important that the State of Oregon develop and maintain a program and insure coordinated management of living and nonliving marine resources within state jurisdiction and with adjacent states, to insure effective participation in federal agency planning and management of ocean resources and uses which may affect this state, and to coordinate state agency management of ocean resources with local government management of coastal shorelands and resources.

(8) While much is known about the ocean, its composition, characteristics and resources, additional study and research is required to gain information and understanding necessary for sound ocean planning and management.

(9) New and innovative technologies are needed to insure future development of ocean resources in an environmentally responsible manner.

(10) Because Oregon's coastal local governments have important regulatory responsibilities for land uses and activities along the ocean shoreline, around estuaries and in coastal watersheds which can affect ocean resources, it is essential that comprehensive land use plans and land use regulations be fully coordinated with the state's program of ocean resource protection and management. [1987 c.576 ə3; 1991 c.501 ə3]

196.420 Policy. It is the policy of the State of Oregon to:

(1) Conserve the long-term values, benefits and natural resources of the ocean both within the state and beyond by giving clear priority to the proper management and protection of renewable resources over nonrenewable resources;

(2) Encourage ocean resources development which is environmentally sound and economically beneficial to adjacent local governments and to the state;

(3) Provide for efficient and coordinated ocean resources management through improvement of the state's coastal management program and statewide land use program;

(4) Assert the interests of this state as a partner with federal agencies in the sound management of the ocean resources within the United States Exclusive Economic Zone and on the continental shelf;

(5) Promote research, study and understanding of ocean processes, marine life and other ocean resources to acquire sufficient scientific inventory information necessary to describe and understand the long-term impacts of the proposed action on resources and uses of the ocean and nearshore area;

(6) Encourage research and development of new, innovative marine technologies to study and utilize ocean resources; and

(7) Assure that the council will work closely with coastal local governments to incorporate wherever possible elements of the local comprehensive plan, insuring coordination of Oregon's Ocean Resources Management Program with local land use plans and land use regulations. [1987 c.576 ə4; 1991 c.501 4]

196.425 Oregon Ocean Resources Management Program. To assure the conservation and development of ocean resources affecting Oregon consistent with the purposes of ORS 196.405 to 196.515 and 201.370, a coordinated program of ocean resource planning and management is established. This program shall be known as the Oregon Ocean Resources Management Program and is part of Oregon's coastal management program. The Oregon Ocean Resources Management Program consists of:

(1) Applicable elements of the Oregon Coastal Management Program approved by the U.S. Secretary of Commerce on July 7, 1977, and as subsequently amended pursuant to the Coastal Zone Management Act of 1972, including statutes, programs and policies of state agencies which apply to coastal and ocean resources, those elements of acknowledged local comprehensive plans of jurisdictions within Oregon's coastal zone as defined in the Oregon Coastal Management Program which may be affected by activities or use of resources within the ocean, and those statewide

planning goals which relate to the conservation and development of ocean and coastal resources.

(2) The council and any cooperative agreements entered into by the council or its successor;

(3) The Oregon Ocean Resources Management Plan as prepared and adopted pursuant to ORS 196.405 to 196.515 and 201.370;

(4) The Territorial Sea Plan described in section 19, chapter 501, Oregon Laws 1991; and

(5) State agency coordination requirements of ORS 197.180 as provided in ORS 196.485. [1987 c.576 ə5; 1991 c.501 ə5]

196.435 Primary agency for certain federal purposes; rules; restrictions. (1) The Department of Land Conservation and Development is designated the primary agency for coordination of ocean resources planning activities and the State Coastal Management Agency for purposes of carrying out and responding to the Coastal Zone Management Act of 1972. The department shall assist:

(a) The Governor with the Governor's duties and opportunities to respond to federal agency programs and activities affecting coastal and ocean resources; and

(b) The Ocean Policy Advisory Council.

(2) The provisions of ORS 196.405 to 196.515 and 201.270 do not change statutorily and constitutionally mandated responsibilities of other state agencies. However, state agencies shall amend their programs and rules relevant to ocean resources to be consistent with the Oregon Ocean Resources Management Plan and the Territorial Sea Plan adopted by the Land Conservation and Development Commission under ORS 196.471.

(3) ORS 196.405 to 196.515 and 201.370 do not provide the commission with authority to adopt specific regulation of ocean resources or ocean uses. [1987 c.576 ə7; 1989 c.325 ə1: 1991 c.501 ə21]

196.438 Ocean Policy Advisory Council; members; term of office; quorum. (1) There is established in the office of the Governor an Ocean Policy Advisory Council which shall be composed of:

(a) The Governor or the Governor's designee;

(b) The director or the director's designee of the following agencies:

(A) Department of Environmental Quality;
(B) State Department of Fish and Wildlife;
(C) State Department of Geology and Mineral Industries;
(D) Department of Land Conservation and Development;
(E) Division of State Lands;
(F) Parks and Recreation Department;

(G) State Department of Agriculture; and
(H) On behalf of the State Board of Higher Education, the director or director's designee of Oregon State University, Sea Grant College;

(c) A county commissioner of a county bordering the territorial sea to be appointed by the Governor;

(d) An elected city official from a coastal city bordering the territorial sea to be appointed by the Governor;

(e) A representative of each of the following ocean interests, to be appointed by the Governor:
(A) Commercial ocean fisheries of the North Coast from Newport north;
(B) Commercial ocean fisheries of the South Coast south of Newport;
(C) Charter, sport or recreation ocean fisheries of the North Coast from Newport north;
(D) Charter, sport or recreation ocean fisheries of the South Coast south of Newport;
(E) Ports Marine navigation or transportation;
(F) Coastal nonfishing recreation;
(G) A coastal conservation or environmental organization;
(H) Oregon Indian tribes appointed after consultation with the Commission on Indian Services; and
(I) A coastwide organization representing a majority of small ports and local governments; and

(f) Three representatives of the public, at least one of whom shall be a resident of a county bordering the territorial sea, to be appointed by the Governor.

(2) The term of office of each member appointed by the Governor is four years, but a member serves at the pleasure of the Governor. Before the expiration of the term of a member, the Governor shall appoint a successor whose term begins on July 1 next following. A member is eligible for reappointment. If there is a vacancy for any cause, the Governor shall make an appointment to become immediately effective for the unexpired term.

(3) A majority of the members of the council constitutes a quorum for the transaction of business.

(4) The Governor shall appoint the council chair from among the membership. [1991 c.501 ə6]

Note: 196.438 to 196.443 were added to and made a part of 196.405 to 196.515 by legislative action but were not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

196.443 Duties of council. (1) The purposes of the Ocean Policy Advisory Council are to:

(a) Prepare a management plan for the territorial sea as described in ORS 196.471.

(b) Provide a forum for discussing ocean resource policy, planning and management issues and, when appropriate, mediating disagreements.

(c) Recommend amendments to the Oregon Ocean Resources Management Plan and Territorial Sea

Plan as needed.

(d) Offer advice to the Governor, the State Land Board, state agencies and local governments on specific ocean resources management issues.

(e) Coordinate interagency and inter-governmental review of specific ocean resource projects or actions through project review panels.

(f) Encourage participation of federal agencies in discussion and resolution of ocean resources planning and management issues affecting Oregon.

(g) Coordinate development of a computerized ocean resources information system among affected state and federal agencies.

(2) The council shall review the Oregon Ocean Resources Management Program and provide a report to the President of the Senate and the Speaker of the House of Representatives by December 1 of each even-numbered year. The report shall evaluate the program and recommend:

(a) Any needed program changes;

(b) Plans to continue scientific research needed to make decisions; and

(c) Any needed legislative changes. [1991] c.501 ə8]

Note: See note under 196.438

196.445 [1987 c.576 ə; 1989 c.154 ə1;1989 c.904 ə52; repealed by 1991 c.501 ə18]

196.448 Member compensation; meetings; rules. (1) A member of the council is entitled to compensation and expenses as provided in ORS 292.495.

(2) The council shall meet at least once every three months at a place, day and hour determined by the council. The council also shall meet at other times and places specified by the call of one of the cochairs or of a majority of the members of the council.

(3) In accordance with applicable provisions of ORS 183.310 to 183.550, the council may adopt rules necessary for the administration of the laws that the council is charged with administering. [1991 c.501 əə9, 10, 11]

Note: See note under 196.438.

196.450 [1987 c.576 ə9; repealed by 1991 c.501 ə18]

196.451 Technical advisory committee. (1) To aid and advise the council in the performance of its functions, the council shall establish a permanent scientific and technical advisory committee chaired by the director of the Sea Grant College program or other similarly qualified member of the

Ocean Policy Advisory Council land may establish additional committees as needed.

(2) Members of the advisory committees are not entitled to compensation, but in the discretion of the council may be reimbursed from funds available to council for actual and necessary travel and other expenses incurred by them in the performance of their official duties, subject to ORS 292.495. [1991 c.501 ə12]

Note: 196.451 and 196.453 were added to and made a part of 196.405 to 196.515 by legislative action but were not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

196.453 Project review panels. (1) The council may establish project review panels to address and coordinate the interests of state, federal land local governments in specific development proposals.

(2) The council may adopt rules to establish criteria to create review panels and determine the scope of the activities of the panel.

(3) A panel shall not have any authority independent of the council. The authority of any panel shall be that granted to it by the council.

(4) A panel shall take no actions establishing any fishing season, harvest allocation, geographic or other harvest restriction for fisheries conducted under a fisheries management plan authorized under 16 U.S.C. 1801 et seq. [1991 c.501 ə16]

Note: See note under 196.451.

196.455 Coordination with federal programs. To insure that the Oregon Ocean Resources Management Plan and Territorial Sea Plan are coordinated with federal agency programs for coastal and ocean resources, the council shall invite federal agencies with responsibility for the study and management of ocean resources or regulation of ocean activities to designate a liaison to the council to attend council meetings, respond to council requests for technical and policy information and review draft plan materials prepared by the council. [1987 c.576 ə10; 1991 c.501 ə13]

196.465 Compatibility of acknowledged comprehensive plans.
(1) The plan and Territorial Sea Plan, when adopted pursuant to ORS 196.471, shall be compatible with acknowledged comprehensive plans of adjacent coastal counties and cities.

(2) To insure that the plans and the Territorial Sea Plan are compatible with the comprehensive plans of adjacent coastal counties and cities, the council shall work with the department and any Oregon coastal zone management association to:

(a) Meet and consult with local government officials;

(b) Distribute draft materials and working papers for review and solicit comment on council materials;

(c) Provide technical and policy information to local governments about ocean resource issues;

(d) Develop territorial sea plan policies to reflect, as necessary, coastal local government comprehensive plans;

(e) Assist coastal local governments to amend comprehensive plans, as necessary, to meet state ocean resources management objectives; and

(f) Establish provisions for mandatory consultation, as necessary, between local governments, the Governor and state agencies on major ocean development activities or actions.

(3) Based on consultations between the council and appropriate local governments, the council may recommend to appropriate local governments or the commission amendments to local comprehensive plans or land use regulations needed to achieve compatibility with the policies of ORS 196.405 to 196.515 and carry out the policies of the Territorial Sea Plan. [1987 c.576 ə11; 1991 c.501 ə14]

196.470 [1987 c.576 ə12; repealed by 1991 c.501 ə18]

196.471 Territorial Sea Plan review requirements. (1) The commission shall review the Territorial Sea Plan and any subsequent amendments recommended by the council to either the Territorial Sea Plan or the Oregon Ocean Resources Management Plan and make findings that the plan or amendments:

(a) Carry out the policies of ORS 196.405 to 196.515;

(b) Are consistent with applicable statewide planning goals, with emphasis on the four coastal goals; and

(c) Are compatible with adjacent county comprehensive plans as required in subsection (5) of this section.

(2) After making the findings required by subsection (1) of this section, the commission shall adopt the Territorial Sea Plan or proposed amendments as part of the Oregon Coastal Management Program.

(3) If the commission does not make the findings required by subsection (1) of this section, the commission shall return the plan or amendments to the council for revision. The commission may specify any needed revisions.

(4) Upon adoption of the Territorial Sea Plan or subsequent amendments the commission may, after consultation with affected state agencies, identify amendments to agency ocean or coastal resource management programs necessary to conform to the provisions of the adopted plan. [1991 c.501 ə20]

Note: 196.471 was added to and made a part of 196.405 to 196.515 by legislative action but was not added to any smaller series therein. See Preface to Oregon Revised Statutes for further explanation.

196.475 Consultation with state and interstate organizations. The council shall consult with appropriate agencies and programs in Washington, California, British Columbia and Alaska and with appropriate interstate organizations. [1987 c.576 ə13; 1991 c.501 ə15]

Note: Section 15, chapter 576, Oregon Laws 1987, as amended by section 19, chapter 501, Oregon Laws 1991, provides:

Sec. 15. Initial Territorial Sea Plan. (1) By July 1, 1994, the Ocean Policy Advisory Council shall adopt a plan for management of resources and uses of the state territorial sea and ocean shore. The Territorial Sea Plan shall be based on the policies and recommendations of the Oregon Ocean Resources Management Plan.

(2) The Territorial Sea Plan may include:

(a) More detailed analyses of and implementation strategies for issues, policies and recommendations of the plan;

(b) Policies or standards applicable to local government, state and federal agency plans or actions within or affecting resources and uses of Oregon's territorial sea.

(c) Special subarea management plans to resolve multiple use conflicts in specific areas, and

(d) Recommendations to the commission for improvement or amendments to the Oregon Coastal Management Program.

(3) The Ocean Policy Advisory Council shall submit the Territorial Sea Plan to the Land Conservation and Development Commission for adoption as part of the Oregon Coastal Management Program. [1987 c.576 ə15, 1991 c.501 ə19]3

196.485 State agency coordination requirements; incorporation of plans. (1) If a state agency incorporates the Oregon Ocean Resources Management Plan and Territorial Sea Plan by reference in its coordination program and, upon a finding by the commission that the agency has amended its rules, procedures and standards to conform with the objectives and requirements of the plan and Territorial Sea Plan, the state agency shall satisfy the requirements of state agency planning and coordination required by ORS 197.180 for ocean planning.

(2) If a state agency does not incorporate the plan or Territorial Sea Plan in its coordination program, the agency shall be subject to the state agency coordination requirements of ORS chapters 196 and 197 for state agency programs, procedures and standards that in any way affect ocean resources.

(3) State agency programs or rules for manage-ment of ocean resources or ocean uses shall be consistent with the Oregon Ocean Resources Management Plan and the Territorial Sea Plan. [1987 c.576 ə17; 1991 c.501 ə17]

196.490 [1987 c.576 ə18; repealed by 1991 c.501 ə18]

196.495 [1987 c.576 ə19; repealed by 1991 c.501 ə18]

196.500 [1987 c.576 ə20; repealed by 1991 c.501 ə18]

196.505 [1987 c.576 ə21; repealed by 1991 c.501 ə18]

196.515 Short title. ORS 196.415 to 196.515 shall be known as the Oregon Ocean Resources Management Act. [1987 c.576 ə2]

196.575 Authorization to obtain federal oceanographic data; joint liaison program; use of data. (1) The Department of Land Conservation and Development is authorized to participate on behalf of the State of Oregon with the States of Washington, California, Alaska and Hawaii in a joint liaison program with the Center for Ocean Analysis and Prediction of the National Oceanic and Atmospheric Administration.

(2) The objective of the Program is to assist the states in taking maximum advantage of the oceanographic data, products and services available from the federal Government through the Center for Ocean Analysis and Prediction.

(3) The Department of Land Conservation and Development shall integrate data obtained through the liaison program for use by other state agencies and maximize the use of the State Service Center for Geographic Information Systems. [1991 c.524 əə1, 3]

Note: 196.575 and 196.580 were enacted into law by the Legislative Assembly but were not added to or made a part of ORS chapter 196 by legislative action. See Preface to Oregon Revised Statutes for further explanation.

196.580 Liaison program duties. (1) the liaison program shall:

(a) Assist state and local governments to become fully aware of oceanographic data and products available from the Federal Government and in particular from the Center for Ocean Analysis and Prediction.

(b) Assist the Center for Ocean Analysis and Pre-diction and the National Oceanic and Atmospheric Administration to become more fully aware of state and local problems and the requirements of state and local governments.

(c) Assist in setting up lines of communication to move oceanographic data and products from the Center for Ocean Analysis and Prediction to the people in the states who need those data and products.

(2) The liaison program also shall include work-shops for small groups of technical experts from state and local governments, academic institutions and the private sector. The workshops shall be held at the Center for Ocean Analysis and Prediction in Monterey, California, and at other facilities

in the western states as appropriate. [1991 c.524 ə2]

Note: See note under 196.575.

201.370 Boundaries of counties bordering Pacific Ocean. (1) The boundaries of all counties bordering on the Pacific Ocean extend to the western boundary of the state as defined in the Oregon Constitution.

(2) Notwithstanding the provisions of subsection (1) of this section, planning for ocean resources and for submerged and submersible lands of the territorial sea shall be accomplished as set forth in ORS 196.405 to 196.515. [Amended by 1987 c.576 ə22]

Appendix F: Statewide Planning Goal 19 Ocean Resources

GOAL

To conserve the long-term values, benefits, and natural resources of the nearshore ocean and the continental shelf.

All local, state and federal plans, policies, projects and activities which affect the territorial sea shall be developed, managed and conducted to maintain, and where appropriate restore, the long-term benefits derived from the nearshore oceanic resources of Oregon. Since renewable ocean resources and uses, such as food production, water quality, navigation, recreation, and aesthetic enjoyment, will provide greater long-term benefits than nonrenewable resources, such plans and activities shall give clear priority to the proper management and protection of renewable resources.

INVENTORY REQUIREMENTS

As state and federal agencies develop and implement plans or carry out actions, projects, or activities related to or affecting ocean resources, they shall develop inventory information necessary to understand the impacts and relationship of the proposed activity to continental shelf and nearshore ocean resources. As specific actions are proposed, inventory information shall be gathered by the unit of government considering the action with assistance from those agencies and governments which use or manage the resources. The inventory shall be sufficient to describe the long-term impacts of the proposed action on resources and uses of the continental shelf and nearshore ocean.

IMPLEMENTATION REQUIREMENTS

1. State and federal agencies with planning, permit, or review authorities affected by the Ocean Resources Goal shall review their procedures and standards to assure that the objectives and requirements of the goal are fully addressed. The following authorities are of special concern:

Division of State Lands

Fill and Removal Law	ORS 541.605 - 541.665
Mineral Resources	ORS 273.775 - 273.780
Submerged and Submerged Lands	ORS 274.005 - 274.940
Kelp Laws	ORS 274.885 - 274.895

Economic Development Department

Ports Planning	ORS 777.835

Department of Geology and Mineral Industries

Mineral Extraction and	ORS 520.005
Oil and Gas Drilling	- 520.095

Department of Energy

Regulation of Thermal	
Power & Nuclear	- ORS 469.300
Installation	- 469.570

Department of Environmental Quality

Water Quality Permits	ORS 468.700
	- 468.775
Oil Spillage Regulations	ORS 468.780
	- 468.815

Department of Fish and Wildlife

Fisheries Regulation	ORS Chapter 506

2. Each state and federal agency, special district, city and county within the limits of its jurisdiction and as necessary to:

i. determine the impact of proposed projects or actions; and

ii. for the sound conservation of ocean resources; shall:

a. Fishery Resources

i. Develop scientific information on the stocks and life histories of commercially, recreationally, and ecologically important species of fish, shellfish, marine mammals and other marine fauna.

ii. Designate and enforce fishing reg-ulations to maintain the optimum sustainable yield (OSY) while pro-tecting the natural marine eco-system.

iii. Develop and encourage improved fishing practices and equipment to achieve the OSY while protecting the natural marine ecosystem.

iv. Develop scientific understanding of the effects of man's activities, including navigation, mineral extraction, recreation, and waste discharge, on the marine ecosystem.

b. Biological Habitat

i. Identify and protect areas of important biological habitat, including kelp and other algae beds, seagrass beds, rock reef areas, and areas of important fish, shellfish and invertebrate concentration.

ii. Identify and protect important feeding areas; spawning areas, nurseries, migration routes; and other biologically important areas of marine mammals, marine birds, and commercially and recreation-ally important fish and shellfish.

iii. Determine and protect the integrity of the marine ecosystem, including its natural biological pro-ductivity and diversity.

c. Navigation and Ports

i. Determine for the state as a whole, the navigation needs for the coast of Oregon. Such needs will reflect, in part, the capability of each port to handle differing types of ship traffic, consistent with other statewide planning goals.

ii. Maintain appropriate navigation lanes and facilities free from interference by other uses to provide safe transportation along and to the Oregon Coast.

d. Aesthetic Use

Maintain the aesthetic enjoyment and experiences provided by ocean resources.

e. Recreation

Identify, maintain, and enhance the diversity, quality, and quantity of recreational opportunities on and over the Oregon continental shelf, as consistent with the Beaches and Dunes Goal and Estuarine Resources Goal.

f. Waste Discharge and Mineral Extraction

Provide that extraction of materials from or discharge of waste products into or affecting the Oregon territorial sea which do not substantially interfere with or detract from the use of the continental shelf for fishing, navigation, recreation, or aesthetic purposes, or from the long-term protection of renewable resources.

g. Dredged Material Disposal

Provide for suitable sites and practices for the open sea discharge of dredged materials, which do not substantially interfere with or detract from the use of the continental shelf for fishing, navigation, or recreation, or from the long-term protection of renewable resources.

h. Archeological Sites

Identify and protect, whenever possible, significant underwater archeological sites of the continental shelf.

3. Contingency plans

Before issuing permits for development on the Oregon continental shelf, state and federal agencies, in coordination with the permittee, shall establish contingency plans and emergency procedures to be followed in the event that the operation results in conditions which threaten to damage the environment.

Appendix G: Policies of the Oregon Ocean Plan

The following policies are contained in the Oregon Ocean Resources Management Plan (Ocean Plan) prepared pursuant to ORS 196.405 et seq by the Ocean Resources Management Task Force. The Ocean Plan was approved December 12, 1990, by the Oregon Land Conservation and Development Commission as part of the Oregon Coastal Management Program.

Oregon law [ORS 196.425 (3)] specifies the Ocean Plan as a primary component of the Oregon Ocean Resources Management Program and provides that "the Territorial Sea Plan shall be based on the policies and recommendations of the Oregon Ocean Resources Management Plan." The following policies, therefore, apply to the Territorial Sea Plan unless specifically amended by the Ocean Policy Advisory Council and approved by the Land Conservation and Development Commission as an amendment to the Ocean Plan.

Ocean Plan Policy: Ocean Stewardship (pp 46 - 48)

The Ocean Stewardship Area is Oregon's area of direct concern and responsibility for ocean resource management.

The Ocean Stewardship Area includes the entire continental margin from mean high water, across the continental shelf, and down to the bottom of the continental slope.

Oregon does not claim ownership or possession of the entire Ocean Stewardship Area.

Designation of the Ocean Stewardship Area will neither change the jurisdictional boundaries of the state, nor change the federal legal regimes under which the resources of the exclusive economic zone are managed. Designation will not expand the state's federal consistency authority beyond activities which affect Oregon's coastal zone.

Within the Ocean Stewardship Area:

- Ocean resource uses and activities directly affect the interests of the State of Oregon;

- Oregon has management interests in oil and gas exploration and development, marine mineral mining, marine transportation and ports, marine birds and marine mammals, intertidal areas, ocean fisheries, oil spills, recreation, cultural resources, aesthetic qualities, and water and air quality;

- Oregon shares management responsibilities and interests in concert with federal resource management agencies.

Within the Ocean Stewardship Area, Oregon will:

- Conserve living marine resources, including biological communities and habitats;

- Give priority to renewable resources over nonrenewable resources;

- Support scientific research on marine ecosystems, ocean resources, and oceanographic conditions to develop better information upon which to make better ocean management decisions;

- Seek appropriate co-management arrangements with the federal government to ensure that ocean resources in the Ocean Stewardship Area are managed consistently in accordance with the policies of the Oregon Ocean Resources Management Plan;

- Coordinate and cooperate with adjacent states and encourage regional approaches to management of ocean areas, where appropriate;

- Involve local governments and the public in ocean resource management decisions;

- Develop marine management areas, where needed, to provide increased opportunities for public recreation, to protect biological communities and habitats, and/or to advance scientific understanding of the ocean.

Ocean Resources Conservation (pp 51-

The conservation of all ocean resources is the principle that guides Oregon's ocean resources management.

Ocean resources conservation means that the integrity, diversity, stability, complexity, and the productivity of marine biological communities and their habitats are maintained or, where necessary, restored. Ocean resources conservation also means that Oregon will attempt to accommodate the needs for economic development while avoiding wasteful uses and maintaining future availability.

1. Allow only those activities and uses of ocean resources in Oregon's Ocean Stewardship Area which are consistent with the goal of ocean resources conservation.

2. Require an environmental inventory and impact assessment for all ocean resource management decisions with potential to significantly affect the marine ecosystem. Assessments must analyze and describe the long-term effects of the proposed action on biological communities, marine habitats, and uses of the continental shelf and nearshore ocean.

3 Require an environmental risk assessment for all proposals to develop nonrenewable ocean resources. This assessment shall determine the probability that biological communities and habitats will be exposed to adverse effects from operating procedures or accidents, the sensitivity of these biological communities and habitats to such exposure, and the probable impacts of exposure on the marine ecosystem.

4. Prohibit a proposed activity when the environmental impact and risk assessments show

that the value of affected biological communities and habitats is high, the risk of adverse effects from the proposed activity is high, and the proposed activity cannot be modified to reduce the risks to acceptable levels.

5. Resolve conflicts between ocean resource uses to:

- o Protect the overall integrity, diversity, stability, and complexity of the marine ecosystem.

- o Give priority to the conservation of renewable resources; to renewable resource uses over nonrenewable resource uses; and to non-consumptive uses over consumptive uses.

6. Use non-regulatory means to promote and achieve ocean resource conservation, when likely to have results equivalent to or better than regulatory means.

7. Promote public education and interpretation programs to increase understanding of marine ecosystems and the need for ocean resource conservation.

8. Support the use of mitigation techniques to reduce adverse effects on biological communities and habitats to the maximum extent practicable. However, the potential for mitigation shall not be used as the sole justification to allow an ocean resource development activity.

9. If necessary to obtain needed information about environmental risks and effects, allow small-scale pilot projects under the following conditions:

- o A pilot project must include research on the effects of the activity on the marine ecosystem, and must make the results of research available to the public.

- o A pilot project must conserve living marine resources; and must not adversely affect any critical marine habitat.

- o A pilot project must be carefully monitored by state and federal agencies.

- o A pilot project must be scheduled only for short periods of time, must be evaluated before proceeding to additional activities, and must avoid interference with other existing uses.

- o The scale of the pilot project must be the minimum to obtain the needed information.

Habitat Protection **(pp 53-55)**

1. Expand state agency decision making on ocean resources uses and activities to include considerations of entire ecosystems, in addition to individual species or activities management.

2. Identify critical habitats within the Oregon Ocean Stewardship Area which require special management or protection. Protect these biological communities and habitats from adverse effects, disruption, or damage.

3. Enforce federal and state laws protecting migratory birds, marine mammals, and endangered, threatened, and sensitive species.

4. Restrict uses or access, if necessary, protect endangered, threatened, and sensitive species or their habitats.

Critical habitat

Increased protection of a critical habitat must be justified on a case-by-case basis. Factors to considered include:

- The ecological significance of the habitat to maintaining ecosystem structure, biological productivity, biological diversity, and representative species assemblages;

- The ecological importance of the area to maintaining populations of threatened or endangered species;

- The importance of the area in important life history stages of marine organisms, especially special areas used for feeding, courtship, breeding, spawning, nurseries, parental foraging, overwintering, and resting or haul out;

- Vulnerability of the biological community and the habitat to the adverse effects of pollutants, noise, seismic testing, habitat alteration, human trespass, and harvest;

- The severity of impacts on the biological community and the habitat from existing or potential uses;

- The uniqueness of an area within Oregon's Ocean Planning Area.

Ocean Fisheries (pp 78-79)

1. Conserve, protect and, where needed, enhance or restore marine habitats that are important to commercial and recreational fish species.

2. Give clear priority to the proper management and protection of renewable resources over nonrenewable resources throughout Oregon's Ocean Planning Area. Commercial and recreational ocean fisheries have priority over uses of nonrenewable resources, including oil, gas and mineral exploration and development.

3. Allow only those uses of nonrenewable resources within the Ocean Stewardship Area

that do not adversely affect commercial or recreational fisheries and that do not adversely affect the long-term viability of fish populations or the quality of marine habitats.

4. Heceta-Stonewall Banks, Coquille Bank, Astoria Canyon, and Rogue Canyon are too important to Oregon's fisheries to risk disturbance from nonrenewable resource uses. In these areas, prohibit commercial exploration and lease sales consistent with the majority position in the Marine Minerals Policies. Allow nonproprietary academic and public agency scientific research related to marine minerals if the Oregon Department of Fish and Wildlife determines that the research activities will not cause significant adverse effects on the fisheries or sensitive marine populations or habitats.

5. In other Important Fishery Areas, allow specific uses of nonrenewable resources if the Oregon Department of Fish and Wildlife determines that the specific proposed activity will not adversely affect commercial or recreational fishery activities, the quality of fish habitats, or the viability of fish populations.

6. Support research on marine ecosystems, fish populations, and fish habitat needs which will promote sound fishery management decisions. Study, evaluate and identify specific Important Fishery Areas. Evaluate the probable risks and effects of the specific activities on ocean fisheries.

7. Develop public education and interpretation programs about the commercial and recreational fishing industry; its characteristics, key species, important fishery areas, and contribution to Oregon's economy and culture.

Important Fishery Areas

1. Habitats important to the biological success of commercially and recreationally caught fish species, such as spawning, rearing, resting, and feeding areas.

2. Areas important to commercial and recreational fishing activities, including:

   - High catch areas. (e.g., High total pounds landed and high dollar value of landed catch)

   - Areas where a few members of the fleet catch a relatively small number of pounds of highly valued fish.

   - Areas that are seasonally important to fishing activities such as areas where high catches are limited to certain times of the year or areas which are important migratory routes.

3. Habitats that support populations of animals that are important as food or prey species to commercially and recreationally caught fish species.

4. Areas important to commercial and recreational fishing activities for specific individual ports or particular fleets.

Marine Birds and Mammals (pp 90-

1. Promote public awareness and appreciation of marine birds, marine mammals, and their habitats. Develop public education and interpretation programs to increase public understanding of the biology of marine birds and mammals, their habitats, needs and the vulnerability of marine birds and mammals to human disruption and disturbance. Ensure that these education programs are readily available and widely distributed. Develop targeted education efforts to specific ocean resource user groups including the fishing industry and recreational boaters.

2. Provide state protection to marine birds and mammals, especially endangered, threatened and sensitive species, and to habitats which are critical to maintaining viable marine bird and mammal populations.

3. Develop provisions in Oregon's plan for the territorial sea that will improve protection of sensitive marine bird and mammal populations and will provide for the development of site-specific management programs.

4. Strengthen state programs to complement federal bird and mammal protection programs. Actively pursue co-management opportunities.

5. Prohibit activities around nearshore rocks and islands which threaten the continued viability of marine bird and mammal populations, especially endangered, threatened, and sensitive species on the thirty-three sensitive areas identified below.

6. Support the use of the nearshore rocks and islands for safe passage and anchorage where necessary to protect human lives. Allow anchorage and passage for matters of convenience only if these activities do not adversely affect sensitive marine bird and mammal populations.

7. Support a range of resource management and protection measures which include both regulatory and non-regulatory approaches, as appropriate to each specific case. Support increased enforcement efforts of existing state and federal agencies.

8. Until Oregon completes and evaluation of the sensitivity of specific bird and mammals populations and their habitats and until Oregon adopts a plan for the territorial sea or other enforceable programs which provide specific protection for sensitive marine bird and mammal populations and their habitats:

    - Allow fishing and the harvest of renewable resources around all of the nearshore rocks and islands unless the Oregon Department of Fish and Wildlife determines that a specific use or activity adversely affects sensitive marine bird or mammal populations.

- With the exception of fisheries activities which do not adversely affect sensitive marine bird or mammal populations and safe passage and anchorage where necessary to protect human life, prohibit all other activities within 1/4 mile of the thirty-three sensitive areas identified below. Prohibited uses include such recreational activities as jet skis; sea kayaking; SCUBA diving; tidepooling; birdwatching; and sightseeing boats, planes, and helicopters.

- Prohibit exploration and development of nonrenewable resources, including oil, gas, and marine minerals, within three miles of all nearshore rocks and islands. Allow academic and public agency scientific research on nonrenewable resources within three miles of nearshore rocks and islands, if ODFW determines that these activities will not adversely affect sensitive marine bird and mammals populations or their habitats.

9. Support the outstanding contribution of volunteer wildlife rehabilitation centers to protect Oregon's marine bird and mammals populations and provide state support through equipment, information, training, and funding, as appropriate, to increase Oregon's capability to care for injured wildlife and respond to oil spill events.

10. Increase communication among the Oregon Department of Fish and Wildlife, Oregon State Police, Oregon Department of Parks and Recreation and wildlife rehabilitation centers on marine mammal protection.

11. Develop protocols for involvement of wildlife rehabilitation enters in oil spill response planning and implementation.

Sensitive Marine Bird and Mammal Habitats (pp 94-100)

1. Factors for evaluating the significance, sensitivity, and vulnerability of marine bird and mammal habitat:

   - The ecological significance of the area to maintaining cosystem structure, biological productivity, biological diversity, and representative species assemblages.

   - The ecological significance of the area to important life history stages of marine organisms, especially feeding, courtship, breeding, nursery, parental foraging, overwintering, and resting or haulout areas.

   - The presence of state or federally listed sensitive, hreatened, or endangered species. The ecological importance of the area to maintaining populations of sensitive, threatened, or endangered species.

   - Species diversity on an individual rock or island. The size of the populations of marine birds and mammals and percentage of the total Oregon population of a particular species on an individual rock or island.

2. Circumstances that may result in protective buffers around sensitive marine bird and

mammal habitat:

- If and endangered, threatened, or sensitive species requires a specific area for part of its life cycle (e.g. reproduction, feeding, or nesting), then a total exclusionary buffer zone of 500 feet is necessary for that portion of the year that the species requires use of the area.

- If an area contains a high percentage of the total number of marine bird or mammal species found along the Oregon coast, then a total exclusionary buffer zone of 500 feet is necessary for that period of time that those species require its use.

- If an area contains a high percentage of the total state population of a species, whether breeding, wintering, or general population levels, then a total exclusionary buffer zone of 500 feet is required for that period of time when the area is in use.

- If a species or habitat is highly vulnerable to a particular human activity which causes adverse impacts on the species or habitat, then a minimum exclusionary buffer zone of 500 feet for that activity is necessary for as long as the species or habitat is vulnerable to that activity.

3. Sites needing additional assessment for protection:

- Tillamook Head Rocks

- Tillamook Rock (Lighthouse)

- Sea Lion Rock (Ecola Point)

- Bird Rocks (Chapman Point)

- Castle Rock (Arch Cape)

- Gull Rock (Arch Cape)

- Unnamed Rock (Cape Falcon)

- Pyramid Rock (Cape Meares)
- Pillar Rock (Cape Meares)

- Three Arch Rocks NWR

- Cape Lookout (south face)

- Haystack Rock (Pacific City)

- Cliff Creek Cove (Cascade Head)
- Unnamed Rock at Cascade Head
- Two Arches Rock (Cascade Head)
- Gull Rock (Otter Rock)
- Shell Island and Simpson Reef (Cape Arago)
- North Coquille Point Rock (Bandon)
- Cat and Kittens Rocks (Bandon)
- Face Rock (Grave Point)
- Castle Rock (Cape Blanco)
- Gull Rock (Cape Blanco)
- Orford Reef
  Long Brown Rock
  Large Brown Rock
  Best Rock,
  Square White Rock
  Seal Rock
  Conical White Rock
  Arch Rock
  West Conical Rock
- Redfish Rocks (Port Orford)
- Island Rock (Humbug Mountain)
- Unnamed Rock (Hubbard Mound)
- Dog Rock (Hubbard Mound)
- Rogue Reef
  - Double Rocks
  - Needle Rock
  - Pyramid Rock
- Hunters Island (Cape Sebastian)
- Mack Arch

- Whalehead Islands
- Twin Rocks (Cape Ferrelo)
- Goat Island (Brookings)

Intertidal Plants and Animals p. 106)

1. Protect sensitive intertidal habitats and communities from pollution and from overuse and abuse.
2. Promote public awareness, understanding, and appreciation of intertidal habitats.
3. Establish Intertidal Marine Gardens, where necessary, to protect particularly vulnerable intertidal areas and to provide opportunities for public enjoyment and learning.
4. Develop provisions in Oregon's plan for the territorial sea to protect intertidal plants, animals, and habitats.

Marine Gardens (pp 109 - 111)

1. Criteria for evaluating intertidal sites for Marine Gardens
   - The diversity, abundance and sensitivity of the intertidal communities and habitats at a particular site.
   - The current and projected level of public use of the site.
   - The potential for adverse impacts on intertidal communities and habitats from overuse, overharvesting, or excessive collecting that could occur without special protective measures at the site.
   - The opportunities for high quality public recreational use and development of interpretive activities.
2. Candidate Marine Garden Sites
   - Haystack Rock (Cannon Beach)
   - Otter Rock
   - Yaquina Head
   - Seal Rock

oCape Perpetua

oNeptune State Park

oSunset Bay and Cape Arago

oCoquille Point

oRocky Point

oHarris Beach

Recreation and Cultural Resources (pp 119 -

1. Prohibit development activities in the territorial Sea which would impair the cultural, scenic, or recreational values of the near shore areas.

2. Prepare a comprehensive coastal and marine parks and recreation assessment and plan to accommodate increased recreational demands while protecting coastal and ocean resources.

3. Pursue an aggressive campaign to identify and acquireadditional public recreation resources and sites on the Oregon coast and to provide for public recreation opportunities in the marine environment.

4. Plan for improvements to Highway 101 which maintain, restore,or enhance recreational, scenic, and interpretive opportunities.

5. Place strong emphasis on education, information and interpretation to protect marine resources, provide for economic development and enhance visitor appreciation of coastal resources and economies.

6. Designate cultural and historic sites, including shipwrecks, as important resources for the general public and not private exploitation.

Marine Water and Air Quality

Air Quality (p 129)

1. Emphasize pollution prevention rather than cleanup and remedial measures.

2. Require that highest and best controls be used to minimize emissions from ocean activities and assure that they do not degrade the existing high quality of Oregon's marine and coastal air.

3. Require that discharge of pollutants into the airshed of Oregon's Ocean Stewardship Area is consistent with the policies of this plan and such standards as may be developed to carry out this plan.

4. Increase information and data to analyze the effects of air pollution from ocean resources development on marine and onshore air quality.

Marine Water Quality (p 129)

1. Assert Oregon's leadership role in protecting marine water quality through improved state management capability and through a coordinated program of federal, state and local government.

2. Encourage citizens, local governments, businesses and ocean users to minimize waste disposal in the ocean by reducing waste at its source, conserving water, controlling pollution sources on land and in the water, promoting proper waste disposal, and recycling.

3. Emphasize prevention of marine water pollution by promoting recycling and debris collection in Oregon ports, requiring that discharges from coast and offshore activities be the minimum necessary and be treated to prevent degradation, reducing the use of water, eliminating or minimizing the use of toxic substances.

4. Establish marine air and water quality monitoring systems and promote research to analyze the effects of pollution on intertidal and oceanic ecosystems.

5. Support and participate in interstate and international efforts to reduce and eliminate marine debris and pollution.

6. Promote the use of products that can be recycled or manufactured without adverse affects on marine water quality.

Ocean Plan Policy:

Oil and Gas (pp 139 - 140)

In state waters:

1. Prohibit oil and gas exploration and development within the state territorial sea.

In federal waters:

1. Call upon the Secretary of the Interior to cancel Lease Sale #132.

2. Oppose any federal lease sale for the Washington-Oregon OCS Planning Area until at least the following conditions are met to the satisfaction of the Oregon Ocean Policy advisory Council:

- Any lease sale is made part of a balanced national energy program. This program must require conservation of energy and consider alternatives to development of oil and gas resources in environmentally sensitive OCS frontier areas.

- The rights of Pacific Northwest Indian Tribes are considered and fully protected in all decisions concerning OCS leasing in the region.

- Environmental studies that the Oregon Ocean Policy Advisory Council agrees are necessary for prelease decisions are conducted and the results analyzed, fully considered, and made available for all parties.

- State environmental standards are met. No degradation will be allowed which would jeopardize the ecological integrity or beneficial uses of marine waters affecting the Oregon coast.

- Onshore economic, social and regulatory impacts on local communities and governments are fully considered and appropriate monitoring and mitigation programs established.

- Special management areas identified in the Oregon Ocean Resources Management Plan as needing protection from oil and gas activities are not offered for lease, including important fishery areas listed under Ocean Fisheries.

- An oil spill prevention and response plan for the Oregon coast has been developed on an interagency basis and adopted by the U.S. Coast Guard and the Oregon Department of Environmental Quality.
- Damage assessment standards and protocols have been approved by the Oregon

Department of Fish and Wildlife, the U.S. Fish and Wildlife Service and other responsible agencies.

o A compensation program has been established to compensate the state and other ocean users for a range of costs, including cleanup, loss of gear, loss of resources and opportunities.

3. Participate in the Pacific Northwest OCS Task Force.

4. Call upon the Congress to review and revise the Outer Continental Shelf Lands Act. Revisions should result in an OCS oil and gas program that is part of a national energy policy that requires conservation, a management regime that gives priority to consideration of renewable resources over nonrenewable, and includes coastal states as full partners in all OCS management decisions.

Oil Spills (p 147)

1. Emphasize strategies to prevent spills from occurring in Oregon waters.

2. Commit sufficient resources to maintain ongoing spill planning activities so that plans can be updated, expanded, and exercised on a continual basis.

3. Promote efforts within industry to assure that oil spill response equipment and trained cleanup personnel will be available to respond immediately to a spill during any activity involving petroleum production or transport in Oregon waters.

4. Emphasize the importance of policies and strategies for dealing with wildlife rehabilitation, oiled debris disposal, volunteer management, damage assessment, and dispersant use.

5. Ensure that any party engaging in petroleum exploration, production, storage, or transport in or near Oregon waters shall develop and acquire approval from the appropriate authority for oil spill contingency plans. The foremost plan element shall demonstrate that all possible steps have been taken to prevent spills from occurring.

6. Insist that federal laws be changed to clearly remove all limitations on the liability of any party responsible for spilling oil or hazardous materials into the waters of the state.

7. Coordinate with other coastal states to encourage the U.S. Congress to designate the U.S. Coast Guard as the sole federal agency with authority to review industry spill prevention and response plans for adequacy.

8. Oregon's coastal oil spill prevention and response plan shall be a part of the state's territorial sea plan.

Marine Minerals (pp 155 - 156)

1. Prohibit commercial exploration contracts under SB606 (ORS 274.611-640) for at least five years.

2. Amend ORS 274.611-.640 to clarify that an exploration contract neither confers proprietary rights to any minerals found nor obligates the state to proceed with any steps toward mineral leasing or development.

3. Clarify and refine state marine mineral polices in the territorial sea plan.

4. Include in the territorial sea plan a research plan for academic and public agency research related to marine minerals, environmental conditions, biologic resources and socio-economic conditions.

5. Require an inventory and effects assessment under Statewide Planning Goal 19, Ocean Resources, prior to any commercial exploration contracts and require that the proposed exploration plan, if approved by appropriate state and federal agencies, continues necessary terms, conditions and stipulations to avoid adverse impacts from exploration activities.

6. As called for in the section on Marine Birds and Mammals, prohibit exploration and development of marine minerals within three miles of all nearshore rocks and islands until Oregon completes a plan for the territorial sea which includes an evaluation of the sensitivity of specific marine bird and mammal populations and their habitats and provides specific protection measures. During this plan preparation and evaluation period, academic and public agency scientific research related to marine minerals will be allowed within three miles of the nearshore rocks and islands if the Oregon Department of Fish and Wildlife determines that these activities will not adversely affect sensitive marine bird or mammal populations or their habitats.

7. Prohibit commercial mineral exploration and development in Important Fishery Areas as identified in the Ocean Plan.

8. Use the adopted policies of the Oregon Ocean Resources Management Plan to coordinate all state and federal marine mineral activities.

Appendix H: Classifying Oregon's Rocky Shores

1. Overview of Oregon's Rocky Shores

Oregon has developed a system of classifying its shoreline as a framework for managing various shoreline areas. Quite simply, this system is built so that the coast may be viewed in its entirety as part of a larger coastal environment or as smaller and smaller areas until at last the coast is seen as individual rocks and beaches with crevices and pools.
The shoreline-classification system fits the work of the Ocean Policy Advisory Council in building management measures for Oregon's rocky shores. But the system also fits the work of other elements of Oregon's Coastal Management Program to address the emerging problems of

beach sand supply, dune dynamics, and coastal erosion along Oregon's sandy beaches. The system thus reflects the Oregon coast: sandy beaches (or littoral cells) enclosed by rocky headlands (rocky cells). Cells, whether littoral or rocky, are the central unit of scale in this system.

Oregon's shoreline-classification system is structured to reflect and accommodate the unique properties of **scale, linkage, and dynamics** in the marine environment. These three conditions were previously acknowledged in the Oregon Ocean Resources Management Plan (1991) by designating a broad Ocean Stewarship Area, adopting a habitat-based approach to management, and designating specific resource sites for further planning to resolve management needs.

This is not a marine-habitat-classification system. It is, rather, a framework for describing and locating the various geomorphic units and their habitats along the coast. Other work will be needed to describe and classify Oregon's marine habitats which can then be located, referenced, or characterized at a variety of scales within the system below.

2. 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. The concept of Large Marine Ecosystems, based on broad regional distinctions and characteristics, is the basis for Oregon's shoreline classification system, which also allows for increasingly fine scales of geographic and ecological resolution and for choosing appropriate scales of research and management.

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 suspended in the flowing water column; the phytoplankton, which fix the sun's energy, are effectively part of the water mass, and eggs and larvae from animals at one site are borne to habitat sites some distance away. There are virtually no points within the marine environment, off Oregon or anywhere else, that are isolated. Similar habitat conditions at distantly separated sites in a given region will have the same or very similar biotic communities. Likewise, pollutants from one source can effect marine areas far away. This linkage is modified by time. While some species take full advantage of the water flow and reproduce widely, the reproductive mode of other species is quite localized, which means that colonization to distant sites may take many, many years until the right 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, riverine 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 an El Nino, punctuate these routine dynamics and increase complexity. These dynamic variables influence rocky shore areas and their management.

3. Kinds of Rocky Shores

a. Overview

For management purposes Oregon's rocky shores are grouped into two major categories:

- **Shoreline types** include rocky tidepool areas as well as associated submerged rocks or reefs and nearby rocks, which may be reached by foot from shore (regardless of hazard or convenience).

- **Offshore types** include underwater reefs or rocky islands accessible only by boat. Aircraft overflight and associated wildlife impacts are common to both nearshore and offshore sites.

These categories are based on a fundamental distinction in management related to human access. Access by foot to shoreline sites and related rocks or reefs at low tide creates a different set of management issues from access by boat to reefs or rocks farther from shore.

Oregon's rocky-shore types are described primarily on geomorphology and, to a lesser extent, on habitat type.

b. Shoreline Types

1.) Cliffs

As used here, cliffs are the steep seaward facing slopes of rocky headlands composed primarily of basalt (north coast) and metamorphic or highly resistant sedimentary rock (south coast) where wave action and other weathering agents have eroded a vertical or nearly vertical rocky slope with little or sparse vegetation which plunges directly into the ocean; the exposed slope is either inaccessible or very dangerous to human trespass. Cliffs provide isolated nesting and resting habitat for seabirds, but can also enclose and thereby protect marine mammal or intertidal habitat along the toe of the cliff.

Many cliff 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 cliffs south of Cape Arago are in private hands. Most are planned and zoned as part of the respective coastal county land use plan. Cliffs are included as coastal shorelands under Statewide Planning Goal 17.

2.) Rocky Intertidal

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 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 the ocean varies from site to site: most are exposed or semi-exposed; a few are partially protected.

All rocky intertidal sites 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 Division of State Lands exercising ownership responsibilities on behalf of the State Land Board and by the Department of Parks and Recreation for public recreation under the Beach Bill. The Department of Fish and Wildlife regulates harvesting, collecting, or taking of animals.

Because use of associated reefs and rocks is often directly related to attractiveness and activities of a rocky intertidal site, rocky intertidal areas are the central element of coordinated management efforts along the entire rocky shoreline.

3.) Associated Reefs

At some rocky-shore sites, submerged bedrock or boulders form reefs in direct association with rocky intertidal areas. These associated reefs, below Extreme Low Water, are generally geologic extensions of rocky intertidal or cliff areas along the shore. Reefs may also be associated with rocks which are exposed above the water at high tide.

These Associated Reefs within the Territorial Sea are held in trust by the State Land Board for the people of Oregon. The Department of Fish and Wildlife controls harvest of fish and shellfish through general regulations. The Department of Parks and Recreation has no management authority or responsibility for submerged reefs.

4.) Associated Rocks

Rocks projecting above Mean High Water occur in association with many rocky intertidal sites. Some are large and significant, as at Yaquina Head or Cape Arago, while others are small and have no name or designation.

Almost all rocks above Mean High Water within Oregon's territorial sea are designated as part of the Oregon Islands National Wildlife Refuge. The Division of State Lands has jurisdiction below Mean High Water.

c. Offshore Rocky Types

These sites are generally accessible only by boat or aircraft. These reefs and rocks have valuable

habitat that may be similar to those nearer shore, but physical isolation at sea generates a unique set of management requirements and opportunities.

1.) 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 composition: 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 and wave mixing. These reefs provide diverse, valuable habitat for marine life.

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

Oregon has not historically managed offshore reefs as distinct or unique habitats. However, Oregon is establishing a planning framework to provide a basis for future management of uses and resources of reef areas because of four factors:

! increasing use of these areas for commercial and sport fin fishing, commercial and sport diving, and invertebrate harvest;

! interest in leasing portions of reef areas for kelp harvest and mariculture;

! lack of in-depth information about living resources, habitats,and ecological relationships among and within reef complexes;

! high biological productivity and habitat important to threatened and endangered species.

2.) Offshore Rocks or Islands

Offshore rocks (or islands, as they may be named) occur singly (Tillamook Rock), in small clusters (Redfish Rocks), or in association with many other rocks and submerged reefs (Orford Reef). Many of these rocks are identified in the Oregon Ocean Resources Management Plan as sensitive habitat for marine mammals and seabirds. Birds and mammals use these rocks for breeding and rearing of young, resting, and feeding. The degree of use and habitat value to a species or mix of species varies from rock to rock 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 (a few are under jurisdiction of the Bureau of Land Management; one is privately owned). Below Mean High Water, the Oregon Division of State Lands has jurisdiction over the seabed while the Department of Fish and Wildlife regulates fish and shellfish harvest.

Outline of the Oregon Shoreline Classification System
(scales of reference in descending size)

OVERALL SHORELINE ELEMENTS

Ecoregion: $\geq$ 200,000 km^2

Domain: depth zones from shore: 0-50m deep, 50-200m deep, over 200m deep

Region: north-south subsets of domains based on oceanography/productivity

Province: 100 - 500 km; large-scale geographic grouping of shore segments

Segment: 10 - 50 km; coastal length with a group of similar shoreline cells (both rocky cells and intervening littoral cells), which may be associated with travel patterns or visitation from urban areas.

ROCKY-SHORE ELEMENTS

Rocky Cell: 1 - 5 km; an identifiable landscape area that may have several clustered and/or interrelated sites (a headland, a beach); a "cell" will allow for the inventory, classification, and evaluation of habitats and natural resources on the ground. Rocky cells are defined as either shoreline or offshore types.

Site: 10 - 500 m; a relatively flexible term indicating a location with dominant geologic, geomorphic, and/or biological features (a cove, a rock, a beach, a cliff) usually identified by the public as a "geographic place."

Features/Surfaces: $\leq$10 m (microscale); specific habitats on or within sites; this is the scale at which habitats will be inventoried and classified.

SANDY-SHORE ELEMENTS (to be completed through future work)

Littoral Cell: 1 - 50 km; lengths of coastline bounded by headlands (rocky cells), within which water and sediments circulate in a somewhat closed system.

[k] NOTE: the Oregon Natural Heritage Plan uses the term "cell" in approximately the same manner: "Cells are artificial constructs to allow for the inventory, classification, and evaluation of natural areas in Oregon."

4. Oregon's Shoreline Classification System

a. Ecoregion: Northern California Current Ecoregion:

Large marine ecoregions are characterized by distinct hydrography, submarine topography, biological productivity, and interrelated food webs. They are increasingly recognized as the level at which nations must frame their marine-resource management programs, including research. The Northern California Current Ecoregion encompasses the majority of the region included in the scope of the Pacific Northwest Marine Research Program, a coordinated program established by Congress in 1991 to "improve marine research on water quality and ecosystem health.

Oregon's entire coastline lies within this region, which extends from Cape Mendocino, California to Vancouver Island, British Columbia, and which extends seaward from the shoreline approximately 500 to 1000 kilometers across the broad, slowly southward-flowing California Current. This is a recognized Large Marine Ecosystem, one of 28 that have been identified around the world as of 1991.

b. Domains:

A domain subdivides an ecoregion, such as the Northern California Current Ecoregion, into cross-shelf zones based on oceanographic characteristics influenced primarily by depth of water. Oregon's Ocean Stewardship Area, described in the Oregon Ocean Resources Management Plan, extends from the shoreline seaward to the toe of the continental margin. Three domains (modified from Bottom et al. 1989) can be described for this ocean area:

1.) Nearshore Domain

The ocean environment from shore to about 50 meters deep. This domain is significantly affected by wave energies that reach the bottom, vertical mixing, and seasonal along-shore and cross-slope sediment movement. This nearshore domain is influenced by discharge from coastal rivers and estuaries, and is shallow enough to permit kelp-reef habitats. In winter this domain is affected by the northward flowing Davidson Current, which displaces the California Current seaward. Oregon's territorial sea and rocky shores are within the Nearshore Domain.

2.) Shelf Domain

The area over the continental shelf and upper slope where waters are more than 50 but less than 200 meters deep.

3.) Oceanic Domain

The marine environment principally beyond the depth of the continental shelf and upper

slope, more than 200 meters deep.

c. Regions:

The Northern California Current Ecoregion and Nearshore Domain are divided into three regions (modified from Bottom et al. 1989). Two regions lie off Oregon:

1.) Columbia River to Coos Bay, OR

Between the Columbia River and Coos Bay, ocean conditions are dominated by interaction between the warmer, low-salinity waters of the Columbia River Plume and seasonal upwelling of cold, nutrient-rich waters nearer the coast. For purposes of shelf and oceanic domains, this region may be more appropriately divided at Cascade Head. For purposes of classifying Oregon's shoreline areas, this region may be further divided into two provinces (described in next section).

2.) Coos Bay, OR to Cape Mendocino, CA

This southern region has been described as reaching between Cape Blanco, OR, and Cape Mendocino, CA, based on distinctive ocean current conditions apparently set up by deflection of southward-flowing currents around Cape Blanco. This dividing line is probably appropriate for shelf and oceanic domain-management considerations. However, for purposes of classifying Oregon's rocky-shore areas, the dividing line is most appropriate at the mouth of Coos Bay just north of Cape Arago. Oregon will need to coordinate its management of rocky shores in this region with the State of California.

d. Provinces:

Within regions are coastal provinces, shore lengths identified primarily by homogeneity (similarity of characteristics) of geographic or geologic features. Along the Oregon coast are three provinces but only two have rocky shores.

1.) Alsea-Nehalem

This region extends from the north side of Tillamook Head to the south side of Heceta Head near Florence. The shoreline is dominated by relatively recent uplifted marine sedimentary rock formations punctuated by resistant basalt formed as offshore volcanoes, underwater lava flows, or tongues of the great Columbia River basalt flows that reached the sea. Rocky shores tend to be clustered at these resistant headlands or other features with stretches of sandy beaches up to 15 miles long between.

2.) Umpqua Dunes

This province extends almost 60 miles between Sea Lion Point at Heceta Head north of the Siuslaw River and the mouth of Coos Bay. The shore is dominated by a long sandy

beach backed by dune sheets one to three miles wide. The Umpqua River estuary divides this province. Most of the dunes along this stretch of coast are within the Oregon Dunes National Recreation Area administered by the U.S. Forest Service. This is not a rocky-shore province but is included in this overall categorization of Oregon's shoreline.

3.) Klamath Mountain

This province reaches from the mouth of Coos Bay to the Oregon-California border. The shoreline is dominated by geological features distinctive of the Klamath Mountain metamorphic province. From Cape Arago and Cape Blanco, an uplifted marine terrace forms most of the cliff except where punctuated by resistant rock at a few places such as Coquille Point. Between Port Orford and the Chetco River, rocky-shores types (major and minor headlands, rocky cliffs, offshore stacks and rocks, and submerged rocky reefs) are dispersed widely and somewhat uniformly. Other than the Coquille River, coastal streams have relatively steep gradients and few or small estuaries or sand spits.

e. Rocky-Shore Segments: 10 - 50 km

Segments are lengths of coastline (subdivisions of provinces) within which rocky-shore cells are grouped based primarily on geographic proximity and on human use pressures and patterns of development, travel, and access. Within a segment are a mix of rocky-shore types, and other shore types such as sandy beaches and estuary mouths.

1.) Segments within the Alsea-Nehalem Province

a.) Neahkahnie Segment

Tillamook Head (north side near Seaside) to south face of Neahkahnie Mountain: This segment includes rocky-shore areas clustered at two major headlands --Cape Falcon/Neahkahnie Mountain and Tillamook Head. US 101 is located on the inland side of these rocky headlands due to rugged topography that limits access to rocky-shore sites. The entire segment is easily reached from the Portland metropolitan area via Ore 6 to Tillamook and the more heavily used US 26 to Cannon Beach/Seaside. This segment has high visitor usage.

b.) Kiwanda Segment

Cape Meares (north side) to Road's End at Lincoln City: This segment includes rocky-shore areas clustered at four major headlands. Except at its southern end at Lincoln City, US 101 is inland of the shore through most of the segment so access to rocky-shore sites is via county or secondary roads. Access to the southern end of the segment is via Ore 18 from Portland/Salem to Lincoln City and to its northern end via Ore 6 from Portland to Tillamook. The segment is between population centers.

c.) Yaquina Segment

Fogarty Creek State Park to Seal Rock: The shores of this segment include long sandy beaches punctuated by headlands or other rocky-shore features. US 101 runs adjacent to the shore along most of the segment. Rocky shores in this segment are well known, popular, and heavily used by visitors. There is also significant growth in development and population in the area. The segment is accessible from the Willamette Valley via US 20 directly to Newport and Ore 18 from Portland/Salem to Lincoln City.

d.) Yachats Segment

North side of Yachats at Smelt Sands Beach to Sea Lion Rock (south side of Heceta Head): This segment has steep mountains and rugged shores with limited access opportunities from US 101 which runs along the shore. Overall access to the segment is via OR 126 from Eugene to US 101 at Florence or via US 20 from Corvallis to Hwy 101 at Newport. The segment has limited population and limited developed recreation, centered primarily around Yachats.

2.) Segments within Klamath Mountain Province

a.) Seven Devils Segment

Yoakum Point (mouth Coos Bay) to Devil's Kitchen (south of Coquille Point): This segment includes rocky shores of the most northerly outcroppings of true Klamath Mountain geologic types, as well as rocky shores of uplifted and tilted marine sediments. Although US 101 is inland of rocky shores in this segment, it is relatively accessible from the major travel corridor of I-5 via Ore 42 from Roseburg and the more heavily used Ore 38 from Eugene. The area has a large population center in Coos Bay/North Bend, and is a popular recreation destination.

b.) Port Orford Segment

Blacklock Point (north of Cape Blanco) to Sisters Rocks (south of Port Orford): This segment contains a mix of shore types reflecting a transition from Klamath Mountain geology/shoreline to more recent sediments in uplifted marine terraces from Port Orford north. Access to this segment is via US 101 from the south or north; there is no direct east-west access.

c.) Ferrelo Segment

Hubbard Mound (north of Rogue River) to Winchuck River (Oregon/California border): This segment typifies the geologic and rocky shoreline features of the Klamath Mountain Province. Major communities and development centers are Brookings and Gold Beach. Access to sites in this segment is from US 101 which runs directly along the shore; east-west access from I-5 is somewhat indirect; via US 199 from Grants Pass to US 101 at Smith River, CA; and via Ore 42 from Roseburg to Bandon. The area is relatively remote from major population centers in Oregon.

f. Rocky-Shore Cells (1 - 5 km) and Sites (10 - 500 m)

1.) Cells

Cells are major shore features with a predominant set of similar shore types. On the Oregon coast, there are two types of cells: littoral (sandy shore) cells, where nearshore circulation is

enclosed between headlands; and rocky cells composed of headlands, capes, and associated reefs or rocks.

Within rocky-shore cells, there may be a mix of cliffs, rocky intertidal areas, associated reefs, associated rocks, offshore reefs, and offshore rocks and islands. Some sandy or cobble shores may be present but not enough to alter the overall **$(BAS12,S12,S24,S24,B,N,N,12)**

North Oregon Coast Rocky Shore Cells and Site Names

South Oregon Coast Rocky Shore Cells and Site Names$(BAN12,N12,N24,N24,B,N,N,12)

classification of the area as a rocky-shore cell. In the Alsea-Nehalem Province on the northern coast, these cells tend to be distinctive headlands or capes with several associated sites. In the Klamath Mountain Province on the south coast, these cells tend to be less topographically pronounced in the overall landscape. Cells are at the human scale of geographic identity and usage.

2.) Sites

Sites are specific geographic features or locations within a cell. They may be a rock or cluster of rocks, a particular cove or cliff, or other specific feature. These sites may also have a mix of rocky-shore types and even have sandy or cobbled beaches when mapped at this scale.

Within a site will be habitat features and surfaces at a very fine scale of less than 10 meters.

g. Features and Surfaces ≤ 10 m (Habitat Scale)

For every rocky-shore site there are unique habitat features and surfaces. Prior to this Territorial Sea Plan, Oregon had no systematic inventory of

rocky-shore features by which to classify habitats. A reconnaissance-scale inventory has been completed for this plan which will serve as a basis for more detailed habitat studies in the future. Rocky-shore habitats will eventually be classified within an overall marine-habitat-classification

system to be developed by the Oregon Department of Fish and Wildlife in coordination with the Ocean Policy Advisory Council.

5. Sources

The following were used to generate Oregon's shoreline-classification system:

o Management of Living Marine Resources: A Research Plan for the Washington and Oregon Continental Margin (Bottom, Jones, Rodgers, and Brown, 1989) provides the scientific and conceptual framework for describing, researching, and managing Oregon's ocean area in terms of its larger marine ecosystem setting.

o Terminology for geomorphic units and habitats along the tropical coast of Western Australia (Semeniuk, 1986) provided a conceptual model for systematically describing and naming geomorphic features (land forms) in decreasing scales of reference from a broad "regional" level to large, medium, small, and fine scale.

o Regional Sediment Dynamics and Shoreline Instability in Littoral Cells of the Pacific Northwest (Peterson et al. 1992) delimited the extent of littoral cells along the Oregon coast within which sand is more or less trapped and recirculated between rocky headlands.

o Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) is the basis for many coastal-habitat-classification systems in the U.S., including Oregon's estuarine-habitat-classification system, which is now part of the Oregon Coastal Management Program.

o Oregon Marine and Estuarine Classification Systems (Starr, 1979), proposed to modify Cowardin et al. to the Oregon situation.

o A Marine and Estuarine Habitat Classification System for Washington State (Dethier, 1990) added several considerations to Cowardin et al. to accommodate the added complexity of the

open ocean environment.

$(BPN12,N12,N24,N24,B,N,N,12)

Appendix I: Report and Recommendations

$(BPN12,N12,N24,D24,B,N,N,12)

Management Measures for Three Arch Rocks**$(BPN12,N12,N24,N24,B,N,N,12)**

The Oregon Ocean Policy Advisory Council adopted this report on December 10, 1993, and subsequently requested that the State Marine Board implement a 500-foot seasonal boating closure area around Three Arch Rocks National Wildlife Refuge.

Setting
o Location

Three Arch Rocks National Wildlife Refuge is located about one-half mile offshore of Oceanside in Tillamook County, Oregon. It is approximately eight miles south of the mouth of Tillamook Bay, the nearest major port, and approximately two and one-half miles north of the mouth of Netarts Bay. The refuge, comprised of three large rocks and six smaller ones, totals about 17 acres.

o Wildlife Resources

Three Arch Rocks holds tremendous wildlife

resources of importance throughout the northeastern Pacific region. Thirteen species of seabirds nest there, including some 220,000 common murres, the largest such colony south of Alaska, and some 2,000 to 4,000 Tufted puffins, the largest colony on the Oregon coast. Also among these bird species are three species of cormorants, two species of auklets, oystercatchers and pigeon guillemots. Federally-listed threatened and endangered birds use the rocks: Aleutian Canada geese and bald eagles are threatened species; California brown pelicans and peregrine falcons are endangered species.

Three species of marine mammals use the rocks for resting, breeding, or pupping. As many as four hundred Steller sea lions, a threatened species, use Three Arch Rocks and generally produce three to six pups at this location each summer.

$(BPS12,S12,S24,N60, B,N,N,12)

$(BPS12,S12,N24,N60, B,N,N,12)

$(BPS12,S12,N24,S0,B ,N,N,12)

$(BPN12,N12,S24,N24,B,N,N,12)

$(BPN12,N12,N24,N0,B,N,N,12)

This is one of Oregon's three breeding sites for Steller sea lions and the only such site on the northern Oregon coast. Because these animals have suffered tremendous population declines in the majority of their range in Alaska, the pupping and rearing habitat areas in the southern portion of their range through Oregon assume a much higher importance in maintaining overall populations than was previously the case. Some California sea lions are present from August through May and harbor seals find refuge here with pups that are born in nearby Netarts Bay and Tillamook Bay.**$(BPN12,N12,N24,N24,B,N,N,12)**

o Human Use

Three Arch Rocks is particularly attractive for a wide range of human activities because of its location, physical characteristics and biological resources. It is easily reached by boat from Tillamook Bay, the nearest principal marine boating center to the Portland metropolitan area. In good weather it is also accessible by boat, kayak, jet-ski, or sailboard launched from the beach or Netarts Bay. The rocks attract many boats for

commercial and recreational fishing and diving activities targeting rockfish inhabiting the associated submerged rocky reef habitat. The area has considerable aircraft traffic, including low-altitude private, military, and Coast Guard aircraft, and high-altitude commercial flights. All types of aircraft are seen including fixed-wing propeller and jet planes, helicopters, and even hang gliders.

Several trends point to an increase in certain kinds of boating activity at Three Arch Rocks. Because of its location and biologic richness, Three Arch Rocks has the potential to become a major wildlife watching or "eco-tourism" destination. As commercial and recreational salmon fishing declines, more recreational fishing interest will focus on rock fishing near the rocks and on wildlife or bird-watching trips. In order to protect the very resources that are at the heart of this attraction, this potential increase in boat traffic, especially close to the rocks, must be addressed in a positive, pro-active way that encourages responsible boating behavior, promotes marine wildlife conservation and learning, and sets a positive example for other users of the area.

o Administration and Jurisdiction

Three Arch Rocks National Wildlife Refuge was established in 1907 and is the oldest such refuge in the western U.S. It is administered by the U.S. Fish and Wildlife Service as both a National Wildlife Refuge and a designated Wilderness area. This federal management applies only to the rock areas above mean high water; surrounding ocean waters and portions of the rock

below mean high water are under the jurisdiction of several agencies of the State of Oregon. Human trespass on Three Arch Rocks is prohibited.

Several federal laws apply to the birds and mammals of Three Arch Rocks: the Endangered Species Act, the Marine Mammal Protection Act, the Migratory Bird Treaty Act, and the Wildlife Refuge Administration Act. Under the Endangered Species Act, the National Marine Fisheries Service has proposed to designate a critical habitat zone around "all Steller sea lion rookeries in state and Federally managed waters off Washington, Oregon, and California, including the zone that extends 3,000 feet (0.9 km) vertical and seaward from each rookery." Designation of critical habitat does not, in itself, restrict human activities within the area or mandate any specific management action but does identify critically important areas that are essential to the species thus alerting the public to the area's importance. The Marine Mammal Protection Act prohibits the "take" of marine mammals under almost all circumstances and "take" is defined to include harassment no matter how inadvertent.

The State of Oregon has jurisdiction over the water and submerged lands around the rocks. The Oregon Division of State Lands has proprietary jurisdiction on behalf of the State Land Board for submerged rocks and reefs. The Department of Fish and Wildlife has authority to regulate fishing activity in ocean waters and has responsibility to protect marine habitat and wildlife. The State Marine Board has authority to regulate boating activity in waters of the state, including the territorial sea. The Ocean Policy Advisory Council has responsiblity to prepare and adopt a plan for managing Oregon's territorial sea which must be then implemented by state agencies.

Wildlife Disturbance Concerns

During preparation of the Oregon Ocean Resources Management Plan 1988-1990, citizens and state and the U.S. Fish and Wildlife Service expressed concern over wildlife disturbance from human activities at Three Arch Rocks and a number of other sites along the coast. These concerns were vigorously repeated at workshops in the fall of 1992 conducted by the Ocean Policy Advisory Council. Concerns covered a wide range of disturbance events affecting both seabirds and marine mammals.

o Biological Basis for Concern

Common murres, Steller sea lions and other animals live and reproduce in dense colonies on the rocks. This life history strategy combined with disturbance problems can cause concern for population health. A single major disturbance event has the potential to disrupt or destroy the reproductive effort of a significant number of animals. Common murres lay eggs in exposed nests and continually occupy the nest until fledging to protect egg and chick. When frightened adult murres stampede from their nest, eggs or chicks can be easily dislodged to fall to the water below or become easy prey for gulls or crows. Likewise, large adult Steller sea lions, which weigh a half-ton or more, can crush small young pups during a panic rush to the water.

Even chronic, low-level disturbances can have an effect when animals constantly respond to stimuli that may or may not prove threatening. Eventually, they may abandon a site altogether. A human analogy might be tent camping in the landscape shrubbery at the entrance to a major shopping mall; not directly life-threatening but not a first choice when there are quieter, more remote alternatives. In this case, however, there are no alternative sites for these wildlife species.

The reproductive characteristics --the "strategy"-- of murres and

many other seabirds make their populations vulnerable to human disturbance but make the consequences of disturbance difficult to detect immediately.. These birds lay only one egg per year. If that egg hatches and the chick survives to adulthood, the bird will likely live twenty or more years. With large numbers of birds all subject to this strategy, the entire population can thus "afford" to lose a high number of individual chicks in a reproductive year in response to fluctuating ocean conditions and other environmental factors. The long life of adult murres and large numbers of the overall population will make up the loss over time and keep the population stable.

In fact, a high percentage of murre chicks naturally do not survive to become breeding adults. But when disturbance-related mortality is added to natural mortality rates each year over several years,the loss of the reproductive potential of these year-classes of young adults will be masked by the large overall size of the colony for perhaps six to ten years. At that time, as older birds die and fewer young adults are available to take their place, the gap in the age curve and loss of overall reproductive capacity of the colony will become apparent. Management strategies to recover bird populations are not easily developed or implemented. Prevention of population decline is thus the preferable alternative.

Five species listed by the U.S. Fish and Wildlife Service and National Marine Fisheries Service as threatened or endangered species use Three Arch Rocks. Bald eagle, Aleutian Canada goose, and Steller sea lion are listed as threatened; peregrine falcon and California brown pelican are

listed as endangered under federal law. The presence of these species places additional considerations on management measures that ensure protection of habitat and populations of these animals.

The Steller sea lion, in particular, is of concern to international, federal and state wildlife managers throughout the North Pacific region. A 3000-feet-wide critical habitat zone has been proposed by the National Marine Fisheries Service around Three Arch Rocks. Seal Rock, the haulout site at Three Arch Rocks, is extremely valuable because of its low profile above the water, which facilitates entering and exiting the water, and its wide platform that can accomodate both adults and pups learning necessary survival skills. This rock serves as a focal point for widespread foraging by adults who may range up to 30 kilometers in search of food. Boat and aircraft traffic around the haulout area can prevent animals returning from a long feeding trip from reaching the rock in a timely way and can interfere with normal learning activities of pups during a critical period.

o Historical Context

The problems of human interaction with marine birds and mammals on the Oregon coast must also be viewed in an historical context. Archaeological and biologic evidence indicates that many of the birds and mammals inhabiting Three Arch Rocks were once more widespread and have, in a sense, "retreated" to the relatively few isolated refuge sites in the face of increased development and human presence on the coast over the past one hundred years. Thus, from an historical habitat distribution perspective, these animals have no other alternative than Three Arch Rocks and similar rocks and islands along the coast. Oregon's coast is continuing to be developed making it highly unlikely that birds or mammals will find new or return to former shoreline habitats.

o Regional Importance

One other consideration relates to Oregon's offshore rocks and islands in a regional ecosystem context. Oregon's coastal habitat sites are regionally vital because neither the California coast nor the Washington coast offer the extent and kinds of habitat as Oregon. Birds migrate long distances (some from South America, others from Alaska) to reproduce on the Oregon coast. Steller sea lions have historically occupied a range from central California around the Pacific coastline through Alaska, the Aleutian Islands, to the Kurile Islands of Russia. Because of major declines in Steller populations throughout the heart of their range, likely related to major changes

in sea lion prey base, the success of Steller sea lions on the Oregon coast takes on increased importance. Viewed in this context, there is an added responsibility for Oregon to protect offshore rock and island habitats.

Council Process

The Ocean Policy Advisory Council began to address rock and island protection concerns based on policies and recommendations in the 1990 Oregon Ocean Resources Management Plan and a specific directive of the 1991 Oregon Legislature.

The Council made an initial decision to resolve wildlife interaction problems through a process that assessed and responded to the unique circumstances of each area or site and that involved all affected parties. Three Arch Rocks is the first area to be examined and is a "case-study" for the Council.

The Council began work on Three Arch Rocks with a public meeting

in January, 1993, in Tillamook to discuss the resource and use issues involved at Three Arch Rocks and to obtain comment from the public. The meeting was well attended and a diversity of comments and opinions were heard related to the severity and nature of the problems.

Also in January, 1993, the Council discussed the situation and decided that more comprehensive and thorough documentation of the activities around Three Arch Rocks was necessary to identify the nature of the problem and develop specific management measures to solve problems. The Oregon Department of Fish and Wildlife, in cooperation with the U.S. Fish and Wildlife Service, subsequently conducted a four month field program in the summer of 1993 to observe and document human activities and to collect biological information on seabirds and marine mammals.

Upon completion of this study in mid-September, 1993, a working group was convened to review the results of the ODFW/USFWS study and provide the Ocean Policy Advisory Council with recommendations to reduce disturbance and protect wildlife resources at Three Arch Rocks National Wildlife Refuge.

o Three Arch Rocks Working Group

A working group met October 4, 1993, in Tillamook. Those present included

Greg McMurray, Ore. Dept. Environmental Quality

Doug Davis, Owner, D & D Charters, Garibaldi

Neal Coenen, OPAC/Ore. Dept. Fish and Wildlife

Bob Bacon, Ore. Shores Conservation Coalition

Dave Haas, SCUBA diver/charterboat owner

John Markham, Tideriders SCUBA Club

Jan Mulholland, Tideriders SCUBA Club

Ray Baggarley, Oregon Pilots Association

Roy Lowe, U.S. Fish and Wildlife Service

Bob Bailey, OPAC/Ocean Program Coordinator

Tom McAllister, outdoor writer

Jerry Dove, OPAC/Tillamook County Commissioner

James Bond, City of Manzanita

Paul Donheffner, Director, State Marine Board

Don Christiensen, State Marine Board member

Gary Viehdorfer, State Aeronautics Division

Robin Brown, Ore. Dept. Fish and Wildlife

Susan Riemer, Ore. Dept. Fish and Wildlife

Dave Pitkin, U.S. Fish and Wildlife Service

Capt. Chris Kisvardy, US Coast Guard Air Group

The working group heard and discussed a detailed report on the summer, 1993, observational study at Three Arch Rocks (summary below). The working group concluded that a 500-foot seasonal closure area, implemented through regulation and supported with an educational and informational effort, is needed, generally acceptable, and probably workable. The group did not resolve concerns about buoy markers and enforcement. The working group, through a staff paper, subsequently recommended to the Council the actions taken on December 10, 1993.

Three Arch Rocks Study, Summary

o Study Methodse study was conducted for an average of 7.5 hours per day on 104 days from early May, 1993, to mid-September, 1993. A detailed observational protocol was used including establishing three concentric observation zones around the rocks: Zone One (0 to 500'), Zone Two (500' to 2000'), and Zone Three (beyond 2000').

To help determine the location of a boat within a zone, observers used a notebook of reference photographs of a Coast Guard vessel positioned 500 feet from the rocks at a series of stations around the rocks. Data were collected on type of vessel, activity, location, weather and sea conditions, visibility, aircraft type, aircraft lateral distance, altitude and flight direction, and wildlife disturbance events. Counts of seabirds and mammals were made. Disturbance events

were recorded in one of three states:

$(BPS16,S12,S24,S24,B,N,N,12)

Type 1:Alert (animals aware of disturbance & stop normal activity)

Type 2:Agitated (animals vocalize, make some movement)

Type 3:Threatened (animals leave the area).

$(BPN12,N12,N24,N24,B,N,N,12)

Photographs and videotapes were made of representative activity in the area.$(BPS12,S12,S24,N60,B,N,N,12)

$(BPS12,S12,N24,N60,B,N,N,12)

$(BPS12,S12,N48,S24,B,N,N,12)

Observation Points and Zones Around Three Arch Rocks

N.W.R.$(BPN12,N12,N24,N24,B,N,N,12)

o Boating activity and effects

Private Boats

In general, private recreational vessels, whether fishing, diving, or sightseeing, accounted for the most activity within Zone One and generated the greatest number of wildlife disturbances (57,

Types 1-3) across all zones. Included in this category are dive boats and sport fishing boats which together accounted for 34 of 39 (88%) of the most serious Type 3 disturbance events, all of which occured in Zone One. The amount of time private fishing boats were observed in Zone One represents only 6.8% of their total time spent fishing in all zones.

Charter Boats

Very little charter boat activity took place in Zone One and was instead conducted almost entirely in Zone Two, between 500 and 2,000 feet. However, charter boats were judged responsible for five disturbance events, including four Type 3 events, all within Zone One .

Commercial Fishing

With one exception, commercial fishing vessels did not enter into Zone One. These vessels did not trigger any disturbance events from any zone.

Other Craft

Other kinds of boats were present around the rocks. Kayaks were observed sixteen times during eight days and triggered four disturbance events in Zone One, one Type 1 and three Type 2. Three jet skis were observed on one observation day and were responsible for one Type 2 disturbance event.

Summary

Out of sixty-eight Type 1, 2, or 3 disturbance events caused by vessels, all but one resulted from vessels within Zone One (within 500 feet of the rocks). Thirty-four involved birds only, twenty-four mammals only, and ten involved both birds and mammals. These disturbances were triggered by boats moving close to the rocks, boats at high speed, activity around and on the boats, loud noises, and various combinations of different activities.

o Aircraft activity and effects

Private Aircraft

Private aircraft accounted for the most aircraft activity and greatest number of disturbances at Three Arch Rocks. One-hundred-fifty private aircraft were observed flying under 1000' and were responsible for forty-nine disturbances, including five Type 3 events. Two-hundred-fifty-

five private aircraft flew above 1000' and generated fourteen disturbance events. Of the one-hundred total aircraft-caused disturbance events, 63% were caused by private aircraft of which 52% were Type 1 disturbances.

Coast Guard

Coast Guard aircraft, primarily helicopters, were observed twenty-one times primarily at less than 1000' and caused thirteen disturbances: eight Type 1 and five Type 2.

Military

Seventeen military aircraft were recorded and caused fourteen disturbances, including four Type 3 events.

Other

Other aircraft included twenty two commercial aircraft, which generated four disturbance events and thirteen unknown aircraft which were heard but not seen. These unknown aircraft were responsible for six Type 1 disturbances.

Summary

Of the one-hundred total aircraft disturbance events, ninety involved marine mammals. The majority of Type 1 events were sea

lions looking skyward for the source of noise. Sixty-three of these disturbances resulted from private aircraft.

Statistical results of the project are attached.

Management Considerations

o Seasonal factors

Although seabirds and marine mammals occupy Three Arch Rocks year round, breeding and rearing of young occurs between late April and mid-September. Thus regulations on boating activity could be applied seasonally during the critical reproductive season.

o Existing Policies and Authorities

Ocean Plan

The Oregon Ocean Resources Management Plan discusses the issues of protecting seabirds and marine mammals and includes a number of policies that provide a point of beginning for Three Arch Rocks. These policies include:

- promoting public awareness and appreciation of marine birds, marine mammals and their habitats; developing public education and interpretation programs; and preparing targeted information to specific ocean user groups, especially the fishing industry and recreational boaters.

- providing state protection to marine birds and mammals and to habitats critical to maintaining viable marine bird and mammal populations.

- adopting provisions in the Territorial Sea Plan to protect sensitive marine bird and mammal populations and provide for site-specific management programs.

- prohibiting activities around nearshore rocks and islands that threaten the continued viability of marine bird and mammal populations, especially threatened, endangered, and sensitive species in thirty-three sensitive habitat areas listed.

- supporting the use of nearshore rocks and islands for safe passage and anchorage where necessary to protect human lives.

- supporting both regulatory and non-regulatory approaches to resource management and protection.

State Law

The 1991 Oregon Legislature enacted ORS 196.408(3):

"State agencies which have jurisdiction over water areas, the seabed and resources adjacent to offshore rocks and islands shall coordinate with adjacent states and federal agencies to develop programs and regulations to manage uses and activities of ocean areas adjacent to coastal cliffs and offshore rocks and islands managed within the National Wildlife Refuge System."

Goal 19/Territorial Sea Plan

The Ocean Policy Advisory Council has previously adopted draft provisions of a Territorial Sea Plan that include policies and recommendations in a strategy for managing Oregon's rocky shores. Rocky shores are defined as including offshore rocks and islands because of their ecological association and connections to shoreline headlands and intertidal areas with associated

rocks and submerged reefs. Management policies and measures for Three Arch Rocks and other offshore rocks and islands will become a subset of the rocky shores management strategy. The goal of this strategy is

"To protect the ecological values and coastal biodiversity within and among Oregon's rocky shores while allowing appropriate use."

Together, these policy directives provide a clear basis for the Council to take action with regard to Three Arch Rocks.

o The Role of Information and Education

Information and education is a necessary component of any program to solve wildlife disturbance problems at Three Arch Rocks and elsewhere. Education and information efforts will need to be targeted at a number of audiences, including:

- recreational boaters and fishermen, charter boat operators, commercial fishermen, divers, kayakers, private aircraft pilots and fixed-base operators through various specific communication efforts;

- the U.S. Coast Guard and military bases through more formalized, institutional communication and agreements;

- the general public through a variety of media and outreach pathways.

Information and education efforts should provide information about Oregon's seabirds and marine mammals, promote wildlife values, encourage personal responsiblity and stewardship toward these resources and communicate specific regulations such as seasonal area restrictions.

These informational efforts should also be seen as a way to stimulate interest in and encourage demand for wildlife watching opportunities and should therefore be coordinated with tourism and travel promotion for the Oregon coast and the Tillamook area.

o The Role of Regulation

Regulations are an essential element in managing wildlife resources. They articulate the limits of personal behavior or activities, support and further associated educational efforts, and are a specific expression of the public's interest in the resource. Regulations, however, must have a

clear purpose, be simply expressed and readily explained through information and education to the public and affected parties.

At Three Arch Rocks there is a need to reduce or eliminate boating activity and aircraft overflight within certain distances of the rocks during a specific time period. The ODFW/USFWS study clearly shows that boats within 500 feet and aircraft activity in the area can cause disturbance to wildlife. The critical time period is May 1 through Labor Day in early September, the reproductive season. The State Marine Board is the agency most appropriate to regulate boating activity; by contrast, the Fish and Wildlife Commission can only regulate fishing activity. Regulations for aircraft are more problematic and will involve the Federal Aeronautics Administration in the U.S. Department of Transportation. There is currently a 2,000-foot minimum altitude recommendation over all National Wildlife Refuges.

o Protective Measures in Other Locations

Wildlife protective buffer areas have been established in other rock and island situations and provide a frame of reference for Three Arch Rocks.

Rogue and Orford reefs, Oregon. In 1990 the Oregon Fish and Wildlife Commission enacted a 1000-foot commercial sea urchin fishery closure between May 1 and August 31 for Steller sea lion pupping sites on Pyramid Rock in Rogue Reef and Long Brown and Seal rocks in Orford Reef on the southern Oregon coast. These were instituted in cooperation with the sea urchin dive fishery. This closure has been marked with buoys placed during the season by the Oregon Department of Fish and Wildlife and is monitored and regulated in a cooperative arrangement with the urchin industry. Decreased disturbance and stabilized Steller sea lion populations appear to be a positive result of the closure. In summer, 1993, the OFWC instituted a 1000' sport fishing closure area around Pyramid Rock in Rogue Reef. No such closure was made at Orford Reef because of apparently low sport boat activity there.

Farallon National Wildlife Refuge. The Farallon Islands are some eighteen miles south-southwest of Point Reyes and about 28 miles west of the mouth of San Francisco Bay, and are part of the Gulf of the Farallones National Marine Sanctuary. The State of California has designated a 1 mile-wide area around the islands as a State Ecological Area. Specific regulations to protect common murres and Steller sea lions have been adopted for boats: a 300-foot seasonal closure March 15 to August 15, a 5-mph speed limit within 1000 feet, and noise restrictions for commercial dive boat engines and compressors. For aircraft: a 1000-foot minimum altitude within one nautical mile of the islands. The water boundaries are not marked with buoys.

Wildlife observers are present on the islands continually in spring and summer and communicate via radio with vessels that approach too closely to advise them of the 300-foot wildlife restriction. There is no focused effort to contact boaters at marinas and inform them of the closure because of the relatively few who venture offshore.

Alaskan Steller sea lion habitat. In the Gulf of Alaska, Bering Sea, and Aleutian Islands, the National Marine Fisheries Service has established 3 nautical mile (nm) vessel no-entry zones around specific Steller sea lion rookeries and a 12 mile no-approach zone by land. The zones were established to reduce disturbance, accidents and incidental take of sea lions and to facilitate enforcement of prohibitions against shooting Steller sea lions. A temporary exemption is made for vessels transiting through the 3 nm no-entry zone for two rookeries but vessels are still required to stay at least 1 nm from the rookeries and they may not fish or set anchor within the 3 nm area.

No-trawl zones have been designated by NMFS within 10 nm of 37 Steller sea lion rookeries in the Gulf of Alaska, Bering Sea and Aleutian Islands as amendments to groundfish fishery management plans to reduce the risk of depletion of Steller sea lion prey near the rookeries. For 5 rookeries, seasonal 20 nm no-trawl

zones have been established during winter and early spring when feeding by juveniles is crucial.

Protection Island National Wildlife Refuge, Washington. The State of Washington Department of Natural Resources has entered into a twenty-year no-fee lease agreement with the U.S. Fish and Wildlife Service to protect a 200-meter (600 feet) area around Protection Island near the mouth of Discovery Bay in the Strait of Juan de Fuca to protect harbor seal pupping areas and seabird colonies. The state has withdrawn the tidelands within this area to all public access except that approved by the USFWS. Waters in the area is not yet closed to all boating traffic which will need to be done through the U.S. Coast Guard.

o Technical and Operational Considerations

Spatial regulation of boat and aircraft traffic raises issues of whether and how to mark the desired boundaries or areas. Because there are difficulties and expenses involved in setting buoys or other markers, the following options are presented:

No markers or buoys. This option minimizes the physical fact of a boundary and instead relies on promoting responsible operating practices that reduce disturbance or avoid adverse effects on wildlife, one of which is staying back the prescribed distance. Enforcement would not be emphasized except for clear violations as when a boater runs through an arch or anchors next to a rock; these clear violations of the boundary would be easy to detect and, if desired, prosecute.

The absence of buoys may present a problem of uncertainty to boaters and make enforcement of any boundary difficult. However, it is highly unlikely that Oregon or federal agencies are in a position to extensively patrol or vigorously enforce any boundary even if marked.

Buoys. One or more buoys, especially in key locations, would provide a sense of certainty to boaters about the location of any "buffer" or protective boundary. They would also provide clear boundaries for enforcement purposes and would be tangible evidence of the need to protect wildlife. However, buoys are expensive to purchase, place, and maintain. In addition, buoys can create the impression for an operator that once outside the boundary, any behaviour is acceptable. Buoys would be most effective as part of a package that includes information and education keyed to the need for and location of the buoys.

Findings

Based on this report of the Three Arch Rocks Working Group, the Ocean Policy Advisory Council finds that at Three Arch Rocks:

1. There are significant wildlife disturbance problems from human activities.

2. Wildlife disturbance from human activities have negative effects on the reproduction of seabirds and marine mammals, including threatened or endangered species, and thereby reduce population stability.

3. The period of highest human activity levels are coincident with marine wildlife critical reproductive period from early May to mid-September.

4. Disturbance of wildlife results almost exclusively from noise and motion generated by boating and aircraft activity of various kinds.

5. Disturbance of wildlife from vessels is related, among other factors, to the distance of the vessel from the rocks. Disturbance is most predictable and severe when vessels are within 500 feet; some disturbance occurs in certain situations when vessels are between 500 and 2000 feet from the rocks; little or minor disturbance occurs when vessels are beyond 2000 feet.

6. Few commercial or charter fishing vessels approach within 500 feet of the major habitat rocks.

7. Almost all vessel-related disturbance to wildlife is generated by privately operated vessels engaged in fishing, diving, or general recreation activities within 500 feet of habitat rocks.

8. The State of Oregon has authority to regulate vessel traffic and fishing activites in ocean waters of the state adjacent to the rocks of Three Arch Rocks and other federal refuges along the coast.

9. Disturbance of wildlife from aircraft is related to several factors including vertical and horizontal distance from the rocks, aircraft speed, noise level and pitch, and frequency of

repetition of disturbance.

10. Aircraft traffic over Three Arch Rocks includes many aircraft types originating from several sources from different directions.

11. The federal government, rather than the State of Oregon, has authority to regulate air traffic over or near Three Arch Rocks.

12. The Oregon Ocean Resources Management Plan contains specific policies to protect marine birds, marine mammals, and their habitats from disruption and harassment from human activities and lists thirty-three sensitive marine bird and mammal habitat areas needing protection from human disturbance.

13. The 1991 Oregon Legislature requires state agencies to take action to manage uses and activities of ocean areas around offshore rocks and islands in the National Wildlife Refuge.

14. There are several actions that the Ocean Policy Advisory Council and state agencies can take to reduce disturbance to wildlife at Three Arch Rocks as well as other offshore rocks and islands.

Action:

The Ocean Policy Advisory Council hereby take the following actions to reduce or eliminate disturbance to marine wildlife from human uses and activities at Three Arch Rocks:

1. An area 500 feet wide around the principal rocks at Three Arch Rocks National Wildlife Refuge is designated for closure to boats from May 1 to September 15. The Council requests implementation by the State Marine Board. This buffer shall also prohibit transit through the closed area including the arches of the rocks.

Note: On the west end of the refuge the 500-foot line shall be drawn from the westerly tip of Shag Rock so as to allow dive boats and charter fishing boats to continue to use the outside edge of a wash rock (Storm Rock) that is approximately 500 feet west-southwest of Shag Rock.

$(BPS12,S12,S24,N48,B,N,N,12)

$(BPS12,S12,N24,N48,B,N,N,12)

$(BPN12,N12,S24,N24,B,N,N,12)

$(BPS12,S12,N48,S24,B,N,N,12)

Seasonal Closure Area at Three Arch Rocks N.W.R., Oregon

$(BPN12,N12,N24,N24,B,N,N,12)

Rationale: Based on the 1993 ODFW study, it is anticipated that prohibiting boats within 500 feet of the refuge during the reproductive season will eliminate the majority of disturbance situations outright without adversely effecting charter boat or commercial fishing operators. If the buffer line on the west end is drawn as suggested, the effect on dive boats and charter boats will be lessened. A distance of 500 feet should also allow leeward anchorage of vessels when necesssary. A seasonal prohibition is sufficient to address the seasonal nature of the problem and will convey an unambiguous message as to the seriousness of the situation and the intent of the State of Oregon to address disturbance problems. A specific distance is required to be designated as a clear standard against which to measure behavior. The State Marine Board is the appropriate agency to adopt this regulation and to place appropriate buoys.

2. A permanent 2000-foot minimum altitude is designated for aircraft within one-half mile of Three Arch Rocks. The Council requests implementation by the Federal Aeronautics Administration and assistance from area Fixed Base Operators.

Rationale: A permanent 2000-foot minimum altitude is recommended to simplify communication with a diverse audience of aircraft operators. This recommendation would strengthen the 2,000-foot minimum altitude currently recommended by the FAA over all National Wildlife Refuges. This minimum altitude restriction obviously will not apply to U.S.

Coast Guard search and rescue missions, oil spill or other environmental response situations, military emergencies, or "federall permitted aerail census flights to monitor wildlife populations.

3. The Council will work with affecte agencies and parties to develop and implement a coordinated program to educate and inform boaters, aircraft pilots, and others of marine wildlife values on and near Three Arch Rocks and other sites and the need to excerise caution and responsibility to protect wildlife from disturbance on the rocks as well as in the surrounding water.

Rationale: An educational and informational program is crucial to gaining understanding of and compliance with any seasonal closure. In addition, education and information is essential encourage responsible behavior beyond regulation such as reducing noise from engines, generators, and the like, and reducing speed within a quarter-mile of the rocks. Information will promote understanding of and personal stewardship toward marine wildlife which, in turn, may be an increasingly important economic resource for Oregon.

Education and information should not be targeted exclusively on Three Arch Rocks. While this should be an initial focus, an overall coastal effort is needed to coordinate efforts along the entire coast. Education efforts should be coordinated by the Council but implemented by various state and federal agencies, businesses, and citizen groups.

In addition to more general public information materials, specific and regular communication is needed with the U.S. Coast Guard air stations in Astoria and North Bend and with military air operations that base aircraft transiting or using the Oregon coast. Likewise a regular program of contact with private airport Fixed Base Operators is needed to continually inform pilots about coastal wildlife issues and operational constraints.

$(BPN12,N12,N24,D24,B,N,N,12)

Appendix J: Working Groups$(BPN12,N12,N24,N24,B,N,N,12)

The Council relied on Working Groups to develop and refine major parts of the plan. These working groups were organized and staffed by the Department of Land Conservation and Development. Membership on Working Groups was not limited but included governmental, academic, citizen, and interest group members. In some instances Council members participated on Working Groups. Because participation in some groups was fairly fluid, not all persons who participated may be listed.

a. Resource Inventory Working Group (Goal 19 Working Group)

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b. Rocky Shores Working Group

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