


the OREGON NEARSHORE STRATEGY




Chapter 5: Nearshore Species

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Oregon Department of Fish and Wildlife

OregonConservationStrategy.org

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NEARSHORE SPECIES

Species that are key to ecosystem function and health are at the heart of the State Wildlife Grants Program. The Program (discussed in the Nearshore Strategy Context section) specifies inclusion of a Strategy Species list, and directs states to:

- address the full array of wildlife and wildlife related issues,
- prevent species from being listed as threatened or endangered,
- keep common species common, and
- focus on species in greatest need of management attention that are indicative of the diversity and health of the State's wildlife and habitats.

The 2006 Oregon Conservation Strategy and Nearshore Strategy documents each contained a separate list of Strategy Species to focus management and conservation needs in accordance with the guidelines of the State Wildlife Grants program. In this revision, these two lists are merged into one that is included in the Oregon Conservation Strategy. The updated Nearshore Strategy also includes a copy of the nearshore Strategy Species list, with the subset of species relevant just to the nearshore. This chapter describes the process and criteria ODFW Marine Program used in developing the list of nearshore Strategy Species, and provides information about those species.

The State Wildlife Grant elements helped guide the ODFW Marine Program in developing a method to identify key nearshore species whose conservation needs are of the greatest interest to managers. Strategy Species are those species of the greatest concern and which meet the State Wildlife Grants Program requirements for State Wildlife Action Plans. Additionally, the Oregon Nearshore Strategy designates Watch List Species (those that do not meet the Strategy Species criteria, but which may in the future when sufficient data is available to make that determination), and Commonly Associated Species, (including common nearshore species whose conservation needs can best be met through habitat management or through management of communities of organisms).

Species information was used in conjunction with information about the habitats, factors and stressors affecting species and habitats, conservation research and monitoring needs, and public input to formulate overall recommendations.

Nearshore Strategy Species – Species determined to have conservation needs in greatest need of management attention *and* to have the greatest potential for benefit from management actions. Strategy Species provide a focus for planning and prioritizing specific conservation, management, and research actions by ODFW and other partners.

Nearshore Watch List Species – Identified as important nearshore species that do not require immediate management action, but may in the future. Managers should be aware of conservation needs and potential factors affecting these species and that sufficient data for these species may be lacking.

Nearshore Commonly Associated Species – Species identified to be important to nearshore environments, whose conservation needs can best be met through management affecting habitats or communities of organisms.

NEARSHORE STRATEGY SPECIES

Nearshore Strategy Species species were determined by ODFW to be in greatest need of management attention. Identification as a nearshore Strategy Species does not necessarily mean the species is in trouble. Rather, those identified as Strategy Species have some significant nearshore management and/or conservation issue connected to that species that is of interest to resource managers.

Development of the 2015 Strategy Species list began with a review of the original list of Strategy Species developed a decade ago, including species that utilize the nearshore but that had only been included in the Oregon Conservation Strategy. The species that were still recognized as species of concern, at risk, important, or a priority by federal or state agencies, stakeholders, experts, non-government organizations, scientific researchers, tribes or other conservation processes were included on the revised list. In addition, a comprehensive list of species that occur in the nearshore was evaluated for potential new additions to the Strategy Species list. To maintain a nearshore ecosystem focus, attention was focused on both harvested and non-harvested species that predominantly occur, or are common, within Oregon's nearshore environment.

To assist with the identification of Strategy Species, the following information was compiled from published literature (see References section), available online data, scientific databases, and personal communication from experts, for each species on the list:

- taxonomic information
- distribution, including species geographic range and depth
- harvest/collection information, including sector(s) (commercial, sport, aquarium trade, and/or scientific/medical research) and whether targeted or incidental catch
- life history information, including mode of reproduction, fecundity, timing of reproduction, timing of egg/larval/juvenile stages, longevity, age at maturity, and migratory behavior or seasonal distribution
- habitat use for each life history stage
- trophic interactions, including prey, predators, and competition

- population status information, including whether a population assessment has been conducted, listed as overharvested, listed as a threatened or endangered species, whether species has experienced a population decline, whether the species is rare, has small range or is endemic, if species has specialized habitat requirements, and if the species has low productivity.

This information was used to help examine the conservation needs of each species with regards to four separate criteria (each weighted equally). Each species was evaluated for each of these four criteria to identify those species in greatest need of management attention:

1) *Species status* – examples of species status include overharvested, rare, declining population throughout its range or in Oregon.

2) *Ecological importance* – examples of ecological importance include habitat forming, habitat engineer, keystone species, prey species.

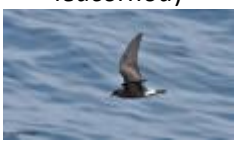
3) *Vulnerability to human or natural factors* – examples of vulnerability include susceptible to oil spills or water pollution, life history traits that render it particularly vulnerable (low productivity, specialized habitat requirements, climate change or ocean acidification effects, etc.), or there are significant data gaps or research needs on vulnerability for that species.

4) *Economic/social/cultural importance* – examples of importance to humans include commercially important, recreationally important, culturally important to Oregon tribes, flagship or sentinel species.

Those species whose conservation needs were determined to best be met through existing management affecting habitats or communities of organisms were separated from the list. Through extensive examination, deliberation, and consultation with subject matter experts, 74 species were identified as nearshore Strategy Species. These species, or distinct populations, were determined to have conservation needs in greatest need of management attention *and* to have the greatest potential for benefit from management actions. Changes to the nearshore Strategy Species list include: one marine mammal was removed and three species of fishes were moved to the nearshore Watch List; 16 Strategy Species, six anadromous fishes and ten birds, identified in the Oregon Conservation Strategy that utilize nearshore habitats were included; and nine new species were added. The nine new Strategy Species added include: three fishes, one of which is a newly discovered species; four invertebrates; one marine mammal; and one plant.

Table 5.1 presents the list of all 74 nearshore Strategy Species, including notes on special needs, limiting factors, data gaps and conservation actions for each species. This information is provided for use by managers, research and monitoring projects or programs, those producing education and outreach materials, planners, and the general public. Readers should note that the management jurisdiction varies for each species. For instance, some nearshore Strategy Species are managed by ODFW, others by NOAA Fisheries or USFWS, and many species are under shared management authority by multiple resource agencies and institutions.

Table 5.1. List of Nearshore Strategy Species. Click the links in the table below for more information on each species.

Birds				
Black Brant (*Branta bernicla nigricans*) 	**Black Oystercatcher** (*Haematopus bachmani*) 	**California Brown Pelican** (*Pelecanus occidentalis californicus*) 	**Caspian Tern** (*Hydroprogne caspia*) 	**Fork-tailed Storm Petrel** (*Oceanodroma furcata*) 
Leach's Storm Petrel (*Oceanodroma leucorhoa*) 	**Marbled Murrelet** (*Brachyramphus marmoratus*) 	**Rock Sandpiper** (*Calidris ptilocnemis*) 	**Tufted Puffin** (*Fratercula cirrhata*) 	**Western Snowy Plover** (*Charadrius alexandrinus nivosus*) 
Fishes				
Big skate (*Raja binoculata*) 	**Black rockfish** (*Sebastes melanops*) 	**Blue rockfish** (*Sebastes mystinus*) 	**Brown rockfish** (*Sebastes auricluatus*) 	**Cabezon** (*Scorpaenichthys marmoratus)* 

Fishes

Canary rockfish

(*Sebastes pinniger*)

China rockfish

(*Sebastes nebulosus*)

Chinook salmon

(*Oncorhynchus tshawytscha*)

Fall Run – Lower Columbia SMU, Mid–Columbia SMU, Snake SMU, Spring/Summer Run – Coastal SMU, Rogue SMU, Lower Columbia SMU, Mid Columbia SMU, Lower Snake SMU, Upper Snake SMU, Willamette SMU

Chum salmon

(*Oncorhynchus keta*)

Lower Columbia SMU; Coastal SMU

Coastal cutthroat trout

(*Oncorhynchus clarki clarki*)

Lower Columbia SMU

Coho salmon

(*Oncorhynchus kisutch*)

Coastal SMU; Rouge SMU; Klamath SMU; Lower Columbia SMU

Copper rockfish

(*Sebastes caurinus*)

Deacon rockfish

(*Sebastes diaconus)*

Note: See Frable et al., 2015 for description of this newly discovered cryptic species formerly consider to be Blue rockfish

Eulachon

(*Thaleichthys pacificus*)

Southern DPS

Grass rockfish

(*Sebastes rastrelliger*)

Fishes

Green sturgeon

(*Acipenser medirostris*)

Northern DPS; Southern DPS

Kelp greenling

(*Hexagrammos decagrammus*)

Lingcod

(*Ophiodon elongatus*)

Longfin smelt

(*Spirinchus thaleicthys*)

Northern anchovy

(*Engraulis mordax*)

Pacific herring

(*Clupea pallasii*)

Pacific lamprey

(*Entosphenus tridentatus*)

Pacific sand lance

(*Ammodytes hexapterus*)

Pile perch

(*Rhacochilus vacca*)

Quillback rockfish

(*Sebastes maliger*)

Redtail surfperch

(*Amphistichus rhodoterus*)

Rock greenling

(*Hexagrammos lagocephalus*)

Shiner perch

(*Cymatogaster aggregata*)

Spiny dogfish

(*Squalus acanthias*)

Starry flounder

(*Platichthys stellatus*)

Striped perch

(*Embiotoca lateralis*)

Surf smelt

(*Hypomesus pretiosus*)

Tiger rockfish

(*Sebastes nigrocinctus*)

Topsmelt

(*Atherinops affinis*)

Vermilion rockfish

(*Sebastes miniatus*)

Western River Lamprey

(*Lampetra ayresii*)

White sturgeon

(*Acipenser transmontanus*)

Wolf-eel

(*Anarrhichthys ocellatus*)

Yelloweye rockfish

(*Sebastes ruberrimus*)

Yellowtail rockfish

(*Sebastes flavidus*)

Invertebrates

Blue mud shrimp

(*Upogebia pugettensis*)

California mussel

(*Mytilus californianus*)

Dungeness crab

(*Cancer magister*)

Flat abalone

(*Haliotis walallensis*)

Native littleneck clam

(*Leukoma staminea*)

Ochre sea star

(*Pisaster ochraceus*)

Olympia oyster

(*Ostrea lurida*)

Pacific giant octopus

(*Enteroctopus dofleini*)

Purple sea urchin

(*Strongylocentrotus purpuratus*)

Razor clam

(*Siliqua patula*)

Red abalone

(*Haliotis rufescens*)

Red sea urchin

(*Mesocentrotus franciscanus*)

Rock scallop

(*Crassadoma gigantea*)

Sunflower star

(*Pycnopodia helianthoides*)

Marine Mammals

Gray whale

(*Eschrichtius robustus*)

Harbor porpoise

(*Phocoena phocoena*)

Northern elephant seal

(*Mirounga angustirostris*)

Pacific harbor seal

(*Phoca vitulina*)

Killer Whale

(*Orcinus orca*)

Southern Resident DPS

Steller sea lion

(*Eumetopias jubatus*)

Plants and Algae

Bull kelp	Native eelgrass	Sea palm	Surf grass
(*Nereocystis luetkeana*)	(*Zostera marina*)	(*Postelsia palmaeformis*)	(*Phyllospadix spp.*)
			

WATCH LIST SPECIES

Brandt's cormorant is a Watch List species. They nest on islands and rocky headlands along the Oregon coast and forage in Nearshore waters. Photo Credit: Bird Research Northwest.

ODFW identified a handful of species from the comprehensive species list to be placed on a Watch List. Watch List Species (Table 5.2) were determined to be important nearshore species that do not require immediate management action, but may in the future. Managers should be aware of conservation needs and potential factors that could affect these species and consider them for future nearshore Strategy Species status if sufficient data can be gathered to support the change. Examples of future information that may warrant status change include a change in harvest status, or the occurrence of an anthropogenic or natural event (water pollution, climatic event, etc.).

Table 5.2 Watch List Species

Watch List Birds	Comments
Brandt's Cormorant (*Phalacrocorax penicillatus*)	Utilizes rocky cliffs and islands for nesting. Forages in nearshore habitats. Sensitive to environmental change. Localized population fluctuations.
Cassin's Auklet (*Ptychoramphus aleuticus*)	Nests in burrows on offshore islands with no mammalian predators. Vulnerable to nesting area disturbance, predation, oil spills and environmental change.
Common Murre (*Uria aalge*)	Nests in colonies on offshore islands and coastal cliffs with no or minimal mammalian predators. Vulnerable to nesting area disturbance, predation, oil spills and environmental change. About 66% of the population from British Columbia to California nest in Oregon.
Pelagic Cormorant (*Phalacrocorax pelagicus*)	Utilizes rocky cliffs and islands for nesting. Forages in nearshore habitats. Sensitive to environmental change.
Pigeon Guillemot (*Cepphus columba*)	Population potentially declining, data inadequate. Vulnerable to ground predators, oil spills and environmental change. Breeding attempts may fail during climatic shifts (e.g., climate change).
Sanderling (*Calidris alba*)	Highly dependent on specific nearshore feeding areas during migration. Susceptible to coastal habitat disturbance, degradation and destruction. Current population size unknown. Populations highly variable among years. Potential for long term declines.
Rhinoceros Auklet (*Cerohinca monocerata*)	Nests in burrows on offshore islands. Forages in nearshore waters while nesting. Prefers nesting sites on cliffs and elevated areas to aid in take-off. Sensitive to nesting disturbance and oil spills.

Watch List Fishes	Comments
Black-and-yellow rockfish (*Sebastes chrysomelas)*	Low to moderate productivity. Commercial harvest. Periodic recruitment dependent on favorable oceanic conditions. OR northern extent of range.
Blue shark (*Prionace glauca*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Bocaccio (*Sebastes paucispinis)*	Low productivity. Northern stock population abundance unknown.
Brown Irish lord (*Hemilepidotus spinosus*)	Recreational harvest. May be getting reported as Red Irish lord. Little known about abundance.
Brown smoothhound (*Mustelus henli*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Buffalo sculpin (*Enophrys bison*)	Recreational harvest. Little known about abundance.
Butter sole (*Isopsetta isolepis*)	Commercial and recreational harvest. Population status unknown.

Watch List Fishes	Comments
California halibut (*Paralichthys californicus*)	Certain years found and caught on OR's south coast. Population status unknown.
California skate (*Raja inornata*)	Late maturation, longevity, and low productivity. Inadequate population status information.
Common thresher (*Alopias vulpinus*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Curlfin turbot (sole) (*Pleuronichthys decurrens*)	Commercial harvest. Population status unknown.
English sole (*Pleuronectes vetulus*)	Sport and commercial harvest. Formal stock assessment has been conducted.
Flathead sole (*Hippoglossoides elassodon*)	Commercial harvest. Population status unknown.
Giant wrymouth (*Cryptacanthodes giganteus*)	Concerns that they're being caught and reported/confused with Monkeyface pricklebacks. Inadequate population status information.
Gopher rockfish (*Sebastes carnatus*)	Low productivity with periodic recruitment dependent on favorable oceanic conditions. Inadequate population status information.
Leopard shark (*Triakis semifasciata*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge. Collected for public aquarium display.
Monkeyface prickleback (*Cebidichthys violaceus*)	Concerns regarding potential of increased harvest in OR (actively harvested in CA).
Pacific angel shark (*Squatina californica*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Pacific sanddab (*Citharichthys sordidus*)	Commercial and recreational harvest.
Pacific sandfish (*Trichodon trichodon*)	Forage fish. Population status unknown and life history information limited.
Pacific sardine (*Sardinops sagax*)	Forage fish known to have large population fluctuations thought to be linked to environmental change, but mechanisms not understood. Target of commercial fisheries.
Pacific staghorn sculpin (*Leptocottus armatus*)	Recreational catch. Little known about abundance.
Red Irish Lord (*Hemilepidotus hemilepidotus*)	Minor commercial and recreational harvest. Collected for public aquarium display. Population status unknown.
Rock sole (*Lepidopsetta bilineata*)	Commercial and recreational harvest. Population status unknown.
Salmon shark (*Lamna ditropis*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.

Watch List Fishes	Comments
Sand sole (*Psettichthys melanostictus*)	Commercial and recreational harvest. Population status unknown.
Shortfin mako shark (Bonito shark) (*Isurus oxyrinchus*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Soupfin shark (*Galeorhinus galeus*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge.
Spotted ratfish (*Hydrolagus colliei*)	Low productivity.
White shark (*Carcharodon carcharias*)	Global concern regarding shark harvest and management. Low productivity. Lack of scientific knowledge regarding movements, spawning season, spawning grounds, and fecundity of females, population abundance.

Watch List Invertebrates	Comments
Butter clam (*Saxidomus gigantean*)	Important commercial and recreational species. Subtidal broodstock unknown. Limited information on essential habitat.
California sea cucumber (*Parastichopus californicus*)	May be important agents of bioturbation; during feeding and reworking of surface sediments, they can alter the structure of soft-bottom benthic communities.
Cockle clam (*Clinocardium nuttallii*)	Important commercial and recreational species. Subtidal broodstock unknown. Limited information on essential habitat.
Coonstripe or Dock shrimp (*Pandalus danae*)	Population status in Oregon unknown. Target of commercial fishery in CA.
Fat gaper clam (*Tresus capax*)	Important commercial and recreational species. Subtidal broodstock unknown. Limited information on essential habitat.
Flat-tipped piddock (*Penitella penita*)	Important commercial and recreational species. Subtidal broodstock unknown. Limited information on essential habitat.
Market squid (*Doryteuthis opalescens*)	Important prey. Used in medical research. Commercial and recreational harvest.
Oregon triton (*Fusitriton oregonensis*)	Potential for extended planktonic larval duration up to 4.5 years. Commercial harvest of all snails prohibited. Oregon state seashell.
Red rock crab (*Cancer productus*)	Potential for harvest concerns. Not actively managed (though has regulations in place). Population status and trend information lacking.

Watch List Marine Mammals	Comments
Sea otter (*Enhydra lutris)*	Documented sporadic occurrences along the OR coast thought to be strays from WA rather than established OR population. Population status in OR unknown.

OTHER COMMONLY ASSOCIATED SPECIES

Some species which did not meet criteria to be included in the nearshore Strategy Species or nearshore Watch Lists were identified to be important to nearshore ecosystems. These species were included on the list of commonly associated species (Appendix F). The conservation needs of these species will most likely be met through habitat management or management of communities of organisms.