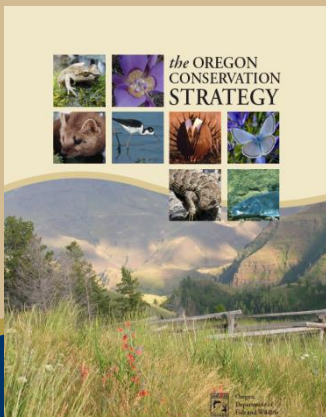


# the Oregon Conservation Strategy - *healthy habitats for wildlife and people*

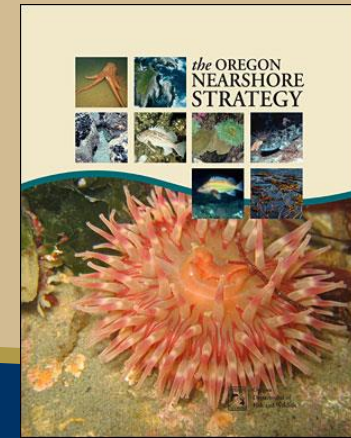


**Audrey Hatch,  
Oregon Conservation Strategy Contractor**

**Greg Krutzikowsky,  
Nearshore Policy Project Leader**



# Background: OCS & ONS

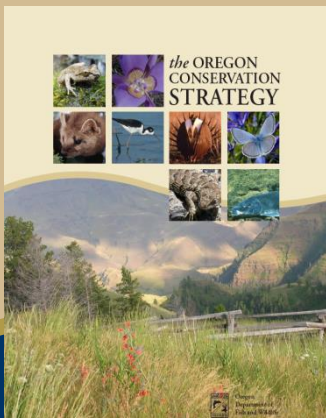


## Requirements:

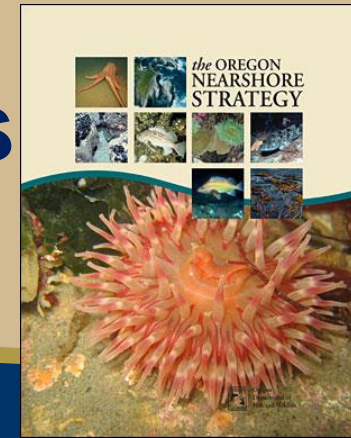
- 10-year review and update of the OCS & ONS
- Collaborative approach to conservation
- Required by the USFWS to continue to receive State Wildlife Grant funding
- Deadline: October 1<sup>st</sup>, 2015

## Parallel revision efforts:

- OCS update led by the Conservation Program
- ONS update led by the Nearshore Program
- Final products are integrated into one cohesive strategy



# Table of Contents



## Oregon Conservation Strategy:

- Introduction, goals, “How to use”
- Statewide Key Conservation Issues
- Ecoregions
- Conservation Opportunity Areas
- Strategy Habitats
- Strategy Species Methods
- Strategy Species List
- Monitoring
- Conservation toolbox: Outreach, index of conservation programs
- Conclusions: Funding, Implementation, Review

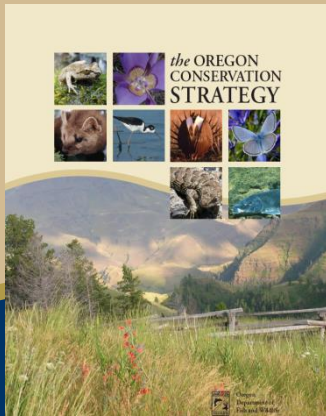
## Oregon Nearshore Strategy:

- Introduction
- Context
- Development
- Coastal communities
- Nearshore species
- Nearshore habitats
- Factors affecting nearshore species and habitats
- Research and monitoring
- Recommendations: Education, outreach, research, monitoring, management, policy
- Conclusions

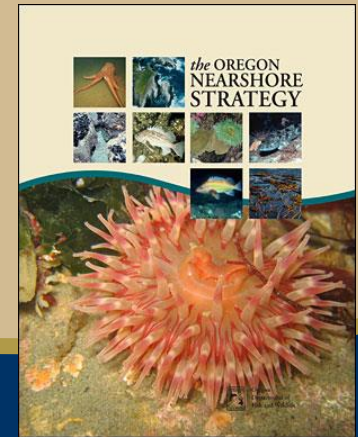
USFWS Required Elements for State Wildlife Action Plans:	Oregon Conservation Strategy and Oregon Nearshore Strategy:
1. Distribution and abundance of species indicative of state's wildlife	Identifies Strategy Species
2. Key habitats and community types essential to species identified above	Identifies Strategy Habitats
3. Problems adversely affecting species and habitats and priority research to identify solutions	Describes conservation issues for Strategy Species, Strategy Habitats, and statewide
4. Description of priority conservation actions	Describes conservation actions for Strategy Species and Habitats. OCS identifies Conservation Opportunity Areas. ONS identifies Recommendations.
5. Monitoring	Describes plan for monitoring and adaptive management
6. Review	Comprehensive review every 10 years
7. Coordination with land and water managers and conservation partners	Extensive coordination throughout the update process
8. Public participation	Review committees; Stakeholder Advisory Committee; open public comment process

Original (2006) Section:	Summary of Changes in 2015 Update:
Introduction, background, ecoregions	Updated to bring in new information and relevant initiatives. Added “How to use the Strategy” section. Added Nearshore ecoregion
Strategy Species	Updated species list and supporting information to integrate new scientific information
Strategy Habitats	Updated maps and descriptions to integrate new scientific information
Conservation Opportunity Areas	New analysis and comprehensive review process to integrate new scientific information
Key Conservation Issues	Updated descriptions to integrate new scientific information
Monitoring	Updated to provide guidance to partners. Added “ten year report”.
Conservation Toolbox: Outreach, lists of programs	Updated to integrate recent information and current programs
Methods, references, implementation & review schedule	Updated as necessary

*Purple rows show USFWS Required Elements*



# Online Format



## Background:

- Currently large paper document

## 2015 Update:

- Contract with Ecotrust
- Completely web-enable the Oregon Conservation Strategy and Nearshore Strategy component

# Online Format: Examples

The screenshot displays a web browser window with the address bar showing [www.oregonconservationstrategy.org](http://www.oregonconservationstrategy.org). The website features a dark green navigation bar with the word "CONSERVE" in large white letters, a "SEARCH" field with a magnifying glass icon, and a "MY" button with a map of Oregon. A vertical sidebar on the left contains a list of menu items, each with an icon: OVERVIEW (house), KEY CONSERVATION ISSUES (key), ECOREGIONS (globe), CONSERVATION OPPORTUNITY AREAS (water drop), STRATEGY HABITATS (leaf), STRATEGY SPECIES (bird), MONITORING (heart rate line), CONSERVATION TOOLBOX (gear), CONCLUSIONS (water drop), and OREGON NEARSHORE STRATEGY (leaf). The main content area features a large, irregularly shaped image of a wetland landscape with tall grasses and water, framed to resemble a map of Oregon. Overlaid on the bottom of this image is the text "FEATURED CONSERVATION OPPORTUNITY AREA" in white, bold, uppercase letters. At the bottom of the page, there is a logo for "the OREGON CONSERVATION STRATEGY" and a set of three circular indicators, with the rightmost one being filled.

# Online Format: COA Profile

The screenshot shows a web browser window with the address [www.oregonconservationstrategy.org](http://www.oregonconservationstrategy.org). The page features a navigation menu on the left with icons for Overview, Key Conservation Issues, Ecoregions, Conservation Opportunity Areas, Strategy Habitats, Strategy Species, Monitoring, Conservation Toolbox, Conclusions, and Oregon Nearshore Strategy. The main content area displays the title "BM-09. BEAR VALLEY" and a large photograph of a forested valley. Below the photo is a description: "BM-09. BEAR VALLEY" followed by a location and habitat description. A "SPECIAL FEATURES" section lists five bullet points regarding ecosystem management, wetland complexes, habitat percentages, and sandhill crane nesting. A right-hand sidebar contains a list of links: "BM-09. BEAR VALLEY", "SPECIAL FEATURES", "STRATEGY HABITATS", "STRATEGY SPECIES", "IDENTIFIED IN OTHER PLANNING EFFORTS", "RECOMMENDED CONSERVATION ACTIONS", and "PARTNER CONSERVATION EFFORTS". The footer includes the Oregon Conservation Strategy logo.

Address [www.oregonconservationstrategy.org](http://www.oregonconservationstrategy.org) Go Links

MAP

CONSERVE

BM-09. BEAR VALLEY

MY

OVERVIEW

KEY CONSERVATION ISSUES

ECOREGIONS

CONSERVATION OPPORTUNITY AREAS

STRATEGY HABITATS

STRATEGY SPECIES

MONITORING

CONSERVATION TOOLBOX

CONCLUSIONS

OREGON NEARSHORE STRATEGY

OREGON the OREGON CONSERVATION STRATEGY

BM-09. BEAR VALLEY

SPECIAL FEATURES

STRATEGY HABITATS

STRATEGY SPECIES

IDENTIFIED IN OTHER PLANNING EFFORTS

RECOMMENDED CONSERVATION ACTIONS

PARTNER CONSERVATION EFFORTS

**BM-09. BEAR VALLEY**

Located south of John Day, along the Silves River. The area encompasses the wetlands and riparian habitat in the valley.

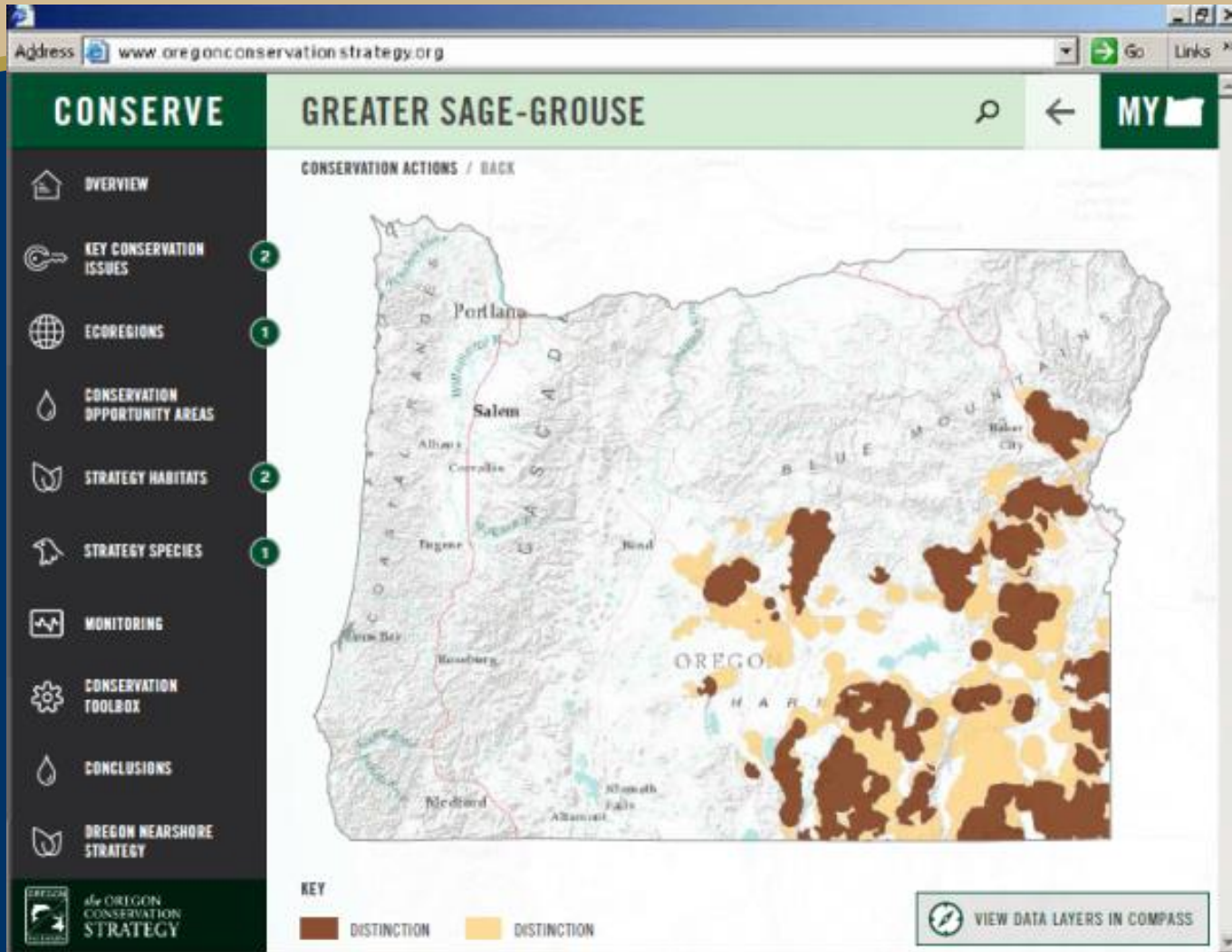
**SPECIAL FEATURES**

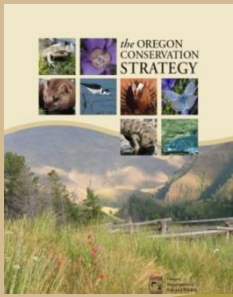
- Ecosystem management is already being employed here by some private land owners [Oregon Biodiversity Project website].
- Large wetland complex is keystone of Silves River headwaters system, with major influence on downstream flows and water quality.
- This area provides significant percentage of the ecoregion's habitat for the upland sandpiper and bobolink.
- Area contains 26% of the ecoregion's wetlands and wet meadows habitat and a large percentage of its riparian habitat
- There were 23 recorded nesting pairs of sandhill cranes here in 1999-2000.

# Online Format: Search function

The screenshot displays a web browser window at [www.oregonconservationstrategy.org](http://www.oregonconservationstrategy.org). The page is titled "GREATER SAGE-GROUSE" and features a search bar with a magnifying glass icon and a "MY" profile icon. The left sidebar contains a navigation menu with the following items: OVERVIEW, KEY CONSERVATION ISSUES (with a '2' badge), ECOREGIONS (with a '1' badge), CONSERVATION OPPORTUNITY AREAS, STRATEGY HABITATS (with a '2' badge), STRATEGY SPECIES (with a '1' badge), MONITORING, CONSERVATION TOOLBOX, CONCLUSIONS, and OREGON NEARSHORE STRATEGY. The main content area shows the scientific name *CENTROCERCUS UROPHASIANUS* and a photograph of a Greater Sage-Grouse. Below the photo, the "SPECIAL NEEDS" section states: "Require large areas of contiguous sagebrush habitat including a mosaic of conditions; wet meadows and playas during brood rearing, especially areas with native forbs." The "LIMITING FACTORS" section lists: "Population declines and local extirpations; disjunct populations; habitat loss and fragmentation; juniper expansion into sagebrush; impact on sagebrush of increased fire frequency and intensity because of invasive annual plants; dependence on specific conditions for suitable lek sites; human disturbance at lek sites." The "CONSERVATION ACTIONS" section is partially visible at the bottom. The right sidebar contains a list of links: LIFE HISTORY TRAITS, KEY CONSERVATION ISSUES AND OTHER THREATS, ECOREGION(S), SPECIAL NEEDS (highlighted), LIMITING FACTORS, DATA GAPS (with a hamburger menu icon), CONSERVATION ACTIONS (with a hamburger menu icon), ADDITIONAL REVIEWER COMMENTS?, KEY PLANS OR REFERENCES (with a hamburger menu icon), ADDITIONAL LIT., and COLUMN 1.

# Online Format: Link to Compass





# Public Involvement: Summary



- Partner Notification Letter (July 2014)
- ODFW Reviewers (2014 – August 2015)
- External Technical Reviewers (2014 – August 2015)
- Stakeholder Advisory Committee (April – July 2015)
- Online public review of updated content (June – July 2015)
- Upcoming web application testing:
  - Committee members and ODFW to “alpha – test”
  - “Beta” release ~ October 2015
  - Full public release upon USFWS approval

# Oregon Nearshore Strategy



Marine component of the  
Oregon  
Conservation Strategy

# Overview of Public Involvement

Notified key partners and stakeholders (July and Sept 2014)

Web Outreach Seeking Public Input (Sept 2014 – Present)

- ODFW Marine Resources Program Home Page
- Oregon Nearshore Strategy Page

Technical Advisory Committee (April – June 2015)

Public and Stakeholder Review & Input (June – July 2015)

- Public Review Draft Available Online: June 19 – July 20
- Public meetings: Newport July 7 and North Bend 9, 2015

Commission Meetings: January, April, August, September 2015

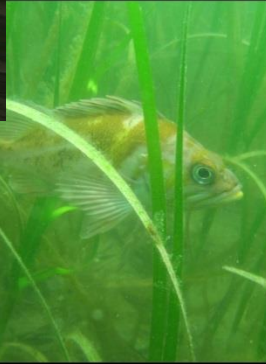
# Summary of Changes

- The term “Nearshore” was expanded to include all of Oregon’s Territorial Sea, shoreline areas in the supratidal zone, and portions of Oregon’s estuaries
- Human dimensions coastal communities information updated
- New and updated information incorporated & content was reorganized to make it easier to find information on:
  - Species
  - Habitats
  - Factors affecting species and habitats
  - Research and monitoring needs

# 2006 Species

## Strategy Species:

- 53 species
  - 34 Fishes
  - 10 Invertebrates
  - 6 Marine Mammals
  - 3 Algae and Plants



# 2015 Species

## Strategy Species:

- 73 species
- 39 Fishes
- 14 Invertebrates
- 10 Birds
- 6 Marine Mammals
- 4 Algae and Plants

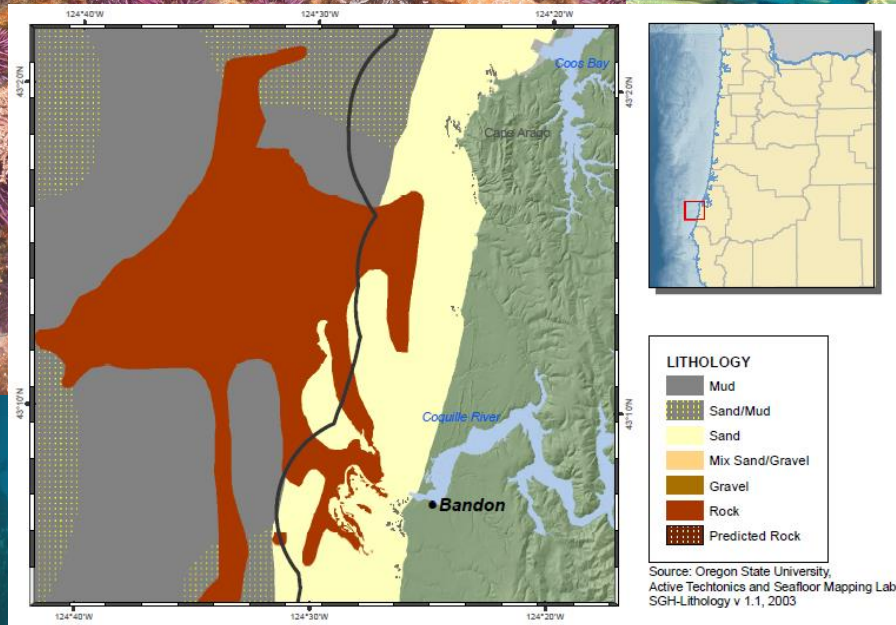


# Habitats

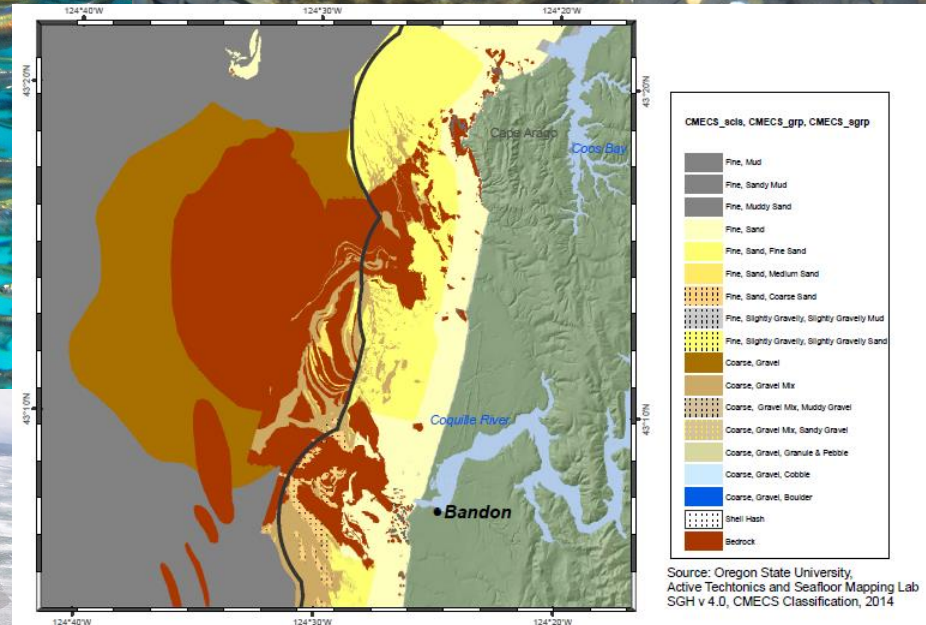


# Habitats

2006 Cape Arago Substrate Map



2015 Cape Arago Substrate Map



# Factors Affecting Species and Habitats



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FACT SHEET

## Climate Change and Oregon's Nearshore Open Water

## TECHNICAL SUPPLEMENT

The Oregon Conservation Strategy:  
Potential Impacts of Global Climate  
Change in Oregon's Nearshore Ocean

### Introduction

Global atmospheric concentrations of carbon dioxide, the dominant greenhouse gas, have increased markedly since 1750 and now far exceed pre-industrial values<sup>1</sup>. The Intergovernmental Panel on Climate Change, an international working group of several thousand scientists, found that the Earth's climate is warming as a result of this increase in carbon dioxide concentrations<sup>1</sup>. The rapid increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global sea levels observed over the last century are evidence of these climatic changes<sup>1</sup>. A large portion of the carbon dioxide in the Earth's atmosphere is absorbed by the world's oceans<sup>2,3</sup>. Oceanic absorption of carbon dioxide temporarily slows atmospheric accumulation and its effect on climate<sup>4</sup>. This uptake of carbon dioxide changes the chemical equilibrium of seawater, making the oceans more acidic<sup>1</sup>. Evidence from all continents and almost all oceans show that many natural ecosystems are being affected by these impacts of increased carbon dioxide concentrations<sup>1</sup>.

Impacts on the marine environment include, but are not limited to, increasing ocean temperatures, sea level rise, changing circulation and weather patterns, and changes in ocean chemistry<sup>5</sup>. Due to the complexity of the ocean and the relative scarcity of long-term or large-scale studies, the specific processes through which a changing climate will impact Oregon's nearshore are not entirely clear<sup>6</sup>. Scaling global climate change impacts to a local level can be problematic. Directly attributing changes observed

locally to increased global carbon dioxide concentrations may be difficult<sup>2</sup>. Nevertheless, the significance of these potential impacts, especially along the dynamic Oregon coast<sup>6</sup>, provides focus for scientific research efforts to document their effects.

### Managing for a Changing Marine Environment

Sustainable resource management in a rapidly changing climate requires proactive planning for mitigation and adaptation at multiple scales. Physical and chemical changes are occurring in all habitats<sup>7</sup> and will affect local fish and wildlife resources<sup>7</sup> managed by the State of Oregon. Given that climate change is a complex and controversial issue, federally approved state wildlife action plans are useful platforms to guide statewide and regional planning efforts<sup>8</sup>. The Oregon Conservation Strategy<sup>9</sup> and its marine component the Oregon Nearshore Strategy<sup>10</sup> form the blueprint for the conservation of Oregon's fish, wildlife, and their habitats.

The Oregon Nearshore Strategy focuses on species and habitats in Oregon's nearshore marine environment<sup>10</sup>. Preparing for these impacts of a changing climate on Oregon's ecosystems is imperative<sup>11</sup>. Scientific information is available to guide initial planning efforts. This document, as a technical supplement to the Oregon Nearshore Strategy, synthesizes relevant information on Oregon's changing ocean. This information is intended to:

- Provide insight into potential impacts of a changing marine environment on Oregon's nearshore marine habitats and species;
- Guide future investigations and monitoring efforts in Oregon's nearshore environment; and
- Provide information and guidance for future refinement of the Oregon Nearshore Strategy.



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FACT SHEET

## Climate Change and Oregon's Intertidal Habitats



# Factors Affecting Species and Habitats



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FACT SHEET

## Climate Change and Oregon's Nearshore Open Water

Oregon Nearshore Strategy - Draft Final for Commission - September 2015 (last updated 8/12/15)

### APPENDIX G: Non-Native Species

Non-native and invasive species can alter and degrade habitats, increase threats to native species, and in some cases impact local economies or cause extensive problems for marine coastal systems of Oregon. Non-native species can be transported locally, regionally, or around the world and introduced to Oregon's nearshore systems by way of several mechanisms such as, hitch-hiking in ballast water or in ocean currents. Once a species has been introduced it can affect food sources, alter habitats, expose native communities to diseases or toxins, or act as parasites of juvenile and adult members of coastal fisheries species. For many introduced species, the severity of the potential ecological threat is not yet known. Many of these species could be deemed invasive in the future, but further efforts to assess impacts are needed. These efforts are a priority for conservation of natural systems because invasions become more complicated to address over time and management measures that respond to the first arriving individuals are most effective.

Efforts have begun to assess available data regarding existing or potential future threats to Oregon's nearshore and estuarine communities. The Oregon Department of Fish and Wildlife's Marine Resources Program reviewed available online data and consulted with experts at Oregon State University, the Environmental Protection Agency Western Ecology Division, United States Geological Survey Western Fisheries Research Center, and Williams College in 2012 and updated this information in 2015. Based on information gleaned from these sources, a list of non-native species known to occur in the nearshore waters of Oregon and neighboring states was developed. For each species, habitat information was collected and species were identified as being primarily associated with nearshore marine and/or estuarine systems.

Non-Native Species

	Nearshore*	Estuarine**	1: Off Invasive*	2: Off Non-native*	3: WA or CA Invasive (not known in OR)†
<b>Bony Fishes</b>					
American shad	X		X		
<i>Alosa sapidissima</i>					
Amur goby	X	X		X	
<i>Rhinogobius brunneus</i>					
Atlantic salmon	X				X
<i>Salmo salar</i>					
Brown trout	X				X
<i>Salmo trutta</i>					
Chameleon goby		X			X
<i>Tridentiger trigonocephalus</i>			X		X
Inland silverside		X			X
<i>Menidia beryllina</i>					
Rainwater killifish		X		X	
<i>Lucania parva</i>					
Shimofuri goby		X			X
<i>Tridentiger bifasciatus</i>			X		X
Shokfaze goby					X
<i>Tridentiger barbatus</i>					
Striped bass	X		X		
<i>Morone saxatilis</i>					
Threadfin shad	X			X	
<i>Dorosoma petenense</i>					



the OREGON  
CONSERVATION  
STRATEGY

FACT SHEET

## Change and Oregon's Tertidal Habitats



# Summary of Changes

- Better integration of the Oregon Nearshore Strategy and the Oregon Conservation Strategy
  - Integrated Strategy Species list
  - Nearshore Ecoregion in the Oregon Conservation Strategy
  - Work is underway to web enable the Strategy documents
- Updated Recommendations:
  - Education and Outreach
  - Research and Monitoring
  - Management and Policy

# Education and Outreach

- 1) General Public, Stakeholder and Advisory Group Engagement
- 2) Nearshore Resources Outreach Information, Access and Awareness
- 3) Communications Partnerships

# Research and Monitoring

- 4) Ecosystem Response to Climate Change
- 5) Ecosystem Characterization – Species and Habitats
- 6) Fishery Independent Surveys
- 7) Nearshore Species Stock Assessments
- 8) Human Dimensions Research and Monitoring
- 9) Marine Mammals-Fisheries Interactions

# Management and Policy

- 10) Management Response to Climate Change
- 11) Marine Fishery Management Plans
- 12) Marine Planning

# Questions?

