

# Special Status Species Project

## Funding:

- Grant from the Packard Foundation to fund a SIMoN project on Threatened and Endangered species in the MBNMS

## Project Objectives:

- The SIMoN Science Committee and MBNMS staff identified a need for information on:
  - A comprehensive list of special status species that occur in, transit through or otherwise use resources in the MBNMS
  - The ecology, populations status, and recent management actions/needs for the special status species in the MBNMS.

# Special Status Species project

New section of the SIMoN website

Purpose of project:

- Identify “special status” species in the MBNMS
  - Endangered, Threatened
  - Species of Concern
- Provide listing status of those species
- For selected species, provide in-depth information on:
  - biology
  - on-going research and gaps
  - current management efforts
  - web-based resources, etc.

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Monterey Bay National Marine Sanctuary

Home: Special status species

## SPECIAL STATUS SPECIES



The populations of some species - such as krill and jellies - are thriving in Monterey Bay National Marine Sanctuary. However, other species have population sizes that are reduced or declining. Reduced or declining populations may be the result of human exploitation, habitat degradation, disease, environmental change or a combination of these factors. The Monterey Bay National Marine Sanctuary (Sanctuary), through its research, education, and resource management programs, has the ability to improve the status of species with reduced or declining populations. As a necessary first step, the Sanctuary identified the species of special status based on listings by other state, federal, and international agencies and organizations. This information will be used to determine which management actions the Sanctuary can implement to support the recovery of each species. SIMoN staff compiled this information as part of the "Special Status Species Project".

The first phase of this project involved compiling a list of all the species occurring in Sanctuary waters that are designated by a variety of resource management agencies and conservation groups as having special status. For example, species that have been designated as Endangered or Threatened under the federal and state Endangered Species Acts, or species that have been added to the watch lists of organizations such as Audubon Society or the World Conservation Union. The tables below provide a list of special status species in the Sanctuary as well as information about which agencies and organizations have included the species (or the local population/stock) on their watch lists. If you would like to know more about the listing agencies and terms used, click on the "?" symbols in the table.

A second, on-going phase of this project involves creating status reports for each species. A species status report covers a variety of topics including geographic range, abundance, migration patterns, threats, current research projects, conservation efforts and management actions the Sanctuary can implement to improve species recovery. The recommended actions may include supporting additional research projects to fill knowledge gaps or providing education outreach programs with information to increase public awareness of at risk populations and the habitats they utilize. All the material compiled for this project, including status reports, links to maps, photos, videos, and educational materials, are available by clicking on the species names in the table below. Status reports are continually being added to this site, so please check back periodically.

# Special Status Species project: How do you find it?

Go to the SIMoN  
home page:

<http://www.mbnms-simon.org/>

The screenshot shows the SIMoN website interface. At the top left is the logo for SIMoN (Sanctuary Integrated Monitoring Network). To the right are navigation links for 'About SIMoN', 'Interactive Maps', and 'Weather & Tides', along with a search bar. A central banner features a bathymetric map of the Monterey Bay National Marine Sanctuary. On the left side, there is a vertical menu with categories such as 'ROCKY SHORES', 'KELP FORESTS', 'BEACHES', 'SANDY FLOOR', 'ESTUARIES', 'SEAMOUNTS', 'SUBMARINE CANYONS', 'DEEP SEA', 'OPEN OCEAN', 'GEOLOGY', 'OCEANOGRAPHY', 'WATER QUALITY', 'FISHERIES', 'SEABIRDS & SHOREBIRDS', and 'MARINE MAMMALS'. Below this menu is a 'MORE LINKS' section with a dropdown menu. On the right side, there is a text block describing SIMoN as an integrated, long-term program. Below this is a 'WHAT'S NEW IN THE SANCTUARY' section with three items: 'Special Status Species section now live on SIMoN', 'New R/V Fulmar information page', and 'First map of ocean observing stations in the CeNCOOS region'. The footer contains the NOAA logo, the date 'Page last modified: March 06, 2007', and links for 'Privacy Policy', 'Contact SIMoN', 'Send Comments', 'MBNMS Home Page', and 'Research Permits'. The URL 'http://www.mbnms-simon.org' is also provided.

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Monterey Bay National Marine Sanctuary

ROCKY SHORES  
KELP FORESTS  
BEACHES  
SANDY FLOOR  
ESTUARIES  
SEAMOUNTS  
SUBMARINE CANYONS  
DEEP SEA  
OPEN OCEAN  
GEOLOGY  
OCEANOGRAPHY  
WATER QUALITY  
FISHERIES  
SEABIRDS & SHOREBIRDS  
MARINE MAMMALS

MORE LINKS  
- Select a topic -

SIMoN is an integrated, long-term program that takes an ecosystem approach to identify and understand changes to the Monterey Bay National Marine Sanctuary.... [More](#)

WHAT'S NEW IN THE SANCTUARY

-  Special Status Species section now live on SIMoN. [More...](#)
-  New R/V *Fulmar* information page. [More...](#)
-  First map of ocean observing stations in the CeNCOOS region. [More...](#)

Page last modified: March 06, 2007  
[Privacy Policy](#) | [Contact SIMoN](#) | [Send Comments](#)  
[MBNMS Home Page](#) | [Research Permits](#)  
URL: <http://www.mbnms-simon.org>

# Special Status Species project: How do you find it?

Go to the SIMoN home page:

<http://www.mbnms-simon.org/>

Pull down the “More Links” menu

Select “Special Status Species”



The screenshot shows the SIMoN (Sanctuary Integrated Monitoring Network) website for the Monterey Bay National Marine Sanctuary. The page features a blue header with the SIMoN logo and navigation links: "About SIMoN", "Interactive Maps", and "Weather & Tides". A search bar is located in the top right corner. The main content area is divided into a left sidebar menu, a central map, and a right sidebar with "WHAT'S NEW IN THE SANCTUARY" section. The sidebar menu lists various topics: ROCKY SHORES, KELP FORESTS, BEACHES, SANDY FLOOR, ESTUARIES, SEAMOUNTS, SUBMARINE CANYONS, DEEP SEA, OPEN OCEAN, GEOLOGY, OCEANOGRAPHY, WATER QUALITY, FISHERIES, SEABIRDS & SHOREBIRDS, MARINE MAMMALS, and MORE LINKS. The "MORE LINKS" dropdown menu is open, showing a list of options: "Select a topic -", "Photo Database", "Special Status Species" (highlighted in blue), "SIMoN Says", "Sanctuary Info", "Ocean Observatories", "R/V Fulmar", "Network Partners", "Search SIMoN", "What's New", "Threatened Species", "Sporadic Events", and "Invasive Species". The "WHAT'S NEW" section includes three items: "Special Status Species section now live on SIMoN.", "New R/V Fulmar information page.", and "First map of ocean observing stations in the CenCOOS region." The footer contains the NOAA logo, a "Page last modified: March 06, 2007" notice, and links for "Privacy Policy", "Contact SIMoN", "Send Comments", "MBNMS Home Page", and "Research Permits". The URL is given as "http://www.mbnms-simon.org".

# Special Status Species project: Home Page

Home page contains:

- Brief overview of the project

The screenshot shows the SIMoN (Sanctuary Integrated Monitoring Network) website. The header includes the SIMoN logo, navigation links for 'About SIMoN', 'Interactive Maps', and 'Weather & Tides', and a search bar. A left sidebar lists various habitat types such as 'ROCKY SHORES', 'KELP FORESTS', 'BEACHES', 'SANDY FLOOR', 'ESTUARIES', 'SEAMOUNTS', 'SUBMARINE CANYONS', 'DEEP SEA', 'OPEN OCEAN', 'GEOLOGY', 'OCEANOGRAPHY', 'WATER QUALITY', 'FISHERIES', 'SEABIRDS & SHOREBIRDS', and 'MARINE MAMMALS'. Below these is a 'MORE LINKS' section with a dropdown menu set to '- Select a topic -'. The main content area is titled 'Monterey Bay National Marine Sanctuary' and features a 'Home: Special status species' link. The page title is 'SPECIAL STATUS SPECIES'. It includes a photograph of a seal on a beach. The text explains that some species like krill and jellies are thriving, while others are declining due to human exploitation, habitat degradation, disease, and environmental change. The Monterey Bay National Marine Sanctuary uses its research, education, and resource management programs to improve the status of these species. The project's first phase involved compiling a list of all species in the Sanctuary with special status, including those designated as Endangered or Threatened under federal and state laws, or those on watch lists of organizations like Audubon Society or the World Conservation Union. The second phase involves creating status reports for each species, covering geographic range, abundance, migration patterns, threats, and management actions.


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## SPECIAL STATUS SPECIES



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The first phase of this project involved compiling a list of all the species occurring in Sanctuary waters that are designated by a variety of resource management agencies and conservation groups as having special status. For example, species that have been designated as Endangered or Threatened under the federal and state Endangered Species Acts, or species that have been added to the watch lists of organizations such as Audubon Society or the World Conservation Union. The tables below provide a list of special status species in the Sanctuary as well as information about which agencies and organizations have included the species (or the local population/stock) on their watch lists. If you would like to know more about the listing agencies and terms used, click on the "?" symbols in the table.

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**Jump To**

Birds    Reptiles    Fishes    Invertebrates    Plants

# Special Status Species project: Home Page

Home page contains:

- Brief overview of the project
- Tables providing listing status of all “Special Status Species” in the MBNMS
- Tables are provided by taxonomic groups
  - Mammals

Jump To						
<a href="#">Birds</a>	<a href="#">Reptiles</a>	<a href="#">Fishes</a>	<a href="#">Invertebrates</a>	<a href="#">Plants</a>		
Marine Mammals						
Organism	Federal		State	NGO	International	
	ESA (?)	MMPA (?)	CESA; DFG (?)	IUCN (?)	CITES (?)	CMS (?)
<b>Sei whale</b> <i>Balaenoptera borealis</i> (E. North Pacific stock)	Endangered	Depleted; Strategic	--	Endangered (world- wide)	App.I	App.I, App.II
<b>Blue whale</b> <i>Balaenoptera musculus</i> (Eastern N. Pacific stock)	Endangered	Depleted; Strategic	--	Lower Risk	App.I	App.I
<b>Fin whale</b> <i>Balaenoptera physalus</i> (CA-OR-WA stock)	Endangered	Depleted; Strategic	--	Endangered (world- wide)	App.I	App.I, App.II
<b>Humpback whale</b> <i>Megaptera novaeangliae</i> (Eastern N. Pacific stock)	Endangered	Depleted; Strategic	--	Vulnerable (world- wide)	App.I	App.I
<b>Gray whale</b> <i>Eschrichtius robustus</i> (Eastern N. Pacific stock)	Delisted (06-15-94)	Non- strategic	--	Lower Risk	App.I	--
<b>North Pacific right whale</b> <i>Eubalaena japonica</i>	Endangered	Depleted; Strategic	Fully Protected	Endangered	App.I	App.II

# Special Status Species project: Home Page

Home page contains:

- Brief overview of the project
- Tables providing listing status of all “Special Status Species” in the MBNMS
- Tables are provided by taxonomic groups
  - Mammals
  - Seabirds and Shorebirds

Seabirds and Shorebirds						
	Federal	State	NGO		International	
Organism	ESA; FWS (?)	CESA; CDFG; CDF (?)	IUCN (?)	Audubon WatchList (?)	CITES (?)	CMS (?)
<b>Common Loon</b> <i>Gavia immer</i>	--	Spp. Special Concern	--	--	--	--
<b>Short-Tailed Albatross</b> <i>Phoebastria albatrus</i>	Endangered	Spp. Special Concern	Vulnerable	Red	App.I	App.I
<b>Laysan Albatross</b> <i>Phoebastria immutabilis</i>	--	--	Vulnerable	Yellow	--	App.II
<b>Black-Footed Albatross</b> <i>Phoebastria nigripes</i>	BCC	--	Endangered	Red	--	App.II
<b>Buller's Shearwater</b> <i>Puffinus bulleri</i>	--	--	Vulnerable	Yellow	--	--
<b>Pink-footed Shearwater</b> <i>Puffinus creatopus</i>	--	--	Vulnerable	Red	--	App.I
<b>Black-Vented Shearwater</b> <i>Puffinus</i>	--	--	Near Threatened	Red	--	--

# Special Status Species project: Home Page

Home page contains:

- Brief overview of the project
- Tables providing listing status of all “Special Status Species” in the MBNMS
  - Mammals
  - Birds
  - Reptiles
  - Fishes

Reptiles					
	Federal	State	NGO		International
Organism	ESA (?)	CESA (?)	IUCN (?)	CITES (?)	CMS (?)
<b>Leatherback sea turtle</b> <i>Dermochelys coriacea</i>	Endangered	--	Critically Endangered	App.I	App.I
<a href="#">Top of Page</a>					
Fishes					
	Federal	State	NGO		International
Organism	ESA; NMFS (?)	CESA; CDFG (?)	IUCN (?)	AFS (?)	CITES (?) CMS (?)
<b>Coho salmon</b> <i>Oncorhynchus kisutch</i> (Central California Coast ESU)	Endangered	Endangered; No Take	--	--	-- --
<b>Steelhead</b> <i>Oncorhynchus mykiss irideus</i> (Central California Coast DPS)	Threatened	No Take (sport)	--	--	-- --
<b>Steelhead</b> <i>Oncorhynchus mykiss irideus</i> (South Central California Coast DPS)	Threatened	No Take (sport)	--	--	-- --



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- Brief overview of the project
- Tables providing listing status of all “Special Status Species” in the MBNMS
- Tables are provided by taxonomic groups
  - Mammals
  - Birds
  - Reptiles
  - Fishes
  - [Invertebrates](#)
  - [Plants](#)

Invertebrates				
	Federal	State		International
Organism	ESA (?)	CESA (?)	CDFG	IUCN (?)
<b>Black abalone</b> <i>Haliotis cracherodii</i>	Spp. Concern	--	No Take	Critically Endangered
<b>Pinto abalone</b> <i>Haliotis kamtschatkana</i>	Spp. Concern	--	No Take	--
<b>Red abalone</b> <i>Haliotis rufescens</i>	--	--	No Take/ Limited Take (3) <sup>^</sup>	--
<b>California brackishwater snail*</b> <i>Tryonia imitator</i>	--	--	--	Data Deficient
<b>Olympia oyster*</b> <i>Ostrea lurida/conchaphila</i>	--	--	--	--

\*A species of concern for the Elkhorn Slough National Estuarine Research Reserve due to low or declining abundance in Elkhorn Slough (Kerstin Wasson, ESNERR, pers. comm.)

<sup>^</sup> No take south of the mouth of San Francisco Bay; north of the mouth of San Francisco Bay, take of up to 3 red abalone per person per day is allowed during a restricted time period (e.g., April 1 to June 30, 2005).

[Top of Page](#)

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- Tables are provided by taxonomic groups
  - Mammals
  - Birds
  - Reptiles
  - Fishes
  - Invertebrates
  - Plants
- Use “Jump To” menu to navigate to tables

Jump To						
<a href="#">Birds</a>	<a href="#">Reptiles</a>	<a href="#">Fishes</a>	<a href="#">Invertebrates</a>	<a href="#">Plants</a>		
<b>Marine Mammals</b>						
	Federal		State	NGO	International	
Organism	ESA (?)	MMPA (?)	CESA; DFG (?)	IUCN (?)	CITES (?)	CMS (?)
<a href="#">Sei whale</a> <i>Balaenoptera borealis</i> (E. North Pacific stock)	Endangered	Depleted; Strategic	--	Endangered (world-wide)	App.I	App.I, App.II
<a href="#">Blue whale</a> <i>Balaenoptera musculus musculus</i> (Eastern N. Pacific stock)	Endangered	Depleted; Strategic	--	Lower Risk	App.I	App.I
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<a href="#">North Pacific right whale</a> <i>Eubalaena japonica</i>	Endangered	Depleted; Strategic	Fully Protected	Endangered	App.I	App.II

# Special Status Species project: Home Page

Click on the '?' symbol after listing terms to access

Jump To						
<a href="#">Birds</a>	<a href="#">Reptiles</a>	<a href="#">Fishes</a>	<a href="#">Invertebrates</a>	<a href="#">Plants</a>		
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Organism	Federal	State	NGO	International		
	<a href="#">ESA (?)</a>	<a href="#">MMPA (?)</a>	<a href="#">CESA; DFG (?)</a>	<a href="#">IUCN (?)</a>	<a href="#">CITES (?)</a>	<a href="#">CMS (?)</a>
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# Special Status Species project: Home Page

Click on the '?' symbol after listing terms to access

- Descriptions of listing organizations and/or legislation
  - ESA
  - MMPA
  - IUCN

## Federal Listings

### ESA: Endangered Species Act of 1973

The ESA provides for the conservation of species that are in danger of endangerment or extinction throughout all or a significant portion of their range and the conservation of the ecosystems on which they depend. A species must be listed if it is threatened or endangered due to any of the following five factors:

- present or threatened destruction, modification, or curtailment of its habitat or range;
- over-utilization for commercial, recreational, scientific, or educational purposes;
- disease or predation;
- inadequacy of existing regulatory mechanisms; and
- other natural or man-made factors affecting its continued existence.

The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) share the responsibility for implementation of the Endangered Species Act of 1973. The FWS implements programs and regulations for terrestrial and freshwater species. The NMFS Office of Protected Resources (OPR) is charged with the implementation of the ESA for marine and anadromous species.

All Federal agencies are required to undertake programs for the conservation of endangered and threatened species, and are prohibited from authorizing, funding, or carrying out any action that jeopardizes a listed species or destroys or modifies its "critical habitat". Critical habitat is defined as specific areas that are essential to the conservation of a Federally listed species, and which may require special management considerations or protection. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve or other conservation area. It does not allow government or public access to private lands. The ESA requires that critical habitat is designated concurrently with the listing of a species, when prudent, and economic and other impacts of designation were required to be considered in deciding on boundaries.

Section 4(f) of the ESA requires that FWS or NMFS develop and implement plans for the conservation and survival of endangered and threatened species. These [Recovery Plans] are documents prepared for listed species that detail the specific tasks needed for recovery and provide a blueprint for private, Federal, and State cooperation in the conservation of threatened and endangered species and their ecosystems. In addition, the ESA requires that FWS or NMFS conducts a review of listed species at least once every 5 years to determine whether species should be removed from the list (delisted) or reclassified (from endangered to threatened or threatened to endangered).

The entire text of the Endangered Species Act of 1973 is available at: <http://www.fws.gov/endangered/ESA/ESA.html>. More information about the FWS Endangered Species Program is available at <http://www.fws.gov/endangered/>. More information about the NMFS Endangered Species Program is available at: <http://www.nmfs.noaa.gov/pr/laws/esa/>.

### ESA Listing Codes:

**Endangered:** The classification provided to an animal or plant in danger of extinction within the foreseeable future throughout all or a significant portion of its range.

# Special Status Species project: Home Page

Click on the '?' symbol  
after listing terms to  
access

- Descriptions of listing organizations and/or legislation
- Definitions of listing terms and categories
  - Endangered
  - Vulnerable
  - Threatened
  - Species of Concern

## IUCN: The World Conservation Union

### Red List of Threatened Species

The World Conservation Union (formerly the International Union for the Conservation of Nature) is the world's largest conservation organization with government and NGO members from over 140 countries. The IUCN advises and assists governments, NGOs and scientific institutions in developing and implementing conservation strategies. The Species Survival Commission, one of six global commissions within IUCN, has been publishing the "Red List of Threatened Species" for over 30 years. The Red List contains a roster of species that have been assessed against strict criteria designed to determine their relative risk of extinction. The main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction. More information can be found on the IUCN Red List website: <http://www.redlist.org/>.

The IUCN Red List Categories and Criteria have several specific aims:

- to provide a system that can be applied consistently by different people;
- to improve objectivity by providing users with clear guidance on how to evaluate different factors which affect the risk of extinction;
- to provide a system which will facilitate comparisons across widely different taxa;
- to give people using threatened species lists a better understanding of how individual species were classified.

### The categories

**Critically Endangered:** A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

**Endangered:** A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

**Vulnerable:** A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future.

**Near Threatened:** A taxon is Near Threatened when it does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.

**Lower Risk:** A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

**conservation dependent:** Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation program targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.

**near threatened:** Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.

**Data Deficient:** A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status.

# Special Status Species project: Home Page

Home page contains:

- [Links to in-depth species summaries](#)
- Click on common name that are [hyperlinks](#)
- Example: Blue Whale

Jump To						
<a href="#">Birds</a>	<a href="#">Reptiles</a>	<a href="#">Fishes</a>	<a href="#">Invertebrates</a>	<a href="#">Plants</a>		
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# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

Each species page will contain:

- Common Name
- Scientific Name
- Stock that occurs in the MBNMS
- Photo
- “Jump To” menu to navigate to all the sub-sections
- Summary of Listing Status
  - Similar to the listing status tables, but contains additional information

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Monterey Bay National Marine Sanctuary

Home: [Special status species: Blue whale](#)

**SPECIAL STATUS SPECIES: BLUE WHALE (*BALAENOPTERA MUSCULUS*)**

**Common name: Blue Whale**  
**Scientific name: *Balaenoptera musculus***  
**Stock: Eastern North Pacific**

Photo: Protected Resources Division, Southwest Fisheries Science Center. <http://swfsc.nmfs.noaa.gov/PRD/>.

**Jump To**

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**Listing Status**

**Endangered Species Act (2)**

Status: Endangered (all stocks)  
Critical Habitat: Not designated  
Recovery Plan: Released in 1998<sup>1</sup>  
Five Year Status Review: None

---

**California Endangered Species Act (2)**

Status: Not listed

# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

Each species page will contain:

- **Geographic Range**

Most sub-sections have a

- “General” description
- “MBNMS” description

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### Geographic Range

**General:** Blue whales are widely distributed from subtropical to polar latitudes in the Pacific, Atlantic and Southern Oceans (Figure 1). In the north Pacific, the International Whaling Commission (IWC) considers there to be only one management stock. However, the National Marine Fisheries Services (NMFS) considers there to be multiple management stocks in the north Pacific, though the total number of stocks and the geographic range of each stock is still not clearly understood.<sup>2</sup> The Eastern North Pacific stock is one of the most well studied stocks of blue whale. Members of this stock have been sighted between southern California and Gulf of Alaska in summer/fall<sup>3,4</sup> (Figure 2) and between Mexico and Panama in the winter/spring.<sup>5</sup>

**MBNMS:** Blue whales are regularly sighted throughout the Monterey Bay National Marine Sanctuary<sup>6</sup> (Figure 3).

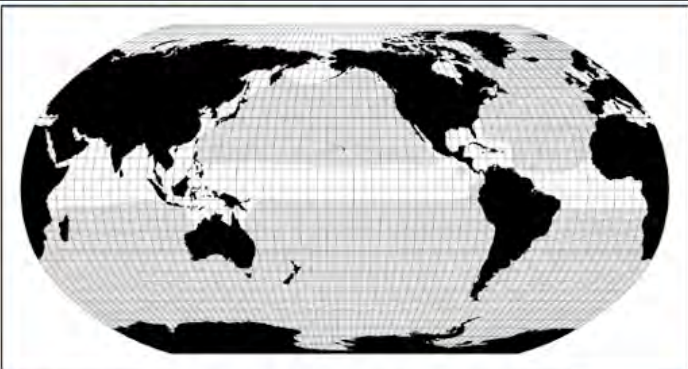
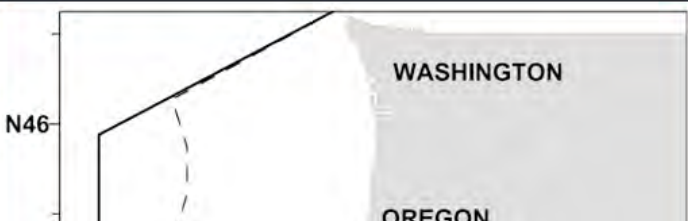


Figure 1. World-wide distribution of all blue whale species<sup>27</sup>.  
[Download full-size figure \(460 KB PDF\).](#)



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# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

Each species page will contain:

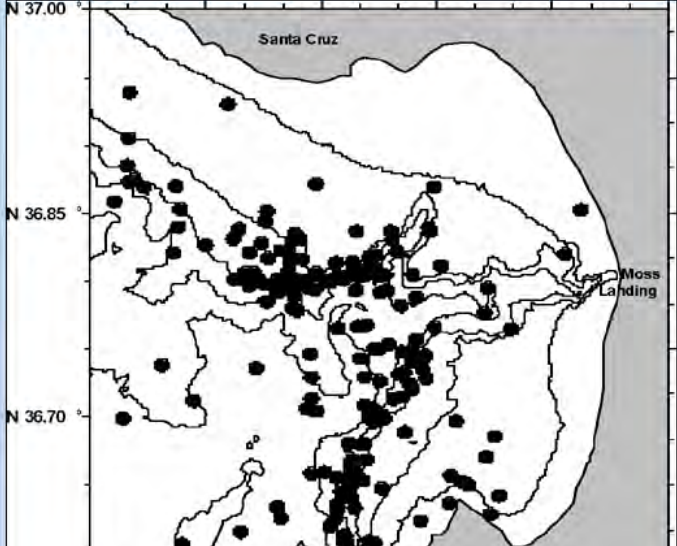
- Geographic Range
- **Habitat**

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### Habitat

**General:** This species is commonly found in waters associated with the continental shelf break and in deeper offshore waters associated with temperature and productivity fronts. Large concentrations of blue whales are often found at the continental shelf break in areas downstream from upwelling centers where euphausiid (krill) prey are concentrated into large schools.<sup>7</sup> Example of such locations include: the island shelf and shelf edge to the north and west of the Channel Islands (south of Point Conception); the shelf break region south off Point Sur; the edges of the Monterey Submarine Canyon; the shelf break region south of Point Año Nuevo; the Cordell Bank; and the broad shelf and shelf break in the Gulf of the Farallons<sup>8,9</sup> (Figure 3; Figure 4). Less is known about the physical characteristics of preferred offshore foraging habitat.

**MBNMS:** Although their occurrence and distribution is highly variable, they tend to be associated with the submarine canyon in Monterey Bay and just north of the MBNMS boundary.<sup>5</sup> Whales in the MBNMS have been observed feeding on euphausiid (krill) swarms in the deep scattering layer along the edges of the Monterey Bay Submarine Canyon (Figure 4) and other shelf-break edges in the MBNMS. They are also sighted feeding in daytime surface swarms.<sup>6</sup>



# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

Each species page will contain:

- Geographic Range
- Habitat
- [Migration and Movements](#)

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## Migration and Movements

**General:** Photographic identification efforts and satellite tagging studies have revealed extensive movements within and between feeding and breeding areas.<sup>3,5,10</sup> While blue whales can reach speeds of 32 to 36 km/hr, they most often cruise at 2 to 8 km/hr while feeding and traveling.<sup>8</sup> They tend to travel alone or in small groups.

Individuals that are sighted in foraging areas off central and southern California in the summer and fall have been sighted later in breeding areas off the west coast of Baja California, the Gulf of California, and Costa Rica Dome in the winter/spring.<sup>5</sup> Timing of arrival and departure from the different areas varies from year to year. The whales that summer off California also venture north to feed in the waters off Oregon, Washington, and British Columbia.<sup>3</sup> Recently, members of the NE Pacific stock were heard vocalizing and photo-identified in waters off Alaska.<sup>11</sup>

**MBNMS:** Most blue whale sightings in Monterey Bay occur from June through November.<sup>6</sup> During this time period there is considerable movement of individuals between the MBNMS and foraging areas to the south (e.g., Santa Barbara Channel, Channel Islands, and Southern California Bight) and to the north (e.g., Gulf of the Farallones, Bodega Bay, northern California, Oregon, Washington, British Columbia).<sup>3</sup> Some individuals sighted off central California have been re-sighted in Mexican waters in the spring.<sup>12</sup>

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## Abundance

**General:** All populations of blue whales were drastically reduced in size by commercial whaling. The North Pacific population was reduced from an estimated 4,900 prior to the onset of commercial whaling to less than 2,000 by 1966 when commercial harvest ceased.<sup>13</sup> The

# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

Each species page will contain:

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- **Abundance**

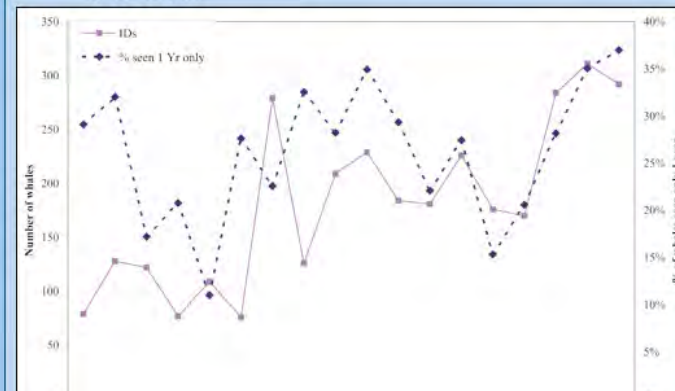
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## Abundance

**General:** All populations of blue whales were drastically reduced in size by commercial whaling. The North Pacific population was reduced from an estimated 4,900 prior to the onset of commercial whaling to less than 2,000 by 1966 when commercial harvest ceased.<sup>13</sup> The size of the Eastern North Pacific stock prior to exploitation is not known. Currently, it appears to be the only stock that is thriving. Recent line-transect surveys by NMFS have yielded estimates close to 3,000.<sup>14</sup> This number combines estimates for the U.S. west coast, British Columbia and Mexico, and includes adjustments for missed or unidentified whales.

Since 1986, Cascadia Research has been estimating population size for blue whales between southern California and British Columbia using sight-resight data collected from both inshore and offshore waters (Figure 5). The most recent estimate from the years 2000 to 2002 is 1,781 blue whales, which is not significantly different from the estimates made in 1991-93 and 1995-97 using similar procedures.<sup>3</sup> The blue whale population does not appear to have increased substantially over the last decade (Figure 5) suggesting that animals are leaving the study area or mortality is removing as many animals from the population as reproduction is adding.

**MBNMS:** Prior to the late 1970s blue whales were uncommon off central California including the MBNMS. Now this species is observed every year, though local abundance can vary substantially among years.<sup>15</sup> The apparent increase in blue whale abundance in central California may be caused by an increase in reproduction or by a re-distribution of the existing whale population, possibly in response to changing prey distributions or shifts in preferred prey type (offshore vs. neritic krill species).<sup>1,15</sup> The maximum percent of the NE Pacific stock that may be present in the MBNMS at any particular time is estimated to be  $\leq 5-10\%$ .<sup>4</sup>



# Special Status Species project: In-depth Species Summaries

Species Summaries are in a standardized format.

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  - Appearance
  - Feeding Behavior
  - Reproduction

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**SIMON**  
SANCTUARY  
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SEAMOUNTS  
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## SPECIAL STATUS SPECIES: BLUE WHALE (BALAENOPTERUS MUSCULUS) NATURAL HISTORY

**General**

**Taxonomy:** Suborder Mysticeti (Baleen Whales); Family Balaenopteridae. Three subspecies are currently accepted<sup>26</sup>: *B. m. musculus* in the North Pacific and North Atlantic.

**Appearance:** Blue whales are the largest animals on the earth, reaching approximately 100 feet, live in the open ocean. North Pacific adults can reach 27 m (89 ft) and 264,500 lb; females are larger than males.<sup>1</sup> They have a mottled, blue-gray color. The top of the head is marked by a splashguard in front of two blowholes. They have a deep groove along the throat to the belly. A very small dorsal fin is visible on the body.

**Feeding Behavior**

**Overview:** Feeds alone or in small groups, but groups do not form. Large loose aggregations may occur in prime foraging areas. Estimated to eat from 2-4 tons (1,800-3,600 kg) of krill per day. They may make short-duration vocalizations during foraging. Whales found that foraging dives averaged 140 minutes and the longest dive was approximately 200 m and the longest studies have recorded dives to 300 m.<sup>3</sup>

**Prey Items:** Feeds almost exclusively on krill; primarily on *Eurytemora affinis* and *Thysanoessa spinifera* off California, Oregon, and Washington, becoming part of the diet to the south.

**Method of Capture:** Feeds by lunging into swarms of krill and gulping them. Large volumes of water and food can be taken into the mouth. The throat expands. As the mouth closes, the baleen plates, which trap the food, contract and the food is swallowed.

**Reproduction**

**Overview:** Male blue whales make an intense long-duration, low frequency call. Although the function of the call has not been determined, speculation includes communication over long distances or male mating displays.

**Time to Maturity:** 5-15 years; females at a length of 21-23 m; males at a length of 20-21 m.<sup>18</sup>

**Longevity:** Probably to at least 70-80 years<sup>18</sup>

**Breeding Season:** Calving and mating occurs during the winter season<sup>1</sup>

**Frequency of Breeding:** Females usually give birth every 2-3 years<sup>1</sup>

**Gestation Period:** Approximately 10-12 months<sup>1</sup>

**Number of Offspring per Pregnancy:** One

**Parental Care:** Maternal; female nurses calf for 6-7 months<sup>1</sup>

**Mating System:** Very little is known; probably polygamous. Males may compete with other males for access to females.



Photo: Protected Resources Division, Southwest Fisheries Science Center, La Jolla, California.  
<http://swfsc.nmfs.noaa.gov/PRD/>

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# Special Status Species project: In-depth Species Summaries

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## Threats

**General: Acoustic disturbance:** There is concern about the potential negative impacts to marine mammals of a variety of acoustic disturbances (e.g., noise from ships, aircraft, research boats, and military and industrial activities).<sup>16</sup> Noise can cause direct physiological damage, mask communication, or disrupt important migration, feeding or breeding behaviors. Active-sonar, specifically low frequency (100-500 Hz) and mid-frequency (2.8-3.3 kHz) active sonar used in military activities by the U.S. and other nations, is one sound source of particular concern.<sup>16</sup> Croll and colleagues<sup>17</sup> did not observe an obvious response in blue whales when exposed to the US Navy's SURTASS LFA (Surveillance Towed Array Sensor System Low Frequency Active) sonar system for short time periods at reduced power settings.<sup>17</sup> However, the possibility of negative impacts over longer exposure periods could not be determined. The impact, if any, of noise from seismic testing for geological mapping and oil and gas exploration is unknown.

**Collisions with ships:** Off California between 1980 and 1993, ship strikes caused the deaths of at least four blue whales.<sup>2</sup> These numbers are likely an underestimate because whales struck and killed by fast moving vessels may sink and go unnoticed.

**Disturbance from whale watching activity:** Whale watching boats target blue whales in many locations along the California coast, including the Channel Islands, Monterey Bay and Gulf of the Farallones National Marine Sanctuaries. There is some evidence that closely approaching boats elicit reactions from blue whales including avoidance of the boat and alteration of the surface sequence (e.g., longer surface intervals, rapid submergence, premature dives).<sup>3</sup> The presence of multiple boats at close proximity to the whales or traveling at high speed through areas with high concentrations of whales could be a cause of stress or injury.<sup>18</sup>

**Declining prey resources:** Declining abundance of prey species could result from either natural prey population fluctuations or commercial harvest of prey species. Schooling fish and crustaceans are often used for human consumption, as bait, or as feed in mariculture facilities.

**Entanglement in fishing gear:** No mortalities or serious injuries have been observed from the CA/OR offshore drift gillnet fishery between 1997-2001.<sup>2</sup> Incidental take may be occurring in the drift gillnet fisheries for swordfish and sharks along the Pacific coast of Baja California.

**Habitat degradation** (e.g., chemical pollution, oil pollution, coastal development): Any increase in offshore oil and gas development would increase both the potential of an oil or chemical spill and the amount of shipping traffic through blue whale habitat.

**MBNMS:** No threats are unique to the MBNMS

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  - State
  - Other

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### Conservation and Research

#### Federal

**General:** In 1966 blue whales in the North Pacific were given complete protection from whaling under the International Convention for the Regulation of Whaling. Blue whales are listed as "endangered" under the Endangered Species Act (ESA) and the NE Pacific stock is considered "depleted" and a "strategic stock" under the Marine Mammal Protection Act (MMPA). Under the ESA and MMPA, the National Marine Fisheries Service (NMFS) is responsible for the management and recovery of blue whales in U.S. waters.

As required under the MMPA, NMFS annually updates the Stock Assessment Reports (SAR) for all strategic stocks and the most recent SARs are available on the NOAA Office of Protected Resources website. The MMPA also requires the formation of Take Reduction Plans to reduce the incidental serious injury and mortality of marine mammals from commercial fishing operations. In 1997 NMFS implemented a Take Reduction Plan for Pacific Offshore Cetaceans to address incidental takes of cetaceans in the California/Oregon swordfish drift gillnet fishery. The plan included skipper education workshops and required the use of pingers and minimum 6-fathom extenders. Since implementation, overall cetacean entanglement rates in the California/Oregon swordfish drift gillnet fishery have dropped considerably.<sup>19</sup>

As required under the ESA, NMFS assembled a recovery team to write a recovery plan for blue whales. The recovery plan for the North Atlantic and North Pacific populations was released in 1998.<sup>1</sup> The key recommended actions for the North Pacific population were:

- Determine population structure of blue whales,
- Estimate population size and monitor trends in abundance,
- Identify and protect essential habitats,
- Minimize or eliminate human-caused injury and mortality,
- Coordinate state, federal, and international actions to implement recovery efforts,
- Determine and minimize any detrimental effects of directed vessel and aircraft interactions,
- Maximize efforts to acquire scientific information from dead, stranded, and entangled animals,
- Develop criteria for delisting or downlisting recovering blue whale populations.

NMFS is responsible for implementing the actions recommended in the recovery plan. Some of the recommended research is completed by NMFS scientists while some is completed by other groups, sometimes with NMFS funding (see "Other" section below for a summary of research projects completed by non-federal researchers). On-going federal research projects include:

Shipboard Cetacean Surveys (Lead Scientist: Jay Barlow, Coastal Marine Mammal Program, Southwest Fisheries Science Center (SWFSC)). The abundance of cetaceans along the U.S. west coast (out to a distance of approximately 300 nautical miles) is periodically estimated from shipboard surveys. Most recently, surveys occurred in 1993, 1996, 2001 and 2005. These surveys are anticipated to continue every 4-5 years (Jay Barlow, pers. comm. 3/2005). SPLASH (Structure of Population, Levels of

# Special Status Species project: In-depth Species Summaries

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### Research Gaps

**MBNMS:** Many of the information gaps identified in the 1998 Recovery Plan are being addressed by on-going research programs. Additional research programs focused on blue whales in the MBNMS could include:

- More information on behavior associated with vocalization and baseline data on call rates are needed to calibrate passive acoustic studies. Calibration will be difficult because there are seasonal, behavioral, and sex differences in calling behavior.<sup>4</sup> With calibration, passive acoustics could be used to estimate abundance, monitor behavior patterns and determine the effect of different types of anthropogenic sound on blue whale behavior.<sup>21,22</sup>
- Conduct systematic, MBNMS-wide aerial or ship-based surveys to determine distribution and abundance of cetaceans. Data from the surveys will help monitor trends in abundance, determine the distribution of blue whales in Sanctuary waters, and identify the location of important foraging habitat in the MBNMS.

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### Recommended Actions

**General:**

- Support a continued international ban on commercial hunting and other directed lethal take. Support efforts to detect and prevent illegal whaling.
- Encourage NMFS to establish criteria for downlisting or delisting this stock under the ESA.

**MBNMS:**

- Monitor whale-watching activities around blue whales. Ensure that effective protective measures (e.g., vessel approach regulations) are developed and enforced. Provide education outreach to commercial and private vessels regarding viewing regulations and develop incentives that will increase voluntary compliance rates.<sup>23</sup>
- Reduce the threat of entanglement in and ingestion of marine debris, particularly fishing gear. Efforts should include education outreach to fishing industry, abandoned gear recovery, and entanglement/stranding response teams.<sup>24</sup>
- If certain acoustical disturbances are found to negatively impact blue whales, work to minimize those activities in the MBNMS.
- Discourage offshore mariculture projects in the MBNMS. Offshore mariculture could negatively impact blue whales in three ways:
  1. Entanglement in netting and lines.<sup>25</sup>
  2. Competition for food - schooling crustaceans and fish are often harvested to feed to farmed fish.
  3. Habitat degradation - declining water quality and increasing parasite load.

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- Cited References
- Additional Resources
  - Websites, images, video, etc.

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## Cited References

1. Reeves RR, Clapham PJ, Brownell RL Jr, Silber GK (1998) Recovery plan for the blue whale (*Balaenoptera musculus*). Prepared for the National Marine Fisheries Service, Silver Spring, MD. 42 p.
2. Carretta JV, Forney KA, Muto MM, Barlow J, Baker J, Lowry M (2004) U.S. Pacific Marine Mammal Stock Assessments: 2003. NOAA Technical Memorandum NMFS-SWFSC-358, U.S. Department of Commerce
3. Calambokidis J, Chandler T, Falcone E, Douglas A (2004) Research on large whales off California, Oregon, and Washington in 2003. Annual Report for 2003. Prepared by Cascadia Research for the Southwest Fisheries Science Center.

## More images

- Cascadia Research, Photo Gallery.  
[http://www.cascadiaresearch.org/Photo%20gallery/photo\\_gallery.htm](http://www.cascadiaresearch.org/Photo%20gallery/photo_gallery.htm)
- Phillip Colla Photography, Whale and Dolphin Photographs -- Underwater, Aerial and Topside.  
<http://www.oceanlight.com/html/cetaceans.html>
- NOAA Fisheries, Southwest Fisheries Science Center, Protected Resources Division - Photo Gallery.  
<http://swfsc.nmfs.noaa.gov/PRD/photo/gallery.html>
- NOAA, National Marine Mammal Laboratory, Cetaceans Photo Gallery.  
<http://nmml.afsc.noaa.gov/gallery/cetaceans.htm>

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## Video and Audio

- In the Wild Productions, Video Footage.  
<http://www.inthewildproductions.com/stockwhalefootage.html>
- Marine Physical Laboratory, Whale Acoustics, Sound Library.  
[http://www.cetus.ucsd.edu/sound\\_library/sound\\_library.php](http://www.cetus.ucsd.edu/sound_library/sound_library.php)
- National Geographic, Crittercam Video Previews.  
[http://www.nationalgeographic.com/channel/crittercam/video\\_previews.html](http://www.nationalgeographic.com/channel/crittercam/video_previews.html)
- NOAA, Ocean Explorer, Explorations: Sound in the Sea.  
<http://oceanexplorer.noaa.gov/explorations/sound01/background/seasounds/seasounds.html>
- OceanFootage.com, Whale Stock Footage.  
[http://www.oceanfootage.com/whale\\_stock\\_footage.htm](http://www.oceanfootage.com/whale_stock_footage.htm)
- Whale Communication Research, Bioacoustics Research Program, Cornell Lab of Ornithology, Listen to Recorded Marine Mammal Vocalizations.  
<http://birds.cornell.edu/brp/SoundsMarMamm.html>
- WhaleNet, Movie Collection.  
<http://whale.wheelock.edu/movies/>



# Special Status Species project

## Species Summaries currently on website:

- Mammals: sei whale, blue whale, fin whale, humpback whale, gray whale, Steller sea lion, northern elephant seal, southern sea otter
- Birds: California Brown Pelican, Marbled Murrelet, Rhinoceros Auklet
- Invertebrates: black abalone

## Coming Soon:

- Mammals: North Pacific right whale, sperm whale, harbor porpoise, Guadalupe fur seal
- Birds: Great Egret, Great Blue Heron, Western Snowy Plover, Xantus's Murrelet
- Reptiles: leatherback sea turtle

## Next Steps:

- Partner with experts to create additional species summaries