Puget Sound Georgia Basin Ecosystem Indicators Report
Technical Background Document
http://www.epa.gov/region10/psgb/indicators/

Marine Species at Risk Indicator

Indicator Name

Marine Aquatic Species at Risk

Data Set Name

Total population estimates and/or trends of Marine Species at Risk found within the Puget Sound Georgia Basin and listed by any of the following jurisdictions: the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), BC's Conservation Data Centre (BC Ministry of Sustainable Resource Management), US Fish & Wildlife Service, National Oceanic and Atmospheric Administration and the Washington State Fish & Wildlife Commission, between September 2002 and 2004.

Data Type

The indicator is the count of the newly listed species but the data profile contains the information used to bring about the new or changes to listings by the appropriate agencies.

SCOPE

1. Geographic Coverage

The geographic coverage for each species listed in the indicator time frame varies by species but includes the boundaries of the Georgia Basin: regional districts in British Columbia: Greater Vancouver, Fraser Valley, Sunshine Coast, Squamish-Lillooet and Powell River on the mainland, and Capital, Cowichan Valley, Nanaimo and Comox-Strathcona on Vancouver Island.

Data was also collected from the marine waters and habitats surrounding all Puget Sound counties: Clallam, Jefferson, King, Kitsap, Island, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston and Whatcom.

The commonality for the indicator is that some members of the population at risk utilize the Puget Sound or Georgia Basin for part of their life. For some species this area is only used for a very short time by a small part of the population at risk and for others like the two salmon species, the Georgia Basin provides key spawning and rearing habitat.

2. Length of Data Series

The length of data series for each species is contained in the COSEWIC assessment reports and **(and Mary Lou, for the US?)** Generally data is collected over decades for most of the marine mammals and salmon. The Bocaccio data is a result of catch monitoring that has been in place for the last 30 years with the last ten years considered the most reliable.

3. Smallest Geographic Units

Most of the geographic units are quite large, such as the Northeast Pacific Ocean. The smallest units are the two salmon species that encompass small river systems of approximately 5 to 10 Km.

RELIABILITY

1. Quality Assurance Procedures

Reports on data quality are contained in each of the species assessment reports. Web site references are provided below.

2. Data Confidence Limits

The specific details for each of the data sets can be found in the COSEWIC technical reports. The marine mammal population estimates range from the accounting of each individual in a population as in the Southern Resident Killer Whale, to general surveys done over defined areas. The Salmon escapement counts are done each year and are very accurate whereas the Bocaccio estimates are actually catch observations that have shown dramatic declines over a number of years.

COLLECTION INFO

1. Data Methodology

Species of concern are native species, sub-species or ecologically significant units that warrant special attention to ensure their conservation. Within the Puget Sound Georgia Basin marine ecosystem, the Province of British Columbia, the State of Washington, the Canadian Federal Government, and the United States Federal Government all have different processes for assessing which species require special initiatives to ensure protection and survival of the population.

The four state/provincial and federal entities have different mandates and processes for assessing which species require special initiatives to ensure protection and survival of the population. Within ecosystems spanning international boundaries and multiple jurisdictions, an ecosystem-based list of species of concern serves many functions. It acts as a crude indicator of ecosystem health, permits cross checking of species of concern between jurisdictions, suggests where more research is needed, and highlights where transboundary approaches could benefit species recovery (Gaydos and Gilardi, 2003). This work updates the list of species of concern for the Puget Sound Georgia Basin marine ecosystem developed in 2002, which highlighted 60 species of concern (Gaydos and Gilardi, 2003).

Methods

Using lists produced by each of the four jurisdictions, The Sea Doc Society, UC Davis Wildlife Health Center, identified species that utilize marine habitat within Puget Sound, the Northwest Straits, and Georgia Basin and compared listings between jurisdictions. Causes for declines were taken from status reviews, species summaries, stock assessments or other documents written for species listed as threatened or endangered. Data presented is current as of September 1, 2004. The processes for listing within each jurisdiction are as follows:

British Columbia

In the Province of British Columbia, species are assigned a risk of extinction. Species are placed on Red, Blue or Yellow lists. Red-listed species are those that have been legally designated as Endangered or Threatened under the provincial Wildlife Act, are extirpated, or are candidates for such designation. Blue-listed species are those not immediately threatened, but are of concern because of characteristics that make them particularly sensitive to human activities or natural events. Yellow-listed species are all species not included on the Red or Blue lists. For the purpose of this paper, Red and Blue-listed species are considered species of concern.

When British Columbia ranks species, each species is assigned a global rank (applies across its range), a national rank (for each nation within its range, such as Canada), and a sub-national rank (for each province). In British Columbia, the Conservation Data Centre within the Ministry of Sustainable Resource Management assigns the provincial rank. These provincial ranks are updated annually. Within the marine ecosystem, British Columbia currently only assesses mammals, birds, reptiles and freshwater fishes that also utilize marine habitat. Important to this study, conspicuously absent are marine fishes and marine invertebrates. All credible sources of information concerning species distribution, abundance, trends, and threats are considered in provincially ranking species in British Columbia.

Washington State

In Washington State species of concern are listed by the Washington Fish and Wildlife Commission (Commission) under the provisions of Washington Administrative Code (WAC) 232-12-297 (Endangered, Threatened, and Sensitive Wildlife Species Classification). Listing occurs in much the same stepwise procedure as occurs at the U.S. federal level. A species could be listed as either endangered (seriously threatened with extinction throughout all or a significant portion of its range within the state), threatened (likely to become an endangered species within the foreseeable future throughout a significant portion of it range within the state) or sensitive (vulnerable or declining and likely to become endangered or threatened in a significant portion of its range within the state). Listing can be initiated in one of three ways: (1) the Washington Department of Fish and Wildlife (WDFW) initiates a species status review; (2) the WDFW receives a petition from a citizen (at which point the agency has 60 days to either initiate the classification process or deny the petition, based on the best available scientific data); or (3) the Commission requests the WDFW to review a species of concern. Listings are based solely on the biological status of the species in the wild, as indicated by the preponderance of scientific data available. When the listing process is initiated, the WDFW publishes a public notice in the Washington State Register and calls for scientific information relevant to the species' status.

The WDFW prepares a draft species status report, which reviews relevant information on the status of the species in Washington, addresses factors affecting its status, and makes a

preliminary listing recommendation. The public and the scientific community is given 90 days to review and comment on the draft status report and listing recommendation, and the WDFW can hold one or more public meetings during the public review period. At the close of the public comment period, the WDFW addresses comments, completes the final status report and listing recommendation and submits them to the Commission. The final species status report, agency classification recommendation, and State Environmental Policy Act (SEPA) documents are made available to the public at least 30 days prior to the Commission meeting. Once a species is listed, the WDFW writes and implements a recovery plan for threatened or endangered species, or a management plan for sensitive species. A review of the species' status is conducted by the WDFW at least once every five years. The WDFW maintains a list of Candidate species by Department Policy, which are those species that will be reviewed for possible listing as endangered, threatened, or sensitive.

Canada

In Canada, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) creates a federal listing of species at risk using an international ranking system adapted from the World Conservation Union in Switzerland. COSEWIC is composed of government and non-government members, members from academic institutions, and one member with expertise in Aboriginal traditional knowledge. Species designations are made using formal status report review process. Experts are commissioned to write status reports on the biology, population status, range, and possible threats facing the species or subspecies in question using the best available scientific, community, and Aboriginal traditional knowledge.

COSEWIC meets at least once annually to consider new and updated status reports and to make status determinations. If deemed necessary and appropriate, emergency listing can be made ahead of COSEWIC's regular general meeting and decisions made are later ratified based upon a full report. As listed by COSEWIC, risk categories for species include extinct (a species that no longer exists), extirpated (no longer exists in the wild in Canada, but exists elsewhere), endangered (facing imminent extinction or extirpation), threatened (likely to become endangered if limiting factors are not reversed), special concern (characteristics make species particularly sensitive to human activities or natural events), not at risk, or data deficient (insufficient information to support status designation).

Species that are suspected of being at some risk of extinction or extirpation, but have not yet been reviewed by COSEWIC are placed on a Candidate List and as time and resources permit, COSEWIC Commission's status reports for these species so that an assessment can be undertaken. Currently, species listed by COSEWIC as "endangered," "threatened," or of "special concern" do not receive legal recognition from the federal government.

Under the new federal Species at Risk Act, COSEWIC acts as a scientific advisory body to the federal government, and provides the Minister of Environment with Species Assessments, which then trigger the federal SARA listing process. The responsible federal agency (Fisheries and Oceans Canada is the responsible federal agency for all aquatic species) then undertakes public and stakeholder consultations to assess the potential impacts of listing a species. A recommendation from the Minister of Environment, in consultation with the Minister responsible for each species, is then made to the Governor in Council, who ultimately makes a listing decision. The listing process typically occurs in nine months, commencing with the Governor in Council receiving COSEWIC's assessments from the Minister of Environment. Once a species is listed under SARA as "endangered", "extirpated" or "threatened", automatic

prohibitions apply against killing, harming, harassing, capturing, collect, buy, sell or trade or otherwise taking the species.

United States

In the United States, the U.S. Fish and Wildlife Service (USFWS, Department of the Interior) and the National Oceanic and Atmospheric Administration (NOAA-Fisheries, Department of Commerce) (hereinafter referred to as "the Agencies") share responsibility for identifying species of concern under the provisions of the Federal Endangered Species Act (ESA), enacted in 1973. A species is listed either as endangered (a species that is in danger of extinction throughout all or a significant portion of its range) or threatened (one that is likely to become endangered in the foreseeable future) when it is determined to be negatively impacted by any or all of the following factors: 1) current or imminent destruction or degradation of its habitat or range; 2) over-extraction for any purpose or by any means; 3) population-level impacts of disease or predation; 4) existing regulatory mechanisms that are inadequate to protect the species; or 5) other natural or anthropogenic factors significantly impeding the species' survival.

The process for listing as species can be initiated by the Agencies or by a petition from the public. The Agencies initiate the process by publishing a "notice of review" that identifies a "candidate for listing" any species in the United States that it believes meets the definition of threatened or endangered, or for which its status in the wild warrants review and consideration under the ESA. If the Agencies receive a petition for listing a species from the public they have 90-days to review the petition and determine whether or not there is substantial information indicating that the listing may be warranted. At this point, the species is called a "Candidate for Listing", and the Agencies then have one year to determine whether or not to propose listing for the species. During this review period, the Agencies seek biological information to help complete the status review.

If the Agencies decide that a species warrants listing under the ESA, a proposed rule is published in the Federal Register for a 60-day public comment period. Information received is analyzed and considered, and within one year of a listing proposal, one of three possible actions is taken: 1) a species is listed as threatened or endangered because the best available scientific data supports the listing; 2) the proposal is withdrawn because the best available scientific data does not support the listing; or 3) the proposal review period is extended for an additional 6 months if there is substantial disagreement within the scientific community concerning the listing. Once a species is listed under the ESA, all protective measures authorized under the Act are applicable to the species, e.g. restrictions on take, transport and sale; authority to draft and implement recovery plans, and/or authority to designate critical habitat. The status of a listed species is reviewed at least every five years to determine if federal protection is still warranted (2004. Brown and Gaydos).

Modern abundance estimates of the eastern North Pacific Grey Whale population are precise by standards of cetacean population data. Since migrating grey whales travel close to shore, the entire population can be counted at strategic points along the migration corridor. Harbour porpoise populations have been estimated in the past by the use of aerial and boat transects.

2. Collection Frequency

Details about data collection for each of the species can be found in the assessment reports. Seasonal counting except for the Harbour Porpoise generally takes place for most of the species.

NOTICE OF PROPRIETARY DATA

DATA SOURCES & CONTACTS

1. Data Sources

All the assessment reports properly reference the data sources and these authors should be contacted or the publications referenced if this data is to be used.

Contact Name

Contact names are identified in each of the species assessment and status reports listed below. General inquiries may be directed to:

BC: Glen Rasmussen, Department of Fisheries and Oceans Canada: (250) 756-7095 or Rasmusseng@pac.dfo-mpo.gc.ca

WA: Joe Gaydos, The SeaDoc Society: (360) 376-3910 or jkgaydos@ucdavis.edu, and Mary Lou Mills, Washington State Department of Fish & Wildlife: (360) 902-2834 or millsmlm@dfw.wa.gov

Editor's Note: Please check all links for listings which have occurred both before 2002 and after 2004, the period of assessment for this report. Many of these species were listed either before or after the two year period this indicator covers.

1. Northern Abalone (Canadian Federal and Washington):
http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/fisheriesmgmt/abalone/documents/04Abalone_RS.pdf
(2004. National Recovery Strategy for the Pinto Abalone)
http://wdfw.wa.gov/wlm/diversty/soc/adv_search.htm

2. Bocaccio (Canadian Federal):

http://www.sararegistry.gc.ca/status/showASCII_e.cfm ?ocid=422
Bocaccio are counted in catch monitoring and in trawl surveys.

3. Bull Trout (BC, WA, and US Federal): - US Fish & Wildlife Service. *Draft Recovery Plan for the Coastal-Puget Sound Distinct Population Segment of Bull Trout (Salvelinus confluentus)* http://www.fws.gov/endangered/

4. Cultus Lake Sockeye Salmon (Canadian Federal):

http://sararegistry.gc.ca/status/showDocument_e.cfm?=164
The Cultus and Sakinaw salmon species the returning adults are counted at either a fence or obstruction so that all adults are counted.

5. Grey Whale – Northeast Pacific population (Canadian Federal):

http://www.sararegistry.gc.ca/status/showASCII_e.cfm ?ocid=965

6. Harbour Porpoise -Pacific Ocean population (Canadian Federal):

http://www.sararegistry.gc.ca/status/showASCII_e.cfm ?ocid=1086

7. Killer Whale Assessment Reports (BC, WA, Canadian and US Federal):

http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=698
http://www.speciesatrisk.gc.ca/search/speciesDetails_e.cfm?SpeciesID=699
http://www.nwr.noaa/gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Act-Status/listing-final.cfm (also see the Federal Register notice: Vol. 70, No. 122, November 18, 2005, p. 69903).
The killer whales are observed and identified by their individual markings.

8. Leatherback Turtle (BC, WA, Canadian and US Federal):

http://www.sararegistry.gc.ca/status/ShowDocument_e.cfm?id=88
National Marine Fisheries Service, NOAA. 2004. ESA Species List- Endangered and threatened marine mammals and sea turtles under the jurisdiction of the National Marine Fisheries Service (NMFS) that may occur in the Puget Sound can be accessed at
http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/
http://wdfw.wa.gov/cgi-bin/species/adv_search.cgi?header=Search+All+Fields&search=turtle&method=any

9. Sakinaw Lake Sockeye Salmon (Canadian Federal):

http://www.sararegistry.gc.ca/status/showDocument_e.cfm?id=164

10. Steller Sea Lion (Canadian Federal):

http://www.sararegistry.gc.ca/status/showASCII_e.cfm ?ocid=1005
The Steller Sea Lion is estimated from aerial photography at known breeding grounds.

References

2004. Nicholas A. Brown and Joseph K. Gaydos. *Species of Concern within the Puget Sound Georgia Basin Marine Ecosystem: changes from 2002 to 2004.* The Sea Doc Society, UC Davis Wildlife Health Center- Orcas Island Office, 1016 Deer Harbor Road, Eastsound, WA. 98245.