

NOAA FISHERIES

West Coast Region

Lynne Barre

Endangered Southern Resident Killer Whales

Species in the Spotlight



Killer Whales

- The most widely distributed mammal (other than humans)
- Abundant in coastal waters and high latitudes



Illustration and design: Uko Gorter (www.ukogorter.com) Text: R. L. Pitman, Southwest Fisheries Science Center, ROM: Fisheries Strice, Robert, Pitman@noa.gov Photo credits: R.L. Pitman (1,2,4,7); John Durban (3,6); Paul Wade (8); Andy Poote (9); Lewis Dr

Pacific Northwest Ecotypes

- Transients
 - Marine mammal eaters
 - Small groups
- Offshores
 - Limited information
 - Eat fish, sharks
 - Large groups
- Residents



Southern Resident Killer Whales

- Stable family groups-J, K, L pods
- Salmon prey (Chinook)
- Use sound to find food and communicate
- Distinct dialects
- Unique behaviors







Illustration by Uko Gorter

Southern Resident Killer Whales





Center for Whale Research

Southern Resident Decline and Risks

Southern Resident killer whale population trend





Recovery Plan

- Started implementing actions in 2003 with specific funding —Research
 - Enforcement support
 Education
- Recovery Plan complete 2008
- Broad approach to address all threats
- Adaptive process to incorporate research results as available



Ongoing and Future Research NWFSC, SWFSC, AFSC, and many partners



Species in the Spotlight

- Southern Resident killer whales one of eight atrisk species
- Action Plan identifies key actions and partners
 - Target recovery of critical prey
 - Improve knowledge of health
 - Enforcement of vessel regulations
 - Protect coastal habitats
 - Education and outreach



NOAA FIGHERIE **SPECIES** in the **SPOTLIGHT** Priority Actions: 2016-2020 Southern Resident **Killer Whale DPS** Orcinus orca

Target recovery of critical prey





Prey Selection Field Methods











Scale and tissue samples from prey collected in Southern Residents' summer range (includes the Western Juan de Fuca Strait and San Juan Island) from May to September 2004-2008. More than 75% of the whales' summer diet is Chinook. Selection varies somewhat by month. From Hanson *et al.* 2010.



Recovery of Critical Prey

- Coordinating with ongoing salmon recovery efforts
 - Workshops, events, meeting with Orca Salmon Alliance
- Review of salmon fisheries and Southern Resident killer whales



Puget Sound Salmon Recovery Plan

NOAA

Submitted by the Shared Strateg



Photogrammetry

 Do the whales look skinny? Where and when are the whales food limited? How can we prioritize salmon recovery to benefit the whales?





Photogrammetry

- Measuring aerial photos to understand health and reproduction
- Compare spring and fall condition
- Compare Northern Residents and Southern Residents





Fearnbach et al. 2011

Contaminants and Health





Pollution and Contaminants

Killer whales are at the top of the food chain

- Bioaccumulation of contaminants (PCBs, DDTs, PBDEs)
- High levels can cause reproductive and immune problems







Figure generated from Krahn et al. 2007, 2009 and NWFSC unpublished data.



Contaminants

Puget Sound Partnership

- Action Agenda to restore Puget Sound by 2020
- Working group with EPA and WA state agencies





The 2012/2013 Action Agenda for Puget Sound

The Puget Sound Action Agenda is the plan for cleaning up, restoring, and protecting Puget Sound by 2020

August 28, 2012

PugetSoundPartnership LEADING PUGET SOUND RECOVERY



2015 and 2016 SRKW Health Workshops

- Discuss needs and strategies related to:
 - What is causing decreased reproduction?
 - What is causing increased mortality?





Next Steps

- Health database- individual profiles and medical records
 - Develop health index
 - Stranding investigations
 - Telemetry and
 photogrammetry
 - Body condition, blubber content, fecal hormones
 - Contaminants
- Track animals of interest
- Assess prey changes







Protect killer whales from harmful vessel impacts through enforcement, education and evaluation





Vessels and Noise

Killer whales use echolocation to find food and use sound to communicate





Foraging is reduced and travel is increased when vessels are present within 400 m



NOAA FISHERIES

Protective Regulations

Approach Restrictions: Prohibits vessels from approaching any killer whale in inland waters of WA closer than 200 yards

Parking in the Path Prohibition: Requires vessels to keep clear of the whales' path within 400 yards of the whales



www.bewhalewise.org



Implementation of New Regulations

Education and Outreach

- Continue working with partners-Soundwatch, Straitwatch, WDFW, DFO, PWWA
- Update Be Whale Wise
- Enforcement
 - NOAA, Joint Enforcement Agreement with WDFW, ESA grant

Monitoring

- Collect data on vessel activity/compliance
- Collect data on economics

MARINE WILDLIFE GUIDELINES FOR BOATERS, PADDLERS AND VIEWERS NOO MIYD SLOW ZON TRANS-BOUNDRY GUIDELINES FOR THE UNITED STATES AND CANADA APPLIES TO ALLER ALL MARINE MAMMALS AND BIRDS. U.S. LAW 1. DO NOT APPROACH or position your vessel closer than 200 metres **KEEP PATH** yards to any killer whale in the U.S. DO NOT APPROACH or get closer **CLEAR TO** ** n 100 metres/yards to any other marine mammals or birds, whether GUIDELINA 400 M/YD

AVOID

TRAVEL

REHIND

WHALES

A

of any killer whale.

OR HARASSMENT

entanglement or strand

stranded or entangled marine mamn

24/7 Hotline: 1-800-465-4336

100 M/YD

NO APPROACH

MARINE MAMMALS

IN US& CANADA

400 M/YD SLOW ZONE

RECOMMENDED 7 KNOTS

IN INLAND WATERS OF WASHINGTON IT IS UNLAWFUL FOR ANY PERSON TO:

- Cause a vessel to approach, in any manner, within 200 yards/metres

Position a vessel to be in the path of any killer whale at any point located within 400 yards/metres of the whale.

The regulation applies to all motorized and non-motorized vessels

LAWS: Regulations in Canada and the U.S. prohibit the harassment

and disturbance of marine mammals. Many species are threatened or endangered and subject to additional protections under the

Endangered Species Act (U.S.) and the Species at Risk Act (CANADA)

CANADA/B.C. GULF ISLANDS: To report injured, distressed, dead,

US/INLAND WA WATERS: To report a marine mammal harassmen

NOAA Fisheries, Office for Law Enforcement: 1-800-853-1964

Entanglements: 1-877-707-9425 / Strandings: 1-866-767-6114

hale 911 app

Fisheries & Oceans Canada/B.C. Marine Mammal Incident

TO REPORT A MARINE MAMMAL DISTURBANCE

nals or sea turtles:

(including kayaks and paddleboards) with exemptions for governme

vessels conducting official duties, ships in the shipping lanes, permitted

esearch vessels, and vessels lawfully engaged in commercial or treaty indian fishing that are actively setting, retrieving, or tending fishing gear

NO GO ZONE

on the water or on land. 2. BE CAUTIOUS, COURTEOUS AND QUIET when around areas of wn or suspected marine wildlife activity, in the water or at haul-outs es on land. Especially from May to September during reding, nesting and seal pupping seasons.

3. LOOK in all directions before planning your approach or departure viewing wildlife.

4. SLOW DOWN reduce speed to less than 7 knots when within 400 netres/yards of the nearest marine mammal to reduce your engine's noise and vessel's wake.

5. ALWAYS approach and depart from the side, moving parallel to the animal's direction of travel. If the animal(s) are approaching you, cautiously move out of the way and avoid abrupt course changes. DO NOT approach from the front or from behind.

6. IF your vessel is not in compliance with the 100 metres/yards approach guideline (#1), place engine in neutral and allow animals to

7. PAY ATTENTION and move away, slowly and cautiously, at the first sign of disturbance or agitation.

8. STAY on the OFFSHORE side of the whales when they are traveling

9. ALWAYS avoid going through groups of porpoises or dolphins and old course and reduce speed gradually to discourage bow or stemriding

10. LIMIT your viewing time to 30 minutes or less. This will reduce the ulative impact of all vessels and give consideration to other view

11. DO NOT disturb, swim with, move, feed or touch any marine wildlit If you are concerned about a potentially sick, stranded animal, or entangled animal, contact your local stranding network.

DRONES/UNMANNED AIRCRAFT VEHICLE OR SYSTEM (UAV/UAS) GUIDANCE

It is illegal to harm or disturb wildlife. To prevent disturbances from an unmanned aerial vehicle (UAV/drone) over the marine environment ope must use extreme caution. AUV/drones may cause a disturbance to the animal Fly during daylight hours, keep your drone in sight and limit your viewing tin to reduce the cumulative impact. This is rapidly evolving technology...Know nd follow all local regulati

MARINE PROTECTED AREAS, WILDLIFE REFUGES, ECOLOGICAL RESERVES AND PARKS

1. CHECK your nautical charts for the location of various prot 2. ABIDE by posted restrictions or contact a local authority for further



Review of Vessel Regulations: 5 Measures

- 1. Biological Effectiveness- characterize the change in impacts to the whales pre- and post-regulations (changes in behavior, received noise levels, energy requirements, etc.)
- 2. Vessel Compliance- characterize vessel behavior pre- and postregulations (change in rates and/or patterns of incidents, etc.)
- 3. Enforcement- characterize role and effort pre- and postregulations
- 4. Education and Outreach- characterize efforts and public awareness pre- and post- regulations
- 5. Economic Impact- characterize effects to industry/local economy following regulations



Primary resources will include:

- Soundwatch reports
- Peer-reviewed scientific articles, Dtag results
- Enforcement reports, tickets, warnings
- Public awareness (park visitor info, brochures, advertisements)
- IEC economic report
- Any additional data or reports from key partners



Dtag Study

- Sept 22, 2010
- K33 track
- Vessel tracks
 - C- commercial whale watch
 - P- private
 - E-enforcement
 - R-research





Protect important habitat areas from anthropogenic threats





2006 Critical Habitat

- Approximately 2,560 square miles
- Primary constituent elements/essential features are:

(1) Water quality to support growth and development

(2) Prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth

(3) Passage conditions to allow for migration, resting, and foraging.



Revisions to Critical Habitat

- <u>January 21, 2014</u>: NMFS received a petition to revise critical habitat and consider coastal waters from Cape Flattery, WA to Point Reyes, CA and include protective in-water sound levels as a PCE in both current inland and possible coastal critical habitats.
- <u>April 25, 2014</u>: NMFS published its 90 day finding (79 FR 22933) that the petitioned action may be warranted and initiated a review and solicited scientific and commercial information pertaining to the action.
- <u>February 24, 2015</u>: NMFS published its 12 month finding (80 FR 9682) that we intend to proceed with the petitioned action and described how we plan to proceed, including ensuring that we have the best available information.



Next Steps

- Step 1: Complete Data Collection and Analysis (ongoing)
- Step 2: Identify Areas Meeting the Definition of Critical Habitat
- Step 3: Section 4(b)(2) Analysis
- Step 4: Develop Proposed Rule for Public Comment (2017)



Passive Acoustic Recorders



Satellite Tagging

Eight adult males (J26, K25, L88, L87, J27, L84, K33, L95) tagged 2012-16

K25 tagged in Puget Sound 93-day transmission: 12/29/12 to 4/4/13

- Median distance from shore - 8.4 km

- Median depth - 60m

Coastal diet samples California - 2 scale/tissue samples,1 fecal sample

OR and WA - 23 scale/tissue samples, 21 fecal samples



NWFSC permit #16163



Raise awareness about the recovery needs of Southern Resident killer whales and inspire stewardship through education and outreach





Outreach Partners



66-672-2638

- The Whale Museum
- Soundwatch
- The Whale Trail
- Seattle Aquarium
- Killer Whale Tales
- Sighting Networks
- Naturalists
- Whale Watch Assoc.
- NGOs





Protecting the long term health of the Southern Resident Killer Whales... one student at a time

Activity Guide and Drca Research Sheets









Sign up for "Orcalist" E-mail Listserve

http://www.westcoast.fisheries.noaa.gov/protected_species/marine_mammals/killer_whale/

Lynne Barre (206) 526-4745 Lynne.Barre@noaa.gov

NOAA photos taken under permit #16163