

Trees, Weather, Forests and Seasons

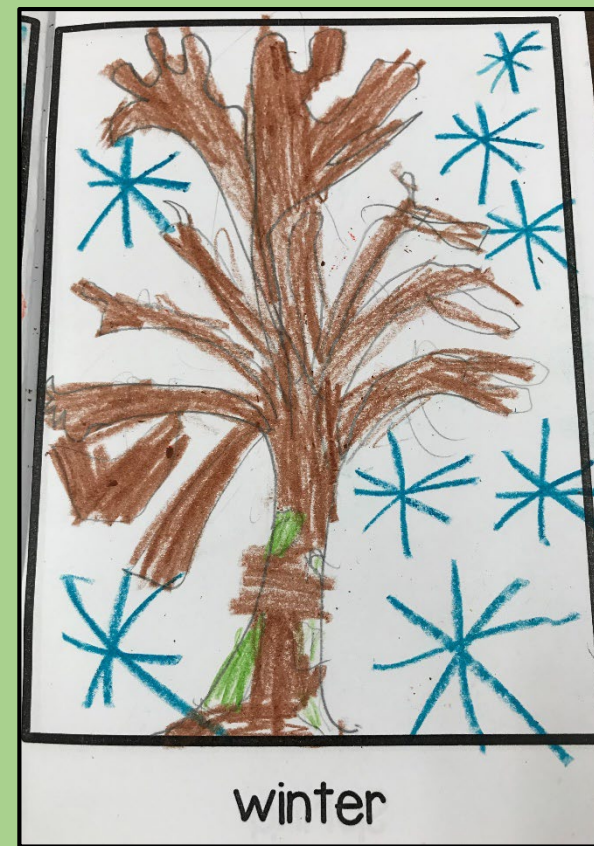
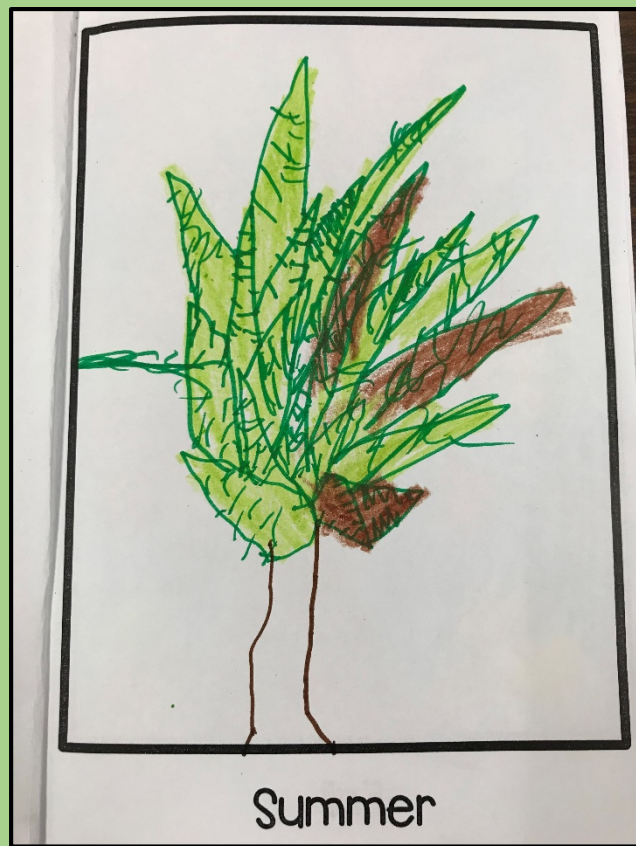


Bordeaux Elementary - Kindergarten
Shelton School District

At the beginning of the year, each class chose a Class Tree to adopt in our schoolyard. We return to the tree with each new season to observe changes and record the data in our Tree Journals.



Example pictures of a Tree Journal showing our class tree in the summer, fall and winter.



Four Seasons

Name: Fiona 222-11



Summer



Fall



winter

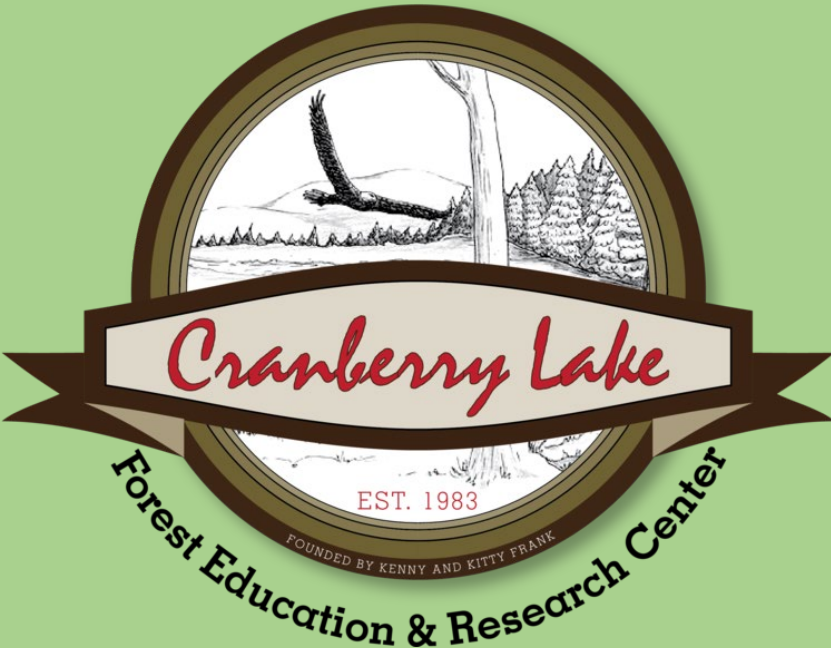


Spring

Right now it is winter and our tree is bare.

We are excited for the spring to see the buds open into blossoms and new leaves!

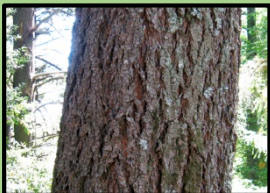
Our classes went on a Field Experience to the Cranberry Lake Forest Education and Research Center in Shelton, WA.



We learned about 5 different types of trees at Cranberry Lake. We collected samples of bark, leaves and cones to bring back to school with us.



Douglas Fir



Western Hemlock



Western Red Cedar



Western White Pine



Red Alder



We learned that animals can change the environment. Can you guess what kind of animal damaged this tree?



A Pileated Woodpecker looking for bugs to eat!

Why do you think all of these trees died?



Beavers dammed the creek and flooded the area. The trees drowned from too much water.



Humans also change the environment.

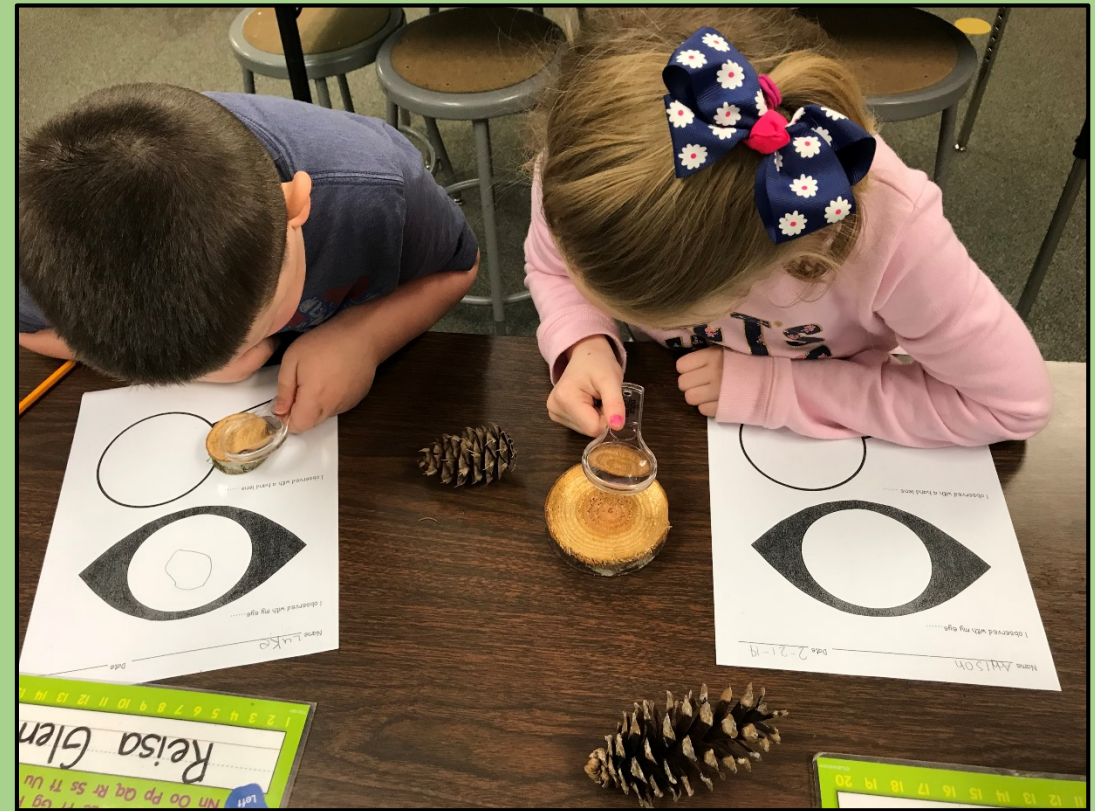
These trees are marked to be cut down when this forest is thinned.



These trees are part of a research plot that scientists are studying.

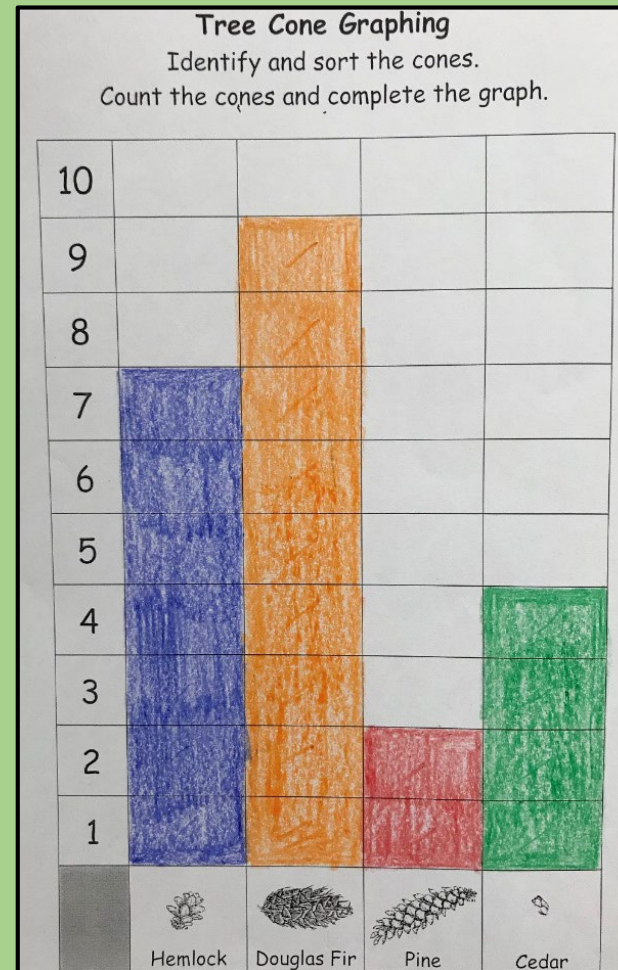


After coming back to class we kept learning about trees in lots of ways. We used the bark, leaves and cones to make Tree Jars for observation. We used magnifying glasses to look closely at details and drew micro/macro pictures.

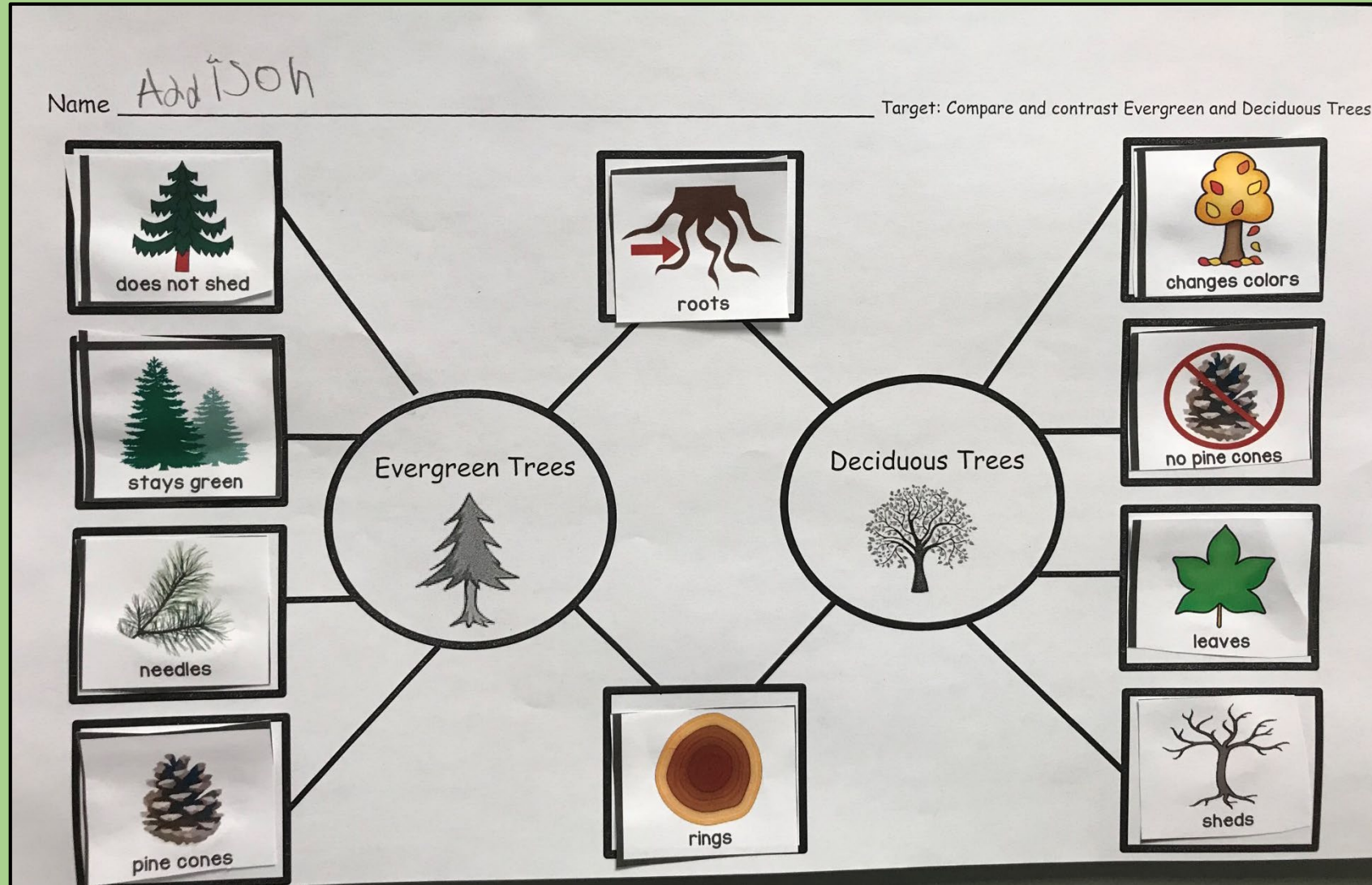


We wrote about our Cranberry Lake field trip in our writing journals.

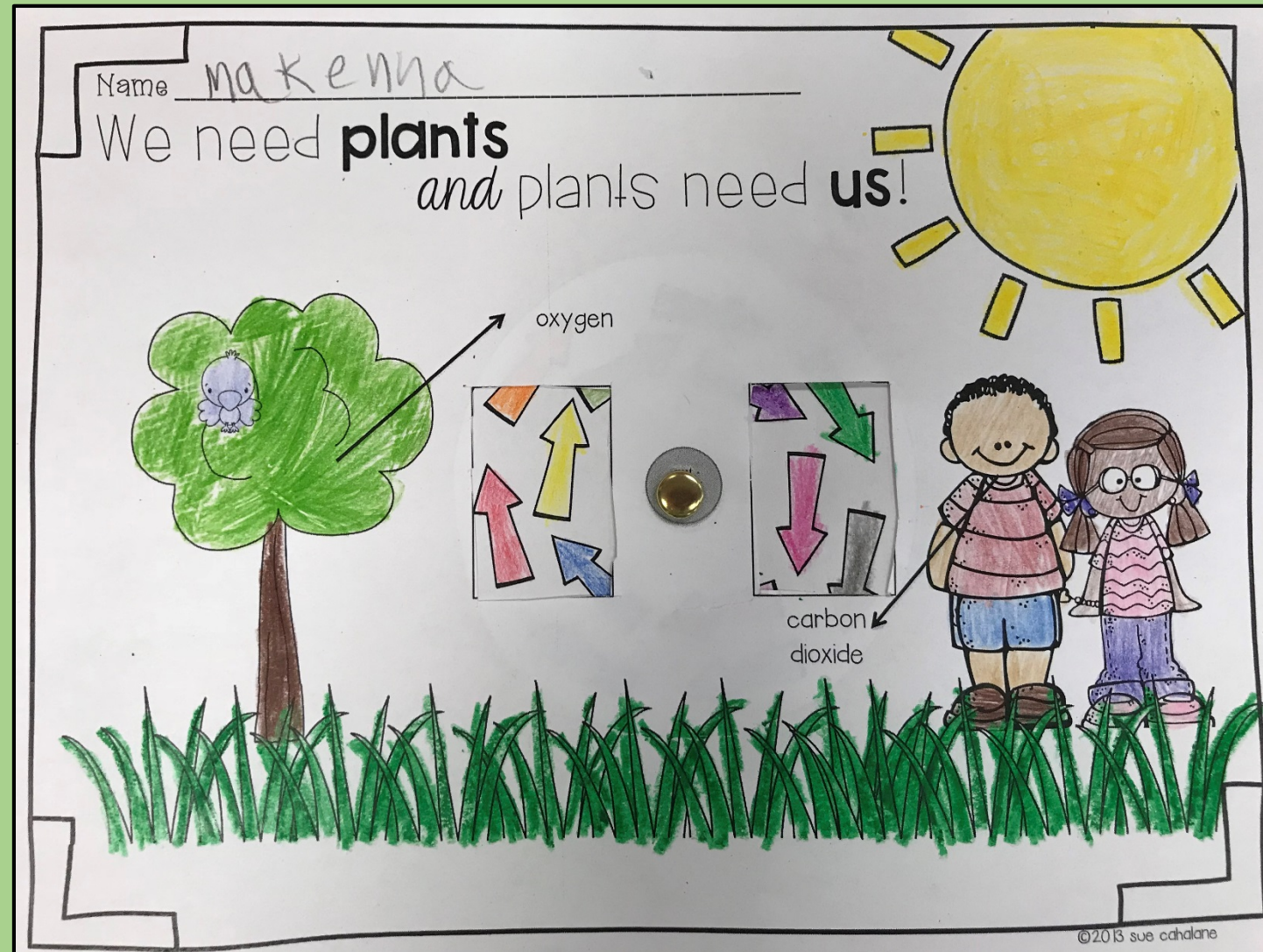
We identified, sorted, counted and graphed cones from the evergreens we found



We compared and contrasted evergreen trees to deciduous trees using a double bubble thinking map.



We learned that trees breathe in carbon dioxide and breathe out clean oxygen. Trees are important to help keep our air safe and clean.



We learned you can count the rings on tree cookies to tell how old a tree was and what the growing conditions were.

We made an art project to represent our age as a tree. I'm 6 so mine has 6 rings.



We learned that trees are an important resource.

Many things are made out of wood and paper and those come from trees.



Experts from Green Diamond Resource Company visited our class and shared how they manage forests so that not too many trees get cut down at once.

They also plant new trees to replace the ones they cut.



Mr. Mark showed us how to plant a tree and gave everyone a tree to take home and plant. We can help forests and the earth by not littering, recycling and planting new trees.



Thank you! Are there any questions?



Unless someone like you
Cares a whole awful lot,
Nothing is going to get better.
It's not.

~ Dr. Seuss, The Lorax

RENEWABLE ENERGY

HOW CAN WASHINGTON
SCHOOLS BENEFIT FROM
USING SOLAR PANELS?

PRESENTED BY
GWEN NEWPORT, SAMMY FIRKINS &
ANNIE SON



HAVE A
SUNNY
DAY!



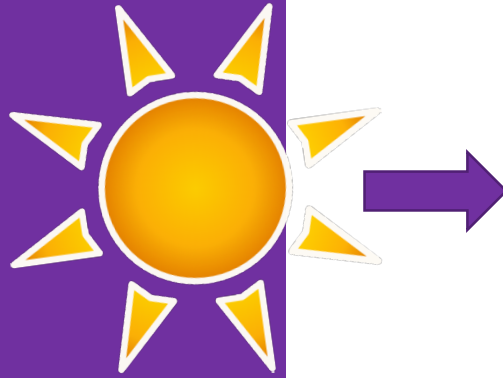
WHAT IS RENEWABLE ENERGY?

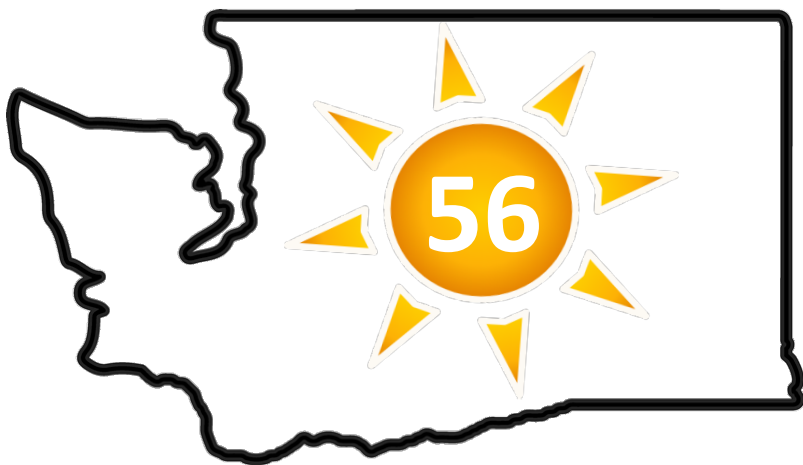


Renewable energy is energy that is generated from natural resources that are continuously replenished. This includes sunlight, geothermal heat, wind, tides, water, and various forms of biomass. This energy cannot be exhausted and is constantly renewed.

WHAT IS SOLAR ENERGY?

Solar energy is light and heat from the sun harnessed by using photovoltaic cells to produce electrical energy.





BRINGING SOLAR TO WASHINGTON SCHOOLS

- There are 2,370 public schools in Washington.
- If we were to place just an average of 20 solar panels on each public school in Washington, we could create 13,800,000 watts of electricity per year.

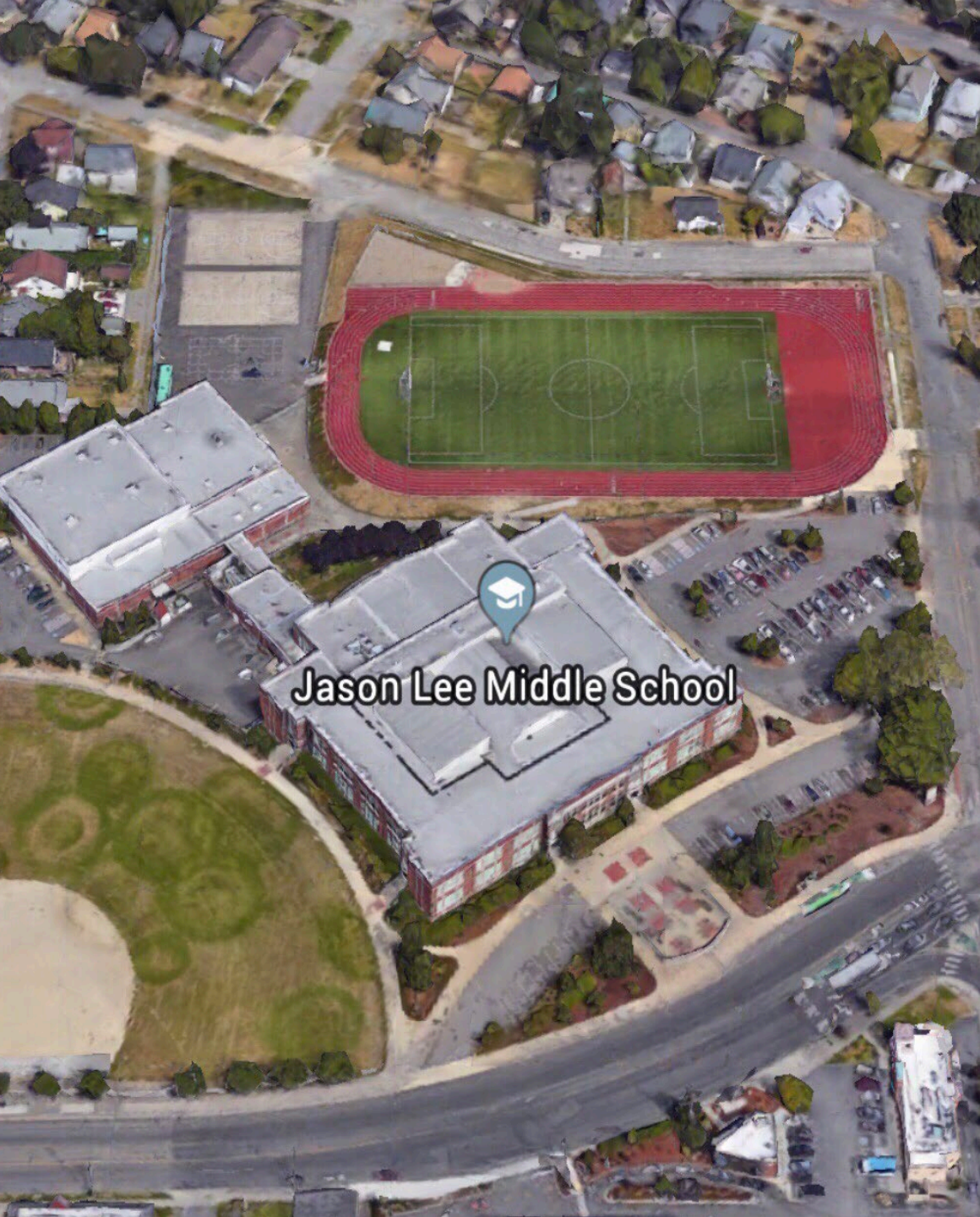


HOW DID ONE SCHOOL MAKE THIS A REALITY?

- ❑ In 2015, Arleta School in Portland, Oregon installed a 151.2 kw solar-array on their school by partnering with the Portland General Electric Renewable Development Fund, their customers, and the Energy Trust of Oregon.
- ❑ Along with Arleta School, the Portland General Electric Renewable Development Fund also installed solar-arrays on 5 other Portland schools.







SOLAR POWER AT JASON LEE

- Jason Lee is an example of an ideal location to place solar panels.
- We have the roof space for 300 solar panels which could produce 90,000 kW.
- This installation would prevent 108,000 pounds of CO₂ emissions.

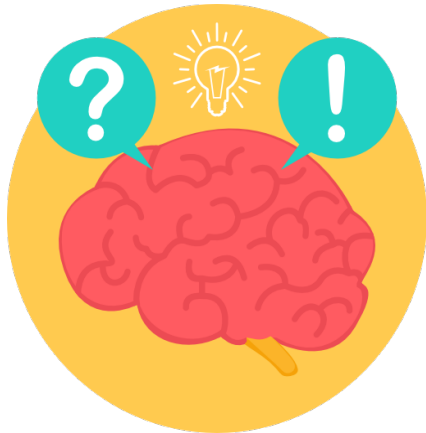




WHY SHOULD SCHOOLS USE SOLAR ENERGY?

IF WE USED SOLAR ENERGY...

- Saves Money
- Reduces CO2 Emissions
- Benefits The Health Of The Community
- Generates Power Where & When Its Used Most
- Creates Learning Opportunities





HOW CAN WE MAKE THIS A REALITY?

MAKING THIS A REALITY REQUIRES...

- State Incentives
- Sponsors & Grant Money
- Private Investors
- Superintendents and School Boards



THANK YOU





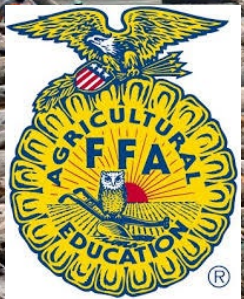
RESOURCES

- <https://reason.org/commentary/does-bus-transit-reduce-greenhouse/>
- <https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle>
- <https://www.bpa.gov/Pages/home.aspx>
- <https://rgsenergy.com/commercial-solar/our-work/solar-for-schools/>
- <https://www.mytpu.org/tacomapower/about-tacoma-power/dams-power-sources/community-solar/>
- <https://cebrightfutures.org/partners/portland-public-schools>
- <https://www.solarpowerauthority.com/top-10-u-s-solar-powered-universities-and-how-theyre-doing-it/>
- <https://electricityplans.com/kwh-kilowatt-hour-can-power/>
- <https://www.governor.wa.gov/tags/climate>
- <https://news.energysage.com/how-much-does-the-average-solar-panel-installation-cost-in-the-u-s/>
- <http://brightstarsolar.net/common-sizes-of-solar-panels/>

Reardan FFA Agricultural Issues Forum Is Washington Doing Enough to Save Puget Sound's Southern Resident Killer Whales?

STEM Alliance-Puget Sound Partnership-Whale Trail
Washington State Capitol Building-Olympia, WA
Donna Sandstrom-Whale Trail-Seattle, WA
Wednesday, February 27th, 2019

Reardan FFA Chapter
215 E. Spokane Ave.
Reardan, WA 99029
509-796-2701





History, Backstory, Introduction



History, Backstory, Introduction



POLITICAL ECOLOGY

meaning, definition, explanation...



- Identify
- Prioritize
- Support

SOUTHERN RESIDENT KILLER WHALE RECOVERY & TASK FORCE

JAY INSLEE
Governor



STATE OF WASHINGTON
OFFICE OF THE GOVERNOR
P.O. Box 40002 • Olympia, Washington 98504-0002 • (360) 902-4111 • www.governor.wa.gov

EXECUTIVE ORDER 18-02

SOUTHERN RESIDENT KILLER WHALE RECOVERY AND TASK FORCE

WHEREAS, Southern Resident Killer Whales (Southern Residents) are an iconic and treasured species in Washington and throughout the Pacific Northwest;

WHEREAS, Southern Residents are classified as endangered in Washington and surrounding waters, under the U.S. Endangered Species Act and in Canada under the Species at Risk Act;

WHEREAS, the population of Southern Residents has declined, from a high of 98 in 1995, to 76 today, which is the lowest number of Southern Residents in more than three decades. Recent science also indicates that many Southern Residents are in poor condition and are struggling to raise calves;

WHEREAS, if Southern Residents were to become extinct, we would suffer an unacceptable loss to our environment, economy, and way of life. We would also lose an essential component of our marine ecosystem and an indicator of the health of our waters;

WHEREAS, Southern Residents hold significant cultural value to native tribes and all Washingtonians;

WHEREAS, Southern Residents, through the whale watching industry alone, contribute as much as \$60 million to the local economy annually and provide hundreds of jobs to the Puget Sound region;

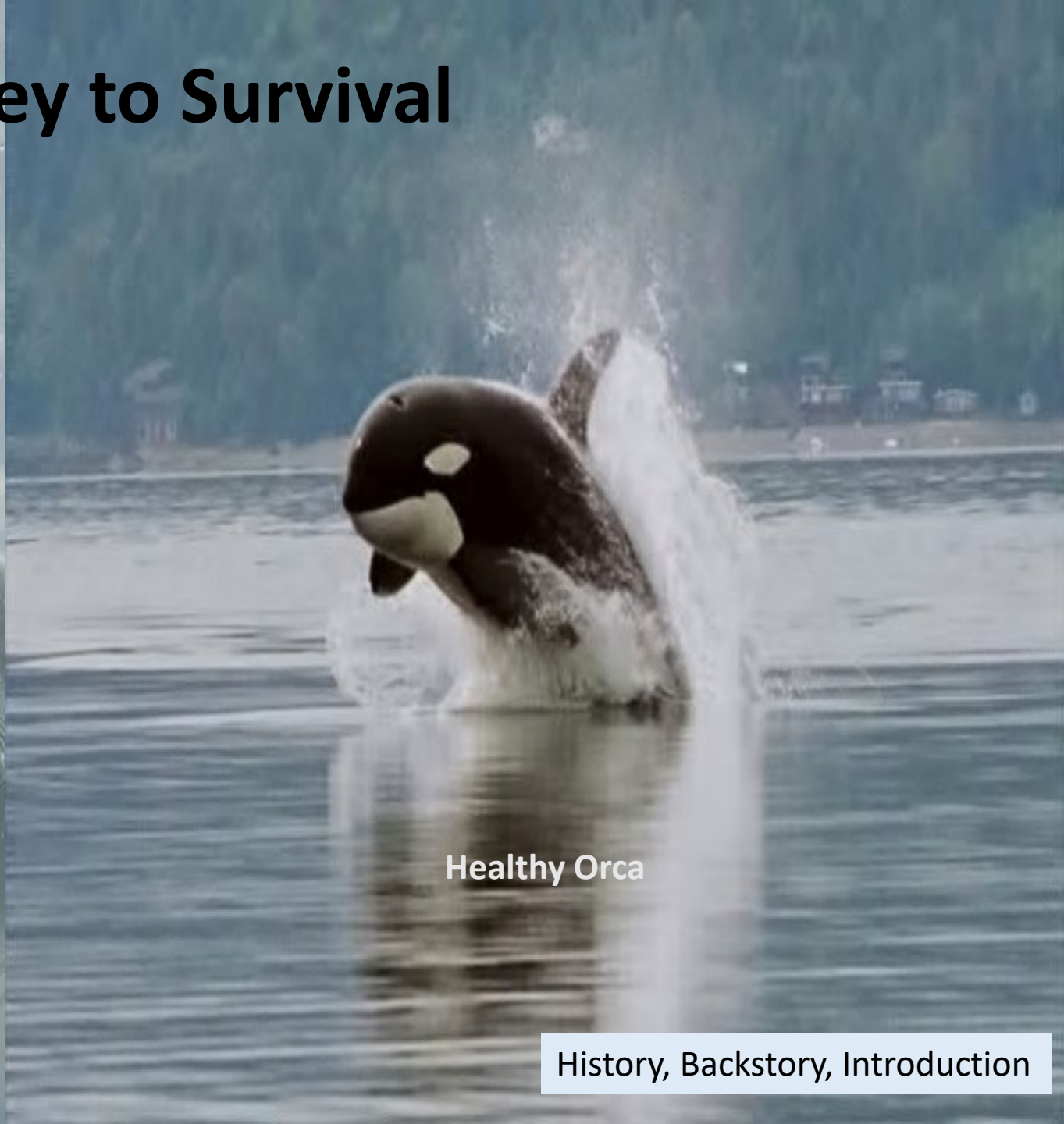
WHEREAS, Southern Residents make their home in Washington's marine waters for a portion of the year, but they are also highly migratory seeking prey along the west coast from Northern California to Southeast Alaska. Therefore, Southern Residents rely on healthy ecosystems and food sources from Washington and throughout the west coast of the United States and Canada;

WHEREAS, three primary factors threaten Southern Resident populations: (1) prey availability, (2) legacy and new toxic contaminants, and (3) disturbance from noise and vessel traffic. The health of Southern Residents and Chinook salmon are tightly linked. Recent scientific studies indicate that reduced Chinook salmon runs undermine the potential for the Southern Resident population to successfully reproduce and recover. Both Southern Residents and Chinook salmon populations are adversely impacted by warming oceans and ocean acidification due to climate change. Presence of contaminants and accumulation of pollutants in Washington's waters are

History, Backstory, Introduction

Nutrition is Key to Survival

Malnourished – “Peanut Head”



Healthy Orca

History, Backstory, Introduction



Is Washington Doing Enough to Save Puget Sound's Southern Resident Killer Whales?

Proponent Introduction

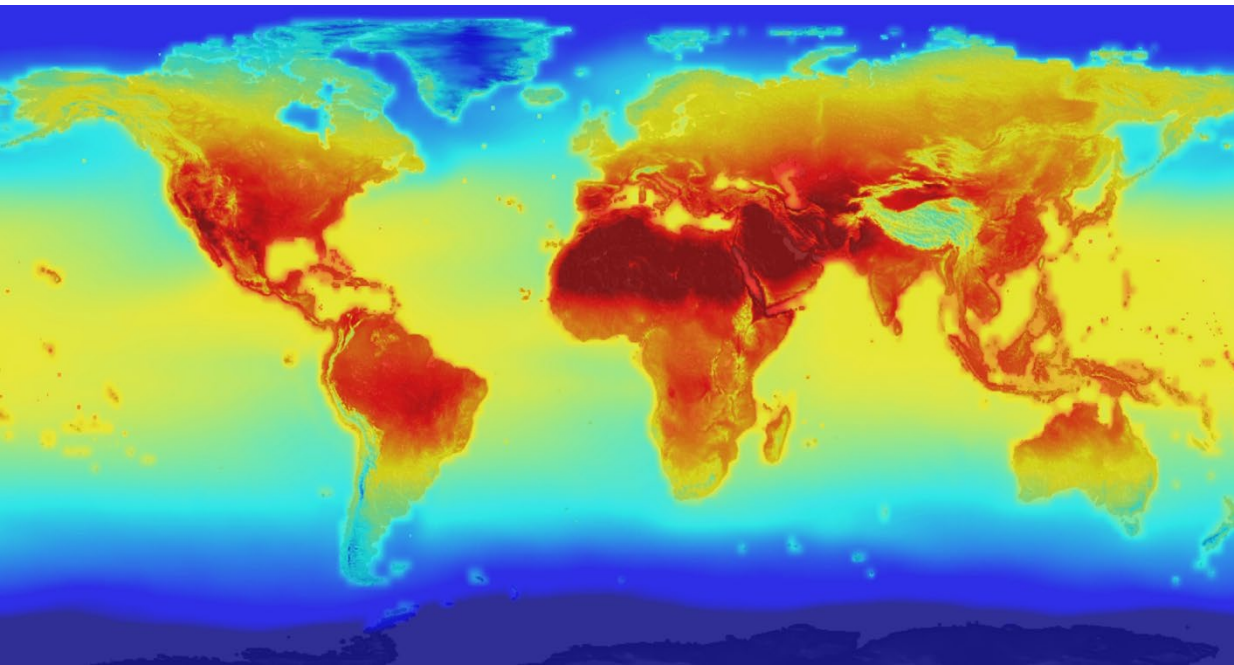


Prey

Boat Noise

Pollution

Climate Change



Opponent Introduction



Methods

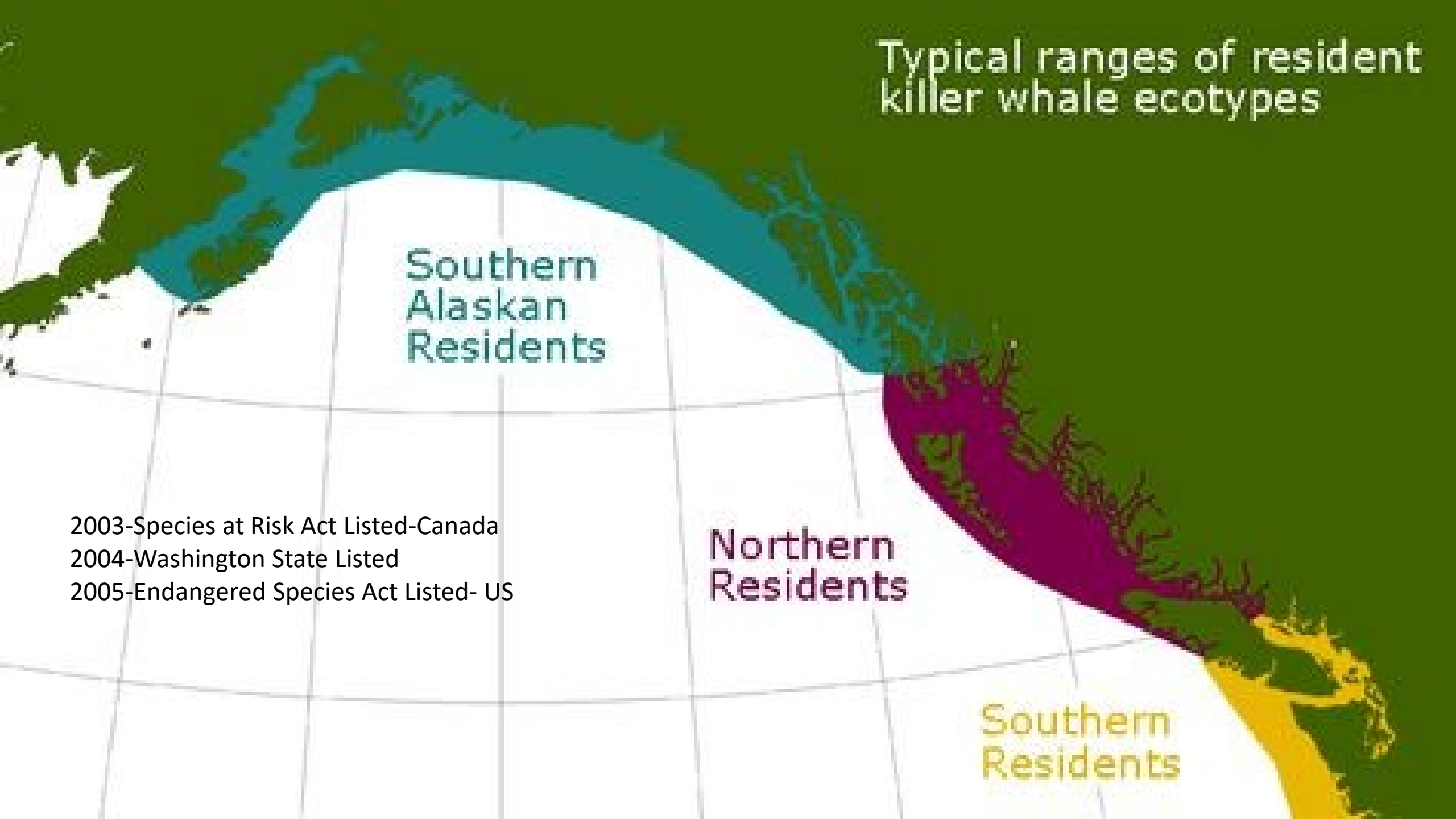
Timeliness

Finances

Priorities



Typical ranges of resident killer whale ecotypes



Southern
Alaskan
Residents

Northern
Residents

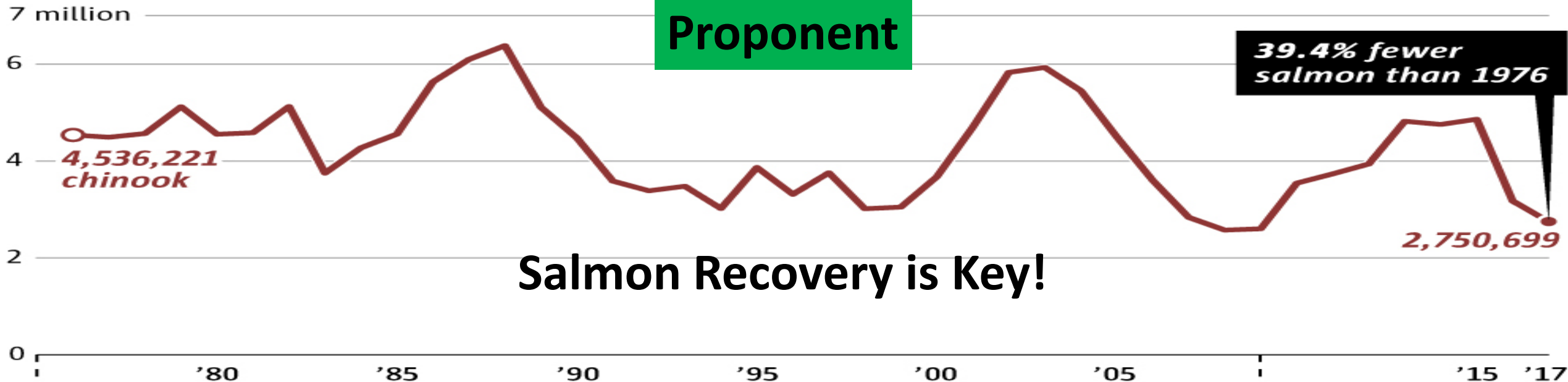
Southern
Residents

2003-Species at Risk Act Listed-Canada
2004-Washington State Listed
2005-Endangered Species Act Listed- US

Salmon declining in abundance and size

Chinook populations up and down the West Coast have slowly been decreasing since the 1980s. Not only are there fewer fish in regional waters, but individuals are shrinking in average size and weight, with the older, fatter salmon making up less and less of the population.

CHINOOK ABUNDANCE FROM ALASKA THROUGH CALIFORNIA



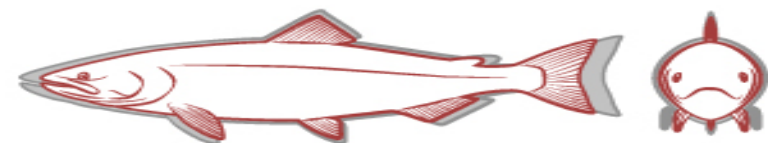
1975
West Coast chinook
(average 4-year-old)



Weight: **25 pounds**
Length: **37.9 inches**

In 34 years, chinook on average
have shrunk by
20% in weight and 7% in length*.

2009
West Coast chinook
(average 4-year-old)



Weight: **20 pounds**
Length: **35.1 inches**

**Weight and length measured for 4-year-old ocean chinook from multiple salmon runs from Alaska to California.*

Sources: Ohlberger, Jan, et. al, "Demographic changes in Chinook salmon across the Northeast Pacific Ocean," Fish and Fisheries, Center for Whale Research, Pacific Fishery Management Council (2018), NOAA Technical Memorandum NMFS-NWFSC-123 (July 2013), Pacific Salmon Commission (2018)

Productive and protected habitat

Proponent



Proponent

	Chum Salmon	Columbia River (threatened)
	Chinook Salmon	Snake River Fall (threatened) Snake River Spring/Summer (threatened) Lower Columbia River (threatened) Upper Columbia River Spring (endangered) Upper Willamette River (threatened)
	Steelhead	Snake River Basin (threatened) Lower Columbia River (threatened) Middle Columbia River (threatened) Upper Columbia River Spring (endangered) Upper Willamette River (threatened)
	Coho Salmon	Lower Columbia River (threatened)
	Sockeye Salmon	Snake River (endangered)
	White Sturgeon	Kootenai River (endangered)
	Bull Trout	(threatened)

 Canadian Dams
 Federal Dams
 Non-Federal Dams
 Blocked Passage



Columbia River Basin

Proponent

VS

Competition plays a role



Proponent

Bonneville

POWER ADMINISTRATION



Proponent

Marine Mammal Protection Act

CC BY 3.0



Proponents keep it straightforward here



7 of the 12 Chinook Runs Come From Upper Columbia





Opponent



SALMON RECOVERY CONFERENCE

DAILY



BRIEFING



No United Front



Opponents

Much of the work has already been done!



Is there enough time?

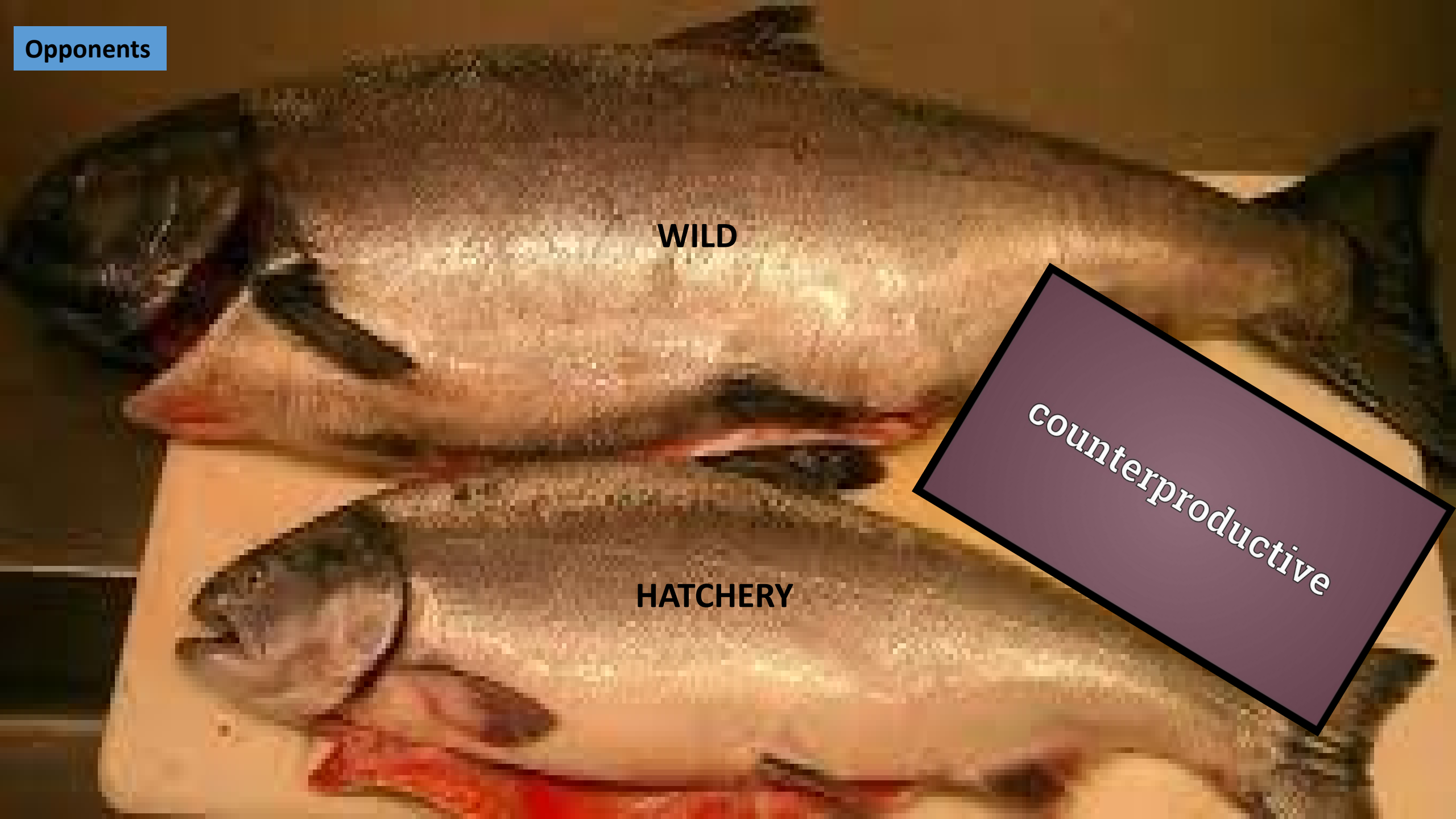


Opponents

WILD

HATCHERY

counterproductive



THERE'S A PROBLEM?

THROW MORE MONEY AT IT

Opponents All Agree - Something Must Be Done!

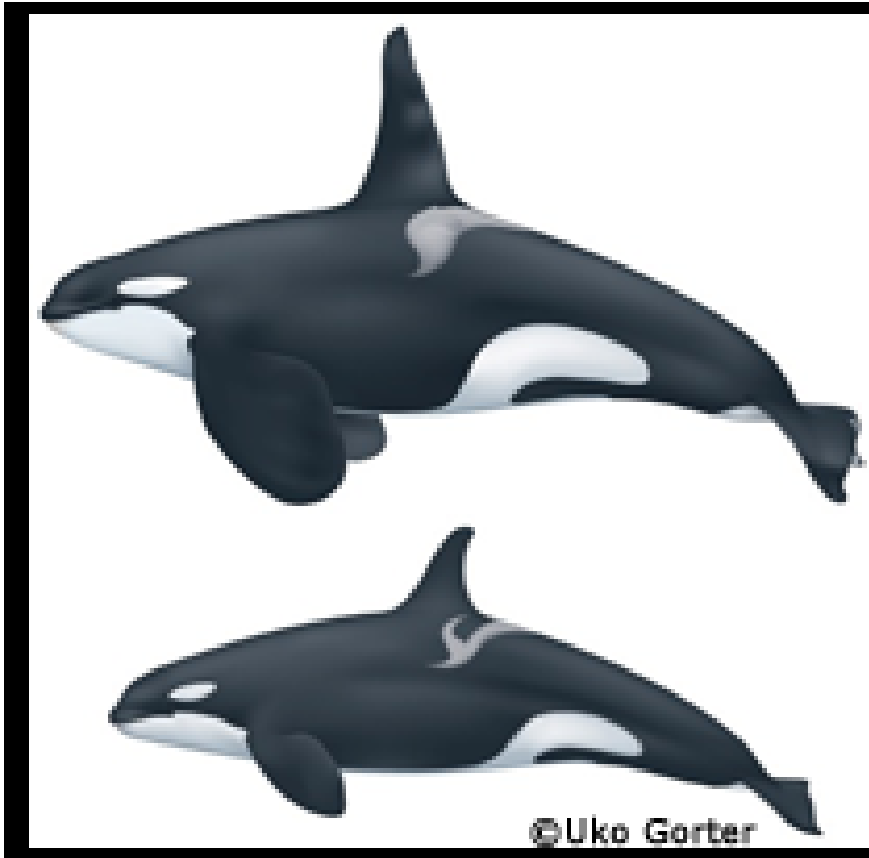




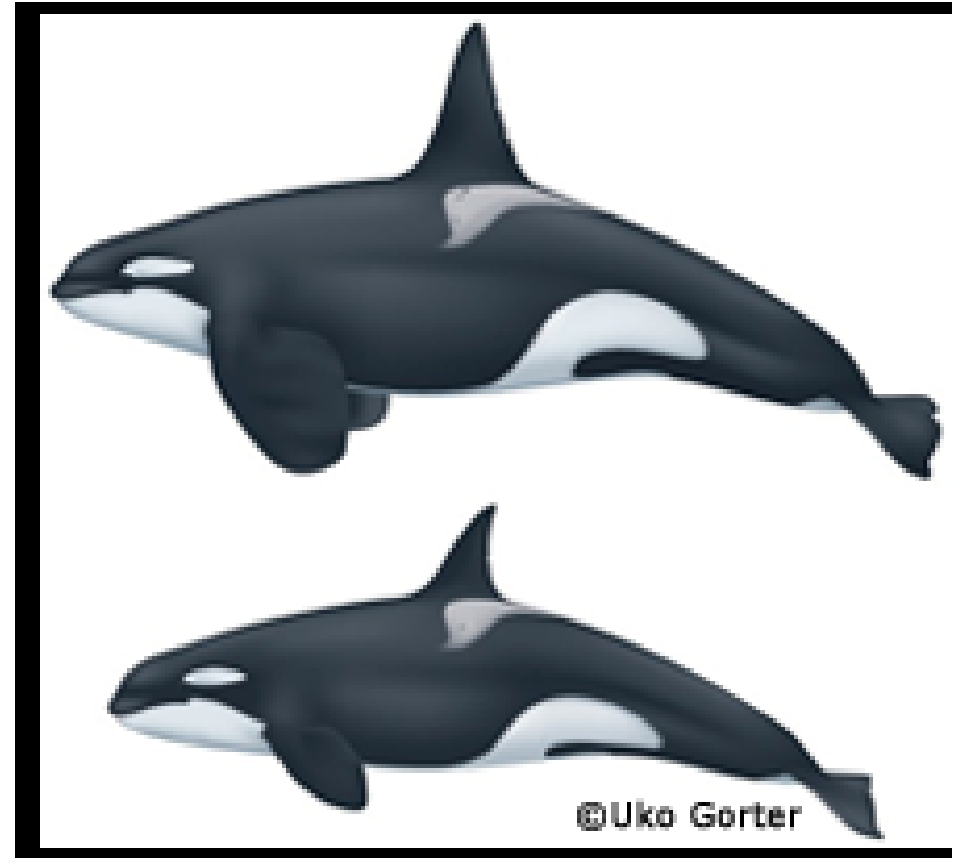
Vessel Noise and Traffic

Confined or Condemned?

Proponent



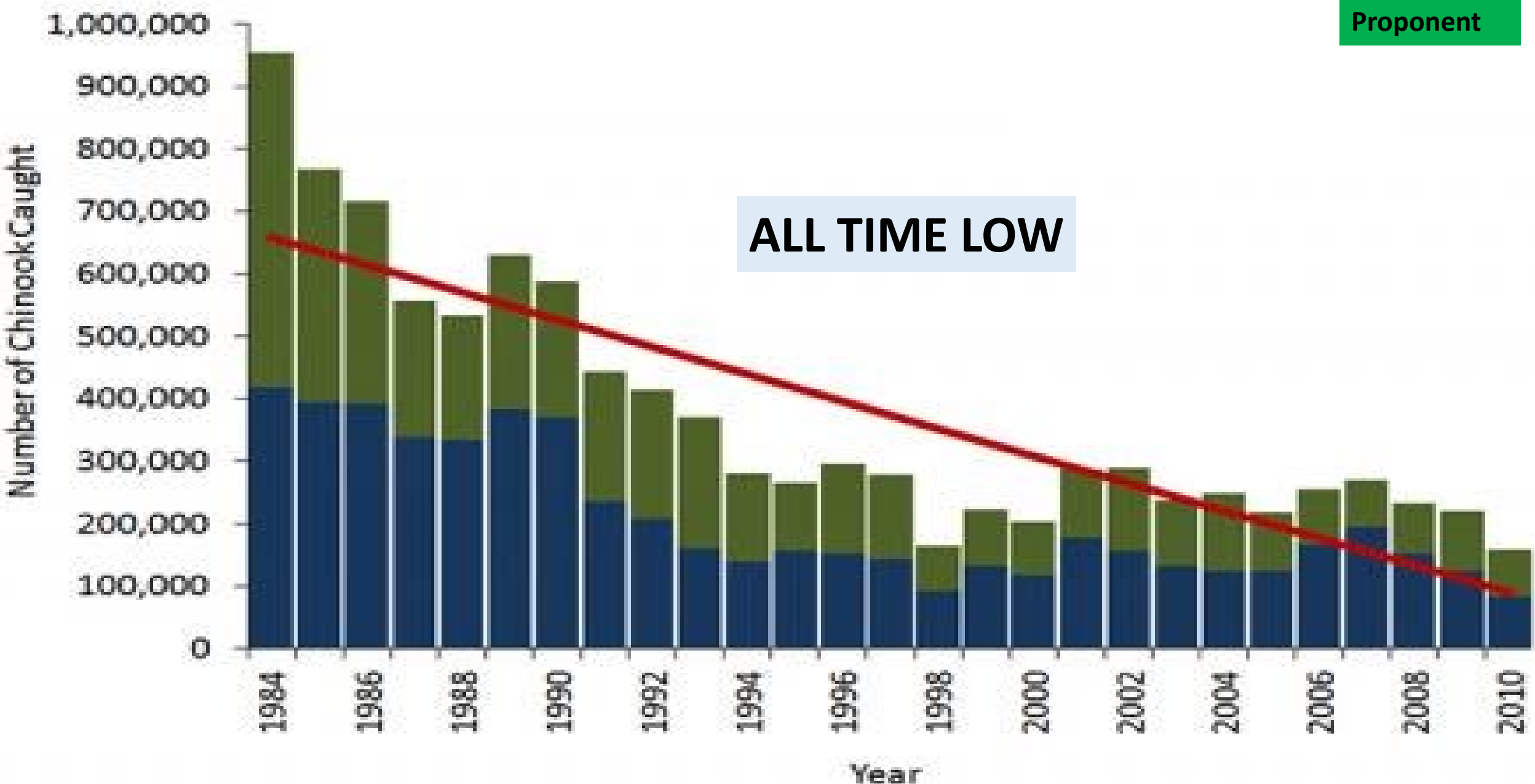
Southern Resident



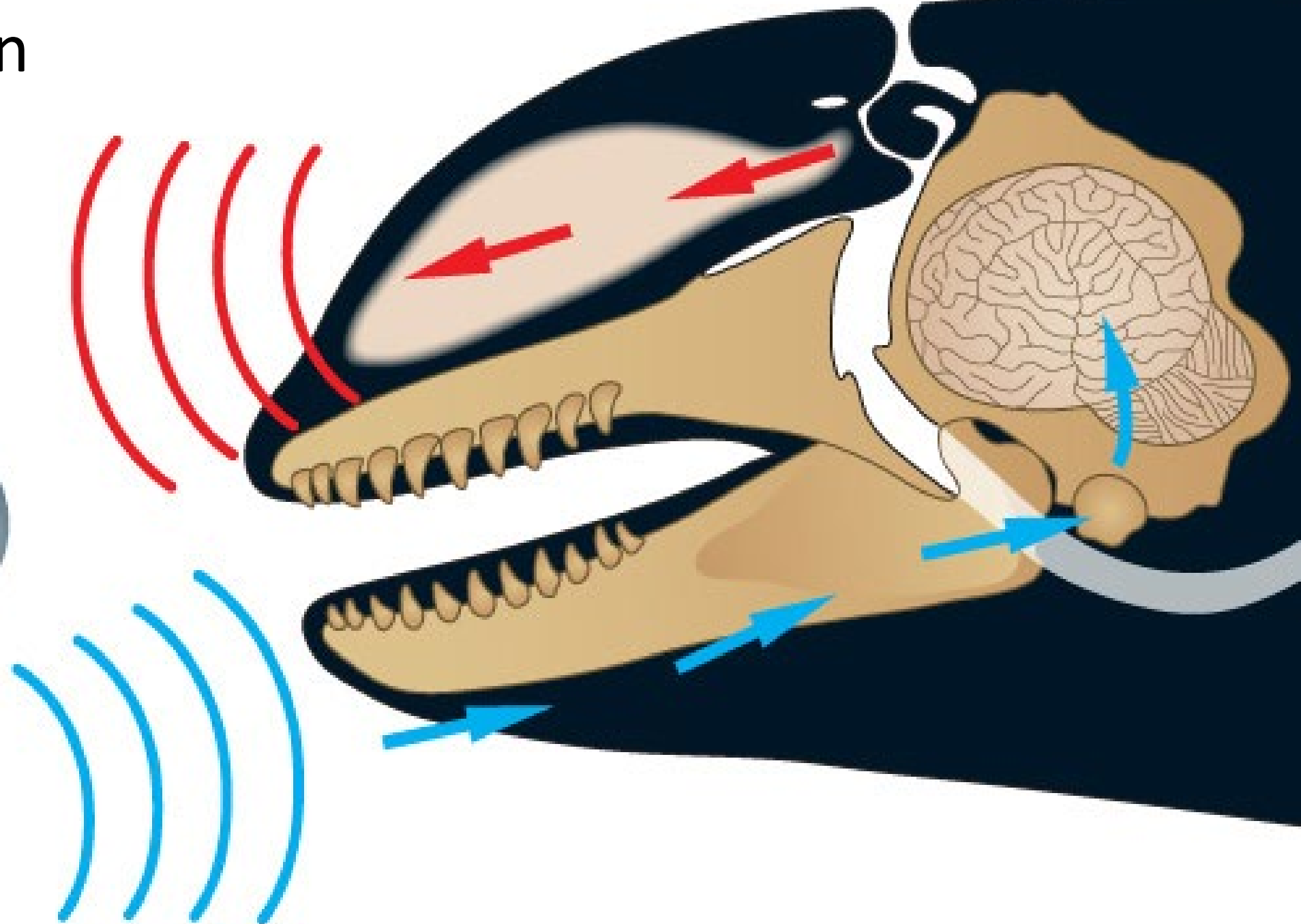
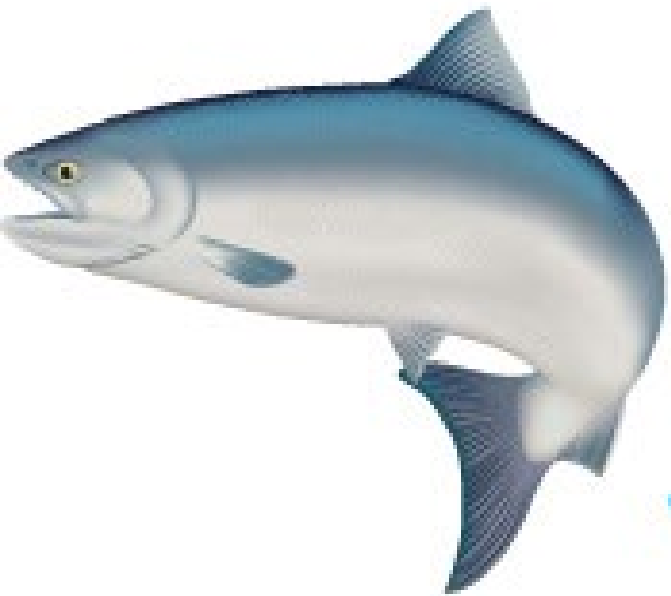
Transient

Management actions have focused on reducing chinook harvests to aid in Chinook recovery.

Proponent



Echolocation





“...literally shrinking their world.” Rob Williams- Oceans Initiative

Proponent





Not Been Determined?

Opponents



PEACEFUL
COEXISTENCE

The sad truth is
the truth is sad.



- Reduce Shipping Efficiency
- \$10 fee





1 Kilometer Slow Approach - Maximum Speed 7 Knots

200 Yards/Meters from Killer Whales

100 Yards/Meters



Avoid stopping in the expected path of any whale



Pacific Whale Watch Association
Voluntary Whale Viewing Guidelines
Best Practices - Updated 2018



All Aboard Sailing
Sailing Adventures in the San Juan Islands



ORCA SPIRIT
ADVENTURES

ocean
ecoventures

akt
anacortes kayak tours

WHALE & WILDLIFE WATCHING
EAGLE WING TOURS



Spirit of Conservation



OUTER ISLAND
EXCURSIONS

R&R Charters

Mystic
Sea
CHARTERS

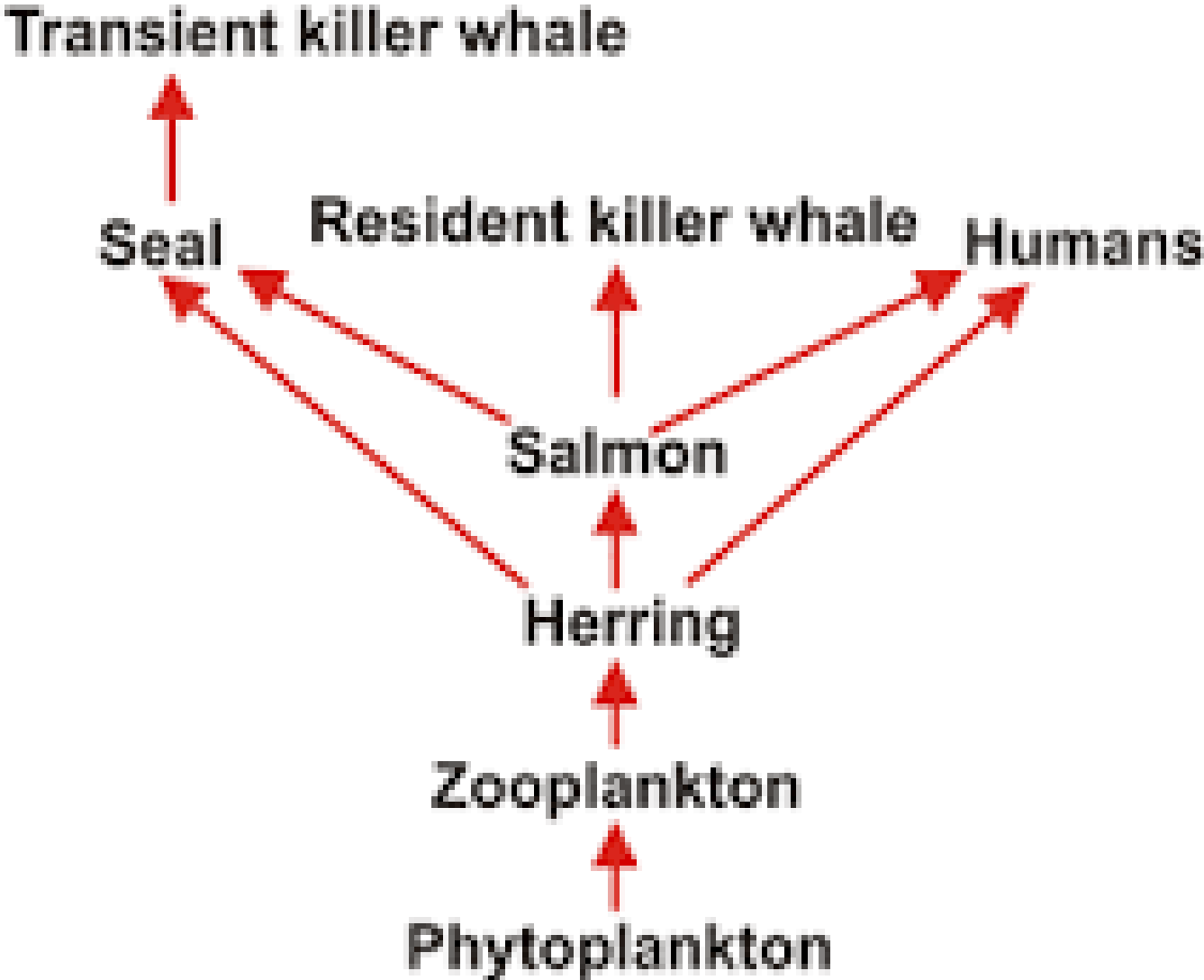
FIVE STAR
WHALE WATCHING

Process Needs Some Cleaning Up?





Proponents



Proponents

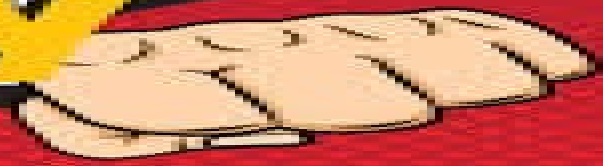
Malnutrition

Toxic Contaminants



DOUBLE WHAMMY

Proponents



*SOUND
POLICY*

?

Who did it?



Allies Become Adversaries!

Opponents



- Irregularities in salmon runs
- Changes in Orca feeding behaviors

Proponents

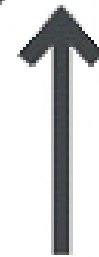
Global Climate Change

A world map where colors represent temperature variations. The equatorial regions are shown in red and orange, indicating higher temperatures, while the polar regions are in blue and purple, indicating lower temperatures. The text 'Global Climate Change' is centered over the map in a large, white, sans-serif font.



THINGS
THAT
MATTER

THINGS
YOU CAN
CONTROL



WHAT YOU SHOULD FOCUS ON



Proponent Summary

- **Complicated and Controversial**
- **Policy Changes**
- **Prey Availability**
- **Reduce Boat Traffic and Noise**
- **Reduce Toxins**
- **Address Global Climate Change**



Opponent Summary

- **Priorities, procedures, and policies**
- **Cast too big of a net**
- **Unintended consequences**
- **Politically charged**
- **Not good Science**



Is Washington State Doing Enough to Save Puget Sound's Southern Resident Killer Whales?



- **Chinook Population Trending Decline**
- **Productive and Protected Habitat**
- **Manmade Structures**



“I have to really decide if this task force is for me”

Ken Balcomb

Senior Scientist, Center for Whale Research

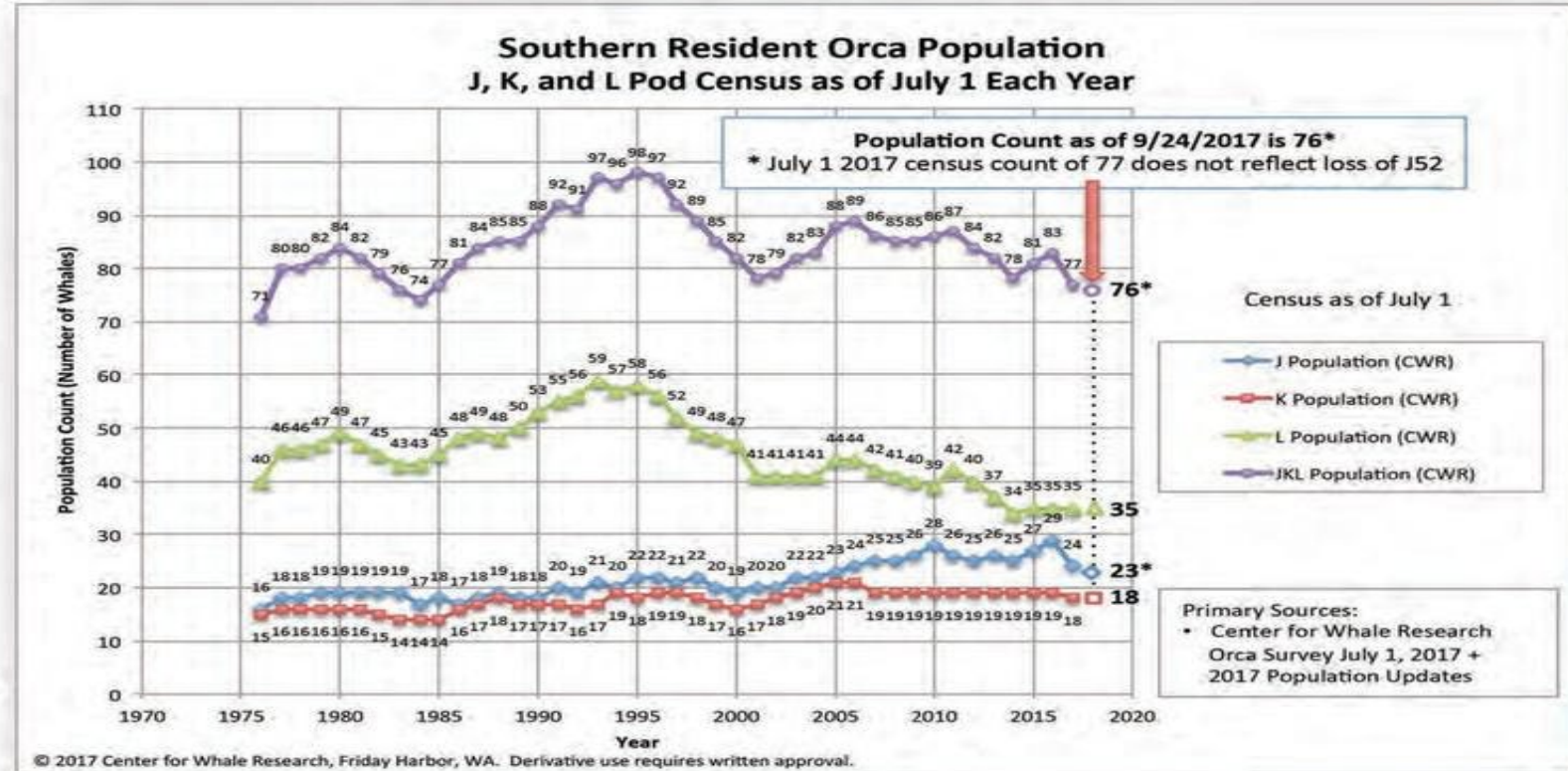


Politically charged

2017 SRKW Census – July 1

With Post-July Updates

- This is the population chart prepared by CWR each year for NOAA, DFO, and the general public.
- L pod has been driving the overall decline until recently.
- J pod has recently experienced many losses.
- The net changes in the total population are not as meaningful as the details (next slide).



**Is Washington Doing
Enough to Save Puget
Sound's Southern
Resident Killer
Whales?**



The background of the slide is white with a repeating pattern of black beaver silhouettes. The beavers are shown in a side profile, facing right, and are scattered across the entire page. In the center, there is a light gray rectangular banner with a white border. Inside this banner, the text 'BEAVER TEAM' is written in a large, bold, red, sans-serif font. Below the banner, the names of the team members are listed in a smaller, black, italicized, sans-serif font.

BEAVER TEAM

*Reese Braman, Nick Gleed, Alice
Miller, Rowan Utzinger*

Intro:

- The Mid-Columbia Fisheries Enhancement Group spent \$1.1 million in 2011 restoring the Reecer Floodplain
- Focus: floodplain function, enhance habitat, provide educational and recreational opportunities
- Beavers act as ecosystem engineers
- Dams also used to slow flow of water to create wetland for 85% of North American fauna that rely on wetlands.



2011

2018



Methods:

- Weighted scale of five ecosystem indicators (adapted from Fish and Wildlife index): Water depth and speed, stream grade, vegetation quality, cover
- Evaluated 50ft sections of both mature creek section and the more mature section
- Randomly selected sections



Our Survey Rating Scale

- Surveyed points every 50 ft along the creek.

Example Survey:

Point One (17ft)

Water speed: 3.4 sec/3 ft (0.88 ft/sec)

Cover: Based on image

Depth: 1-2 ft

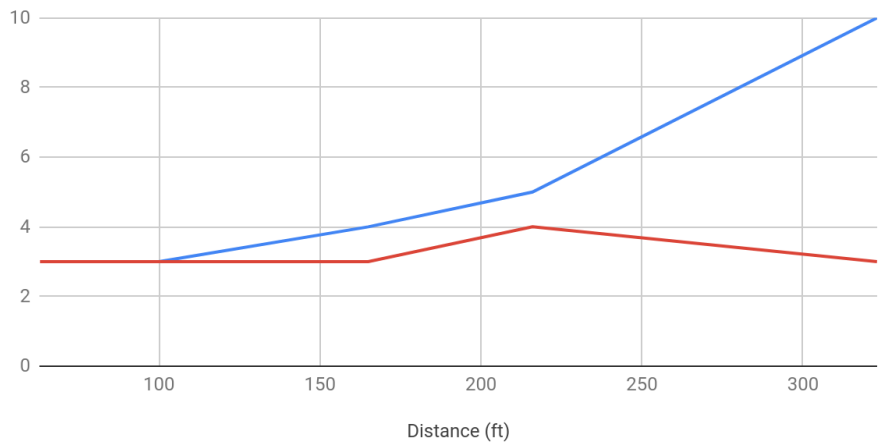
Vegetation: 2 mid-sized trees, saplings (cottonwood), grass.

Grade: -

Poor Habitat	Possible Forage	Support Foraging	Quality Habitat	Support dams
	Food Vegetation	Cover	Grade	Depth>2.5 ft
		Food Vegetation	Cover	Speed<1.28 ft/s
			Plants 1-2 in (food)	Grade<15%
				Cover (evaluated)
				Vegetation (1-2in and 3-4in)

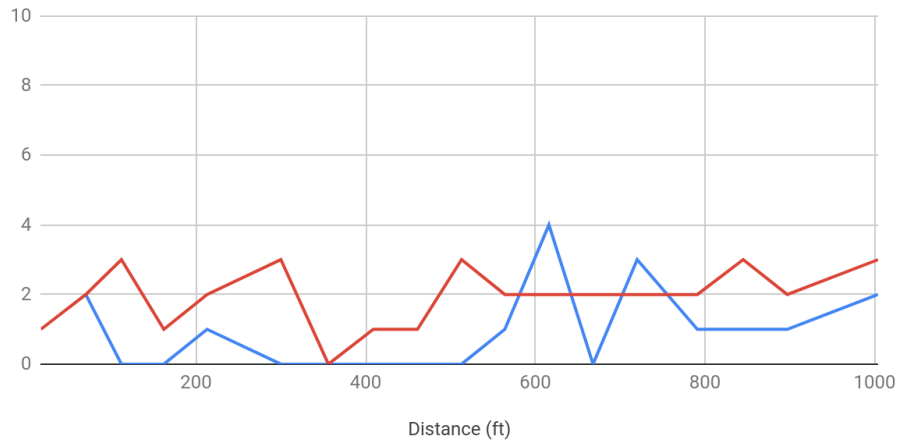
Activity and Evaluation (Mature section)

Activity Evaluation



Activity and Evaluation (Restored Floodplain)

Activity Evaluation



Findings:

- The Reecer Creek Floodplain is unable to support beaver populations
- Beaver activity observed on the floodplain most likely foragers based in larger colony
- Main habitat failings included limited availability of larger trees and inadequate cover
- With further maturation, the Floodplain will likely be able to support beaver populations.

Conclusion:

- In our survey, we discovered that yes, there is a colony of beavers and a dam at the end of Reecer Creek, but they are not based on the floodplain.
- The Reecer Creek Floodplain is not quite ready to support its own separate colony of beavers.
- Reecer Creek is making great strides toward being a continuously supportive ecosystem, but it constantly rated on average one point lower in habitat quality than our compared tribeland ecosystem.
- Through our surveys, Reecer does have enough vegetation to support beaver life, but it needs more time to grow and develop to sustainably support beavers.

Works Cited

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- "Beavers Belong!" *Animal Protection of New Mexico*, 26 Nov. 2018, apnm.org/what-we-do/promoting-coexistence-with-wildlife/beavers-belong/.
- "Beaver (Castor Canadensis) Species Profile." *Muskox Species Profile*, Alaska Department of Fish and Game, www.adfg.alaska.gov/index.cfm?adfg=beaver.main.
- Bradford, Alina. "Facts About Beavers." *LiveScience*, Purch, 13 Oct. 2015, www.livescience.com/52460-beavers.html.
- Hoag, Chris et al. *Field Guide for the Identification and Use of Common Riparian Woody Plants of the Intermountain West and Pacific Northwest Region*. USDA, 2008.
- Owens, Barb. "Reecer Creek Floodplain Restoration Nearly Complete." *Daily Record*, 12 Nov. 2011. www.dailyrecordnews.com/reecer-creek-floodplain-restoration-nearly-complete