Unblocking Fish Passage & Installing Fish Screens Saves Lives

Report By Ninette Jones
Sea Lion Defense Brigade 2017
Updated April, 2019

- What is a water diversion?

- Diverting water temporarily or permanently for construction purposes, eg., in rivers in stream beds to install sediment control or storm water devices

- **Water is diverted using in stream barriers such as dams, weirs, culverts, canals, and pipes.**

- **Diversion** dams do not generally impound **water** in a reservoir. Instead, the **water** is **diverted** into an artificial **water** course or canal, which may be used for irrigation or return to the river after passing through hydroelectric generators, flow into a different river or be itself dammed forming a reservoir.
- Source:google Wikipedia

"Barriers are frequently associated

with irrigation, municipal, industrial and hydroelectric water diversions

that can cause fish loss in the millions"

ODFW's Pete Baki. Fish Screen Report 2015

- The US NAVY working with Washington State's Department of Ecology in 2014 identified over **30,000** blocked fish passages in Washington State**.**

Fish kill in unscreened part of diversion (fish in ditch between diversion point and screen, eastern Washington)

Photo credit: ODFW Fish Screen Report

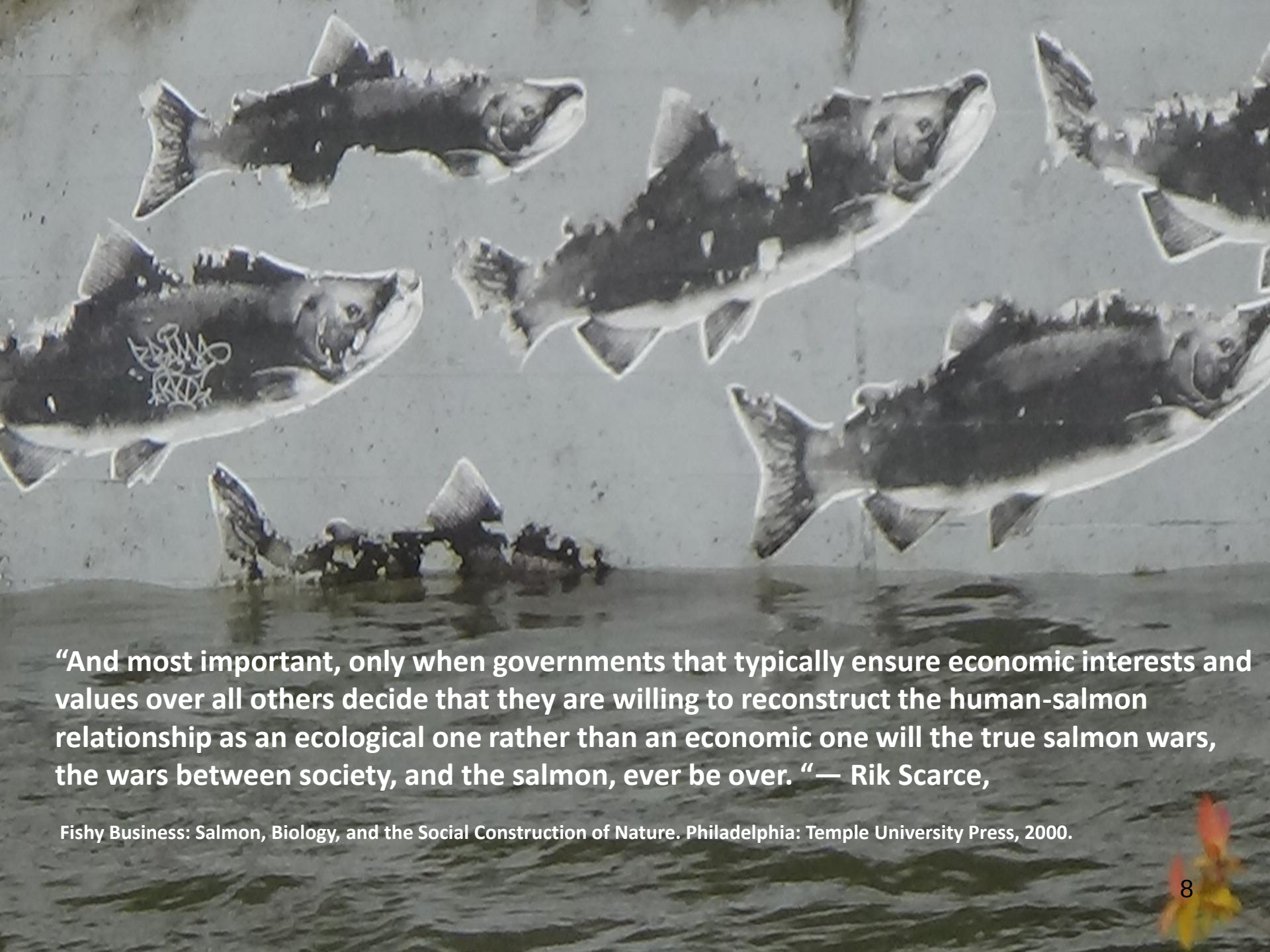
- ORS §498.306 requires ODFW

- **to identify 3,500 priority** unscreened diversions.

- "Thousands of water diversions remain unscreened in Oregon, placing fish at risk"

- Curt Melcher, then Interim ODFW Director in the 2013 -15 ODFW's Fish Screen Report. (Pg. 2, 5).

An Inventory of Water Diversions in Oregon Needing Fish Screens – prepared by David Nichols, ODFW, 1990.
Source:http://tinyurl.com/nfs7s4l



“And most important, only when governments that typically ensure economic interests and values over all others decide that they are willing to reconstruct the human-salmon relationship as an ecological one rather than an economic one will the true salmon wars, the wars between society, and the salmon, ever be over. “— Rik Scarce,

Fishy Business: Salmon, Biology, and the Social Construction of Nature. Philadelphia: Temple University Press, 2000.

Let's Do The Math

3,500 priority unscreened diversions in OR.

x **3** salmon (if only) die per unscreened diversion

Total = **10,500** salmon mortalities

3 salmon per diversion is very conservative. Fish loss can be in the millions.

10,500 salmon killed in unscreened diversions in Oregon and that is more salmon consumed by all the sea lions combined at the Bonneville Dam in 2015.

- January 2019: there are currently **42,780** inventoried **artificial barriers** (those structures, such as culverts, dams, tide gates, levees, etc., placed in fish bearing streams that hinder, or have the potential to hinder fish passage) exist in Oregon*.

- ODFW lists **591 barriers for prioritization.** They comprise less than 2% of the overall known barriers to fish passage in the state. *

- SOURCE:
- *Oregon Department of Fish & Wildlife Fish Screening and Passage Program
- 2019 Statewide Fish Passage Priority List April 19, 2019

42,780 blocked fish passage (OR).

30,000 blocked fish passages (Wa).

approximate Total:

72,780 man-made artificial barriers to inhibit passage, disorientate, stun, injure and kill fish across Oregon & Washington State.

This is a huge challenge for our wild salmon recovery efforts.

Plus **3,500 high priority** unscreened diversions (OR).

- Oregon State Police and staff from ODFW went in boats up and down the river from Eugene to the mouth of the Willamette looking for diversions.

- They found about 510. Water Resources staff are now identifying who owns them(2013).

- **Oregon Department of Fish and Wildlife Fish Screening Program: Fish Screen Types and Costs S5 | | BERNIE KEPSHIRE**

Bypass

- Bypasses must be carefully monitored because every year the stream may shift during a winter storm.

- This means that suddenly the bypass no longer empties into the stream but instead dumps the fish out onto rocks. ODFW report

- **Oregon Department of Fish and Wildlife Fish Screening Program: Fish Screen Types and Costs, BERNIE KEPSHIRE**

photo Credit: ODFW

Action & Mitigation

- Investing in improving fish passage & installing Fish screens that meet lamprey friendly criteria are needed.

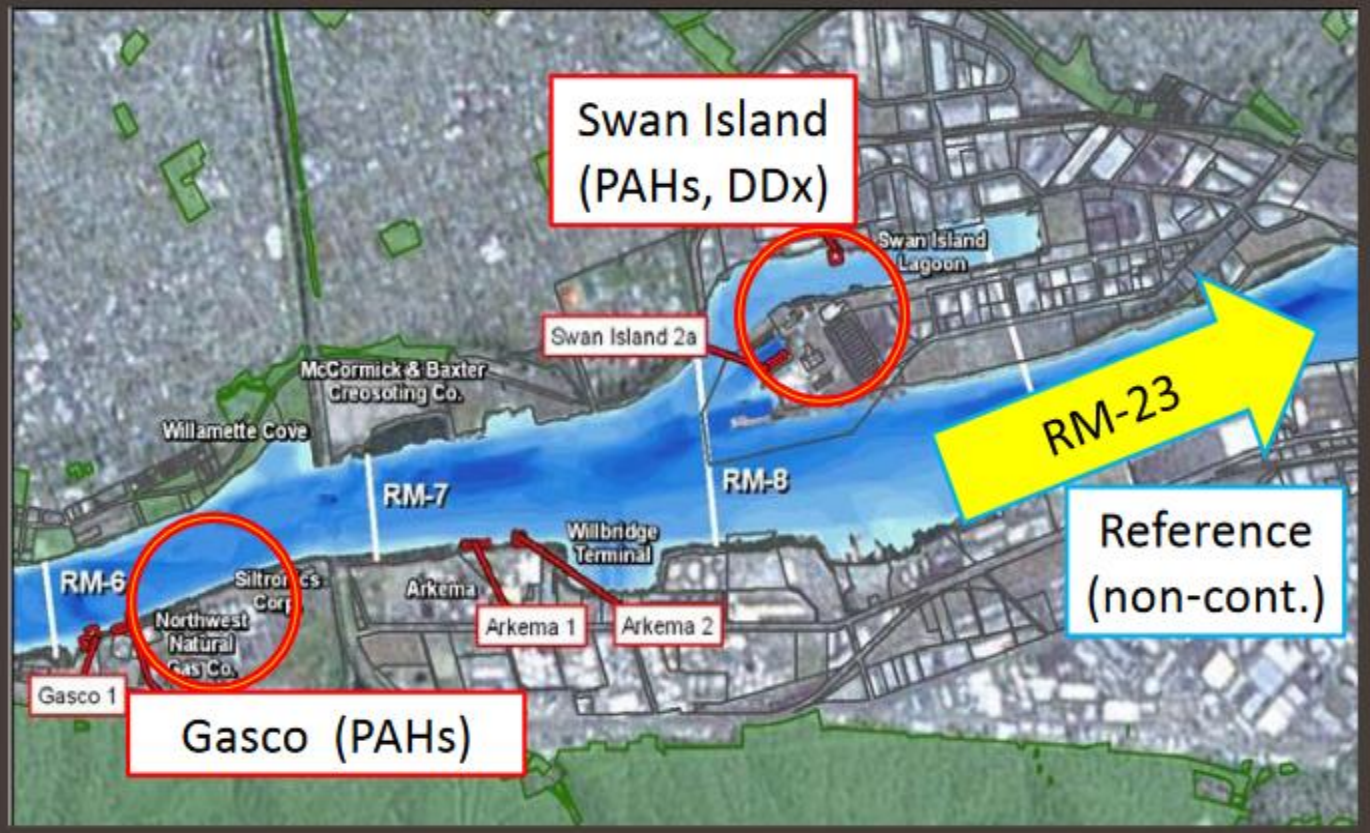
- A full time crew employed to **maintain** the fish screens in watersheds across Oregon /Washington State are needed.

- "Thousands of water diversions remain unscreened in Oregon, placing fish at risk."
- Curt Melcher, Interim ODFW 2013 -15 fish screen report (Pg. 2, 5). http://tinyurl.com/ojsybay


DANGER
RADIATIONS


DoubleTree Hotel
Cut the Budget for Killing Sea Lions
www.idausa.com
Cut the Budget for Killing Sea Lions

Lower Willamette River, Oregon
Portland Harbor Superfund Site



- High levels of Copper, Mercury & other heavy metals, persistent chemicals, & endocrine disrupters have been found in the lower Columbia River estuary

- The trace element Copper contributed less frequent spawning, reduced olfactory function, suppressed immune function, reduced growth, disrupted reproduction, cellular damage and that there is a strong need for federal assistance for toxic remediation in the lower Columbia River estuary.

- CREST toxic report 2013

- “I will speak about California central valley salmon, yet my comments apply to other habitats.”

- “Most predation occurs when young fish migrate downstream to their adult habitat the sea,“ Dr. Gary Grossman

- “For example, copper concentrations commonly found in the Ca Delta waters produces abnormal behaviors in Coho salmon that render them more susceptible to predators. “*

- * Dr. Gary Grossman-- Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia

- Pollution: Toxic Contaminates, Heavy metals, & endocrine disruptors found in fish in the Columbia River DEQ REMAP REPORT : http://tinyurl.com/qdvounb

- "Predation is frequently associated with **approximate** cause of mortality because virtually any factor that weakens or disorientates a salmon will increase the probability of predation .”

- Dr. Gary Grossman-- Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia

“In this case predation may be the approximate cause of mortality but the **contaminant** is actually

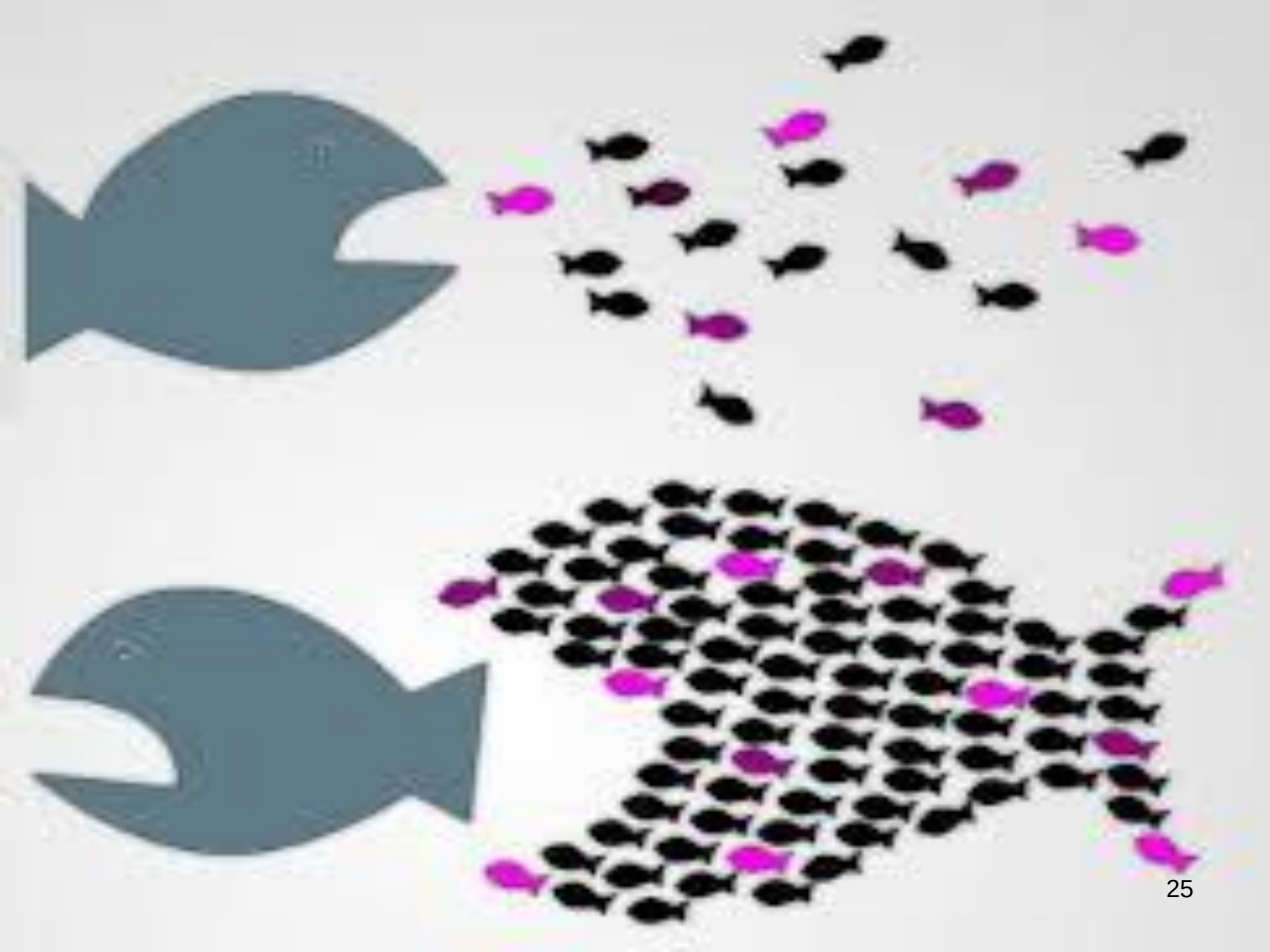
the ultimate cause.”

•Dr. Gary Grossma Phd, Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia

- "When considering salmon mortality one must distinguish between “**approximated**”
- and
- “**ultimate**” causes of death because management efforts as expensive as they are can only be so successful when they address the
- **"ultimate"** causes."

Dr. Gary Grossman–

Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia.



- “Unfortunately the endangered salmon reside in a highly altered habitat difficult to establish a hierarchy on the cause effecting salmon mortality Consequently assigning a value to potential increase in of salmon abundance that will be produced by predator control is problematical.”

- Dr. Gary Grossman–

Professor of Animal Ecology Warnell School of Forestry and Natural Resources University of Georgia.

- “When compared to increases potentially from other remediation of other negative influences such as degraded habitat, altered flow regime and contaminants. “ *

- Since 1981, Dr. Grossman Phd. has been a professor of animal ecology from the University of Georgia. His primary research areas are “population dynamics and habitat selection and fishes.” He has published over one hundred and fifteen scientific papers, cited over 5,000 times. For the last twenty years has been advising fisheries agencies in California. In addition, in 2013 led a public hearing on the effects of fish predation on endangered salmonids that produced a technical report. He has recently completed a general review

- “Predator control also to be frank is more politically tractable then some aspects of habitat remediation such as reducing water exports from the Delta." Dr. Grossman says,

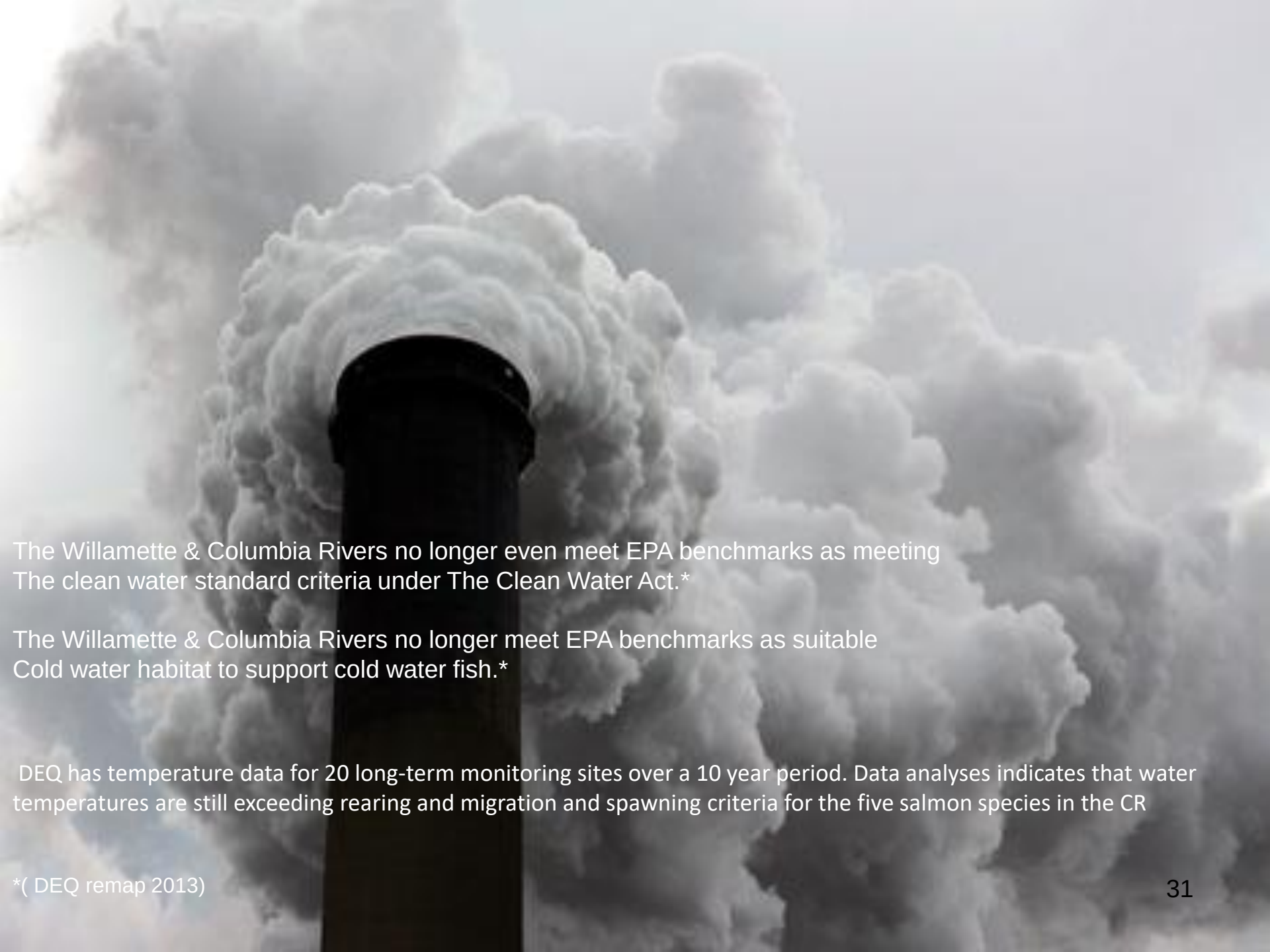
- **"Based on the evidence at hand I believe efforts to increase ESA salmon should focus on habitat, flow restoration, contaminate remediation and alteration of artificial structures that disorient and, trap fish."** Dr. Gary Grossman.

- The management of most industrialized marine fisheries is tending towards avoiding serial depletion of top predators (Worm and others 2009),

- **“There really is no strong evidence in historical predator control efforts that have resulted in substantial increases of salmon population.”***

*** Dr. Gary Grossman,Phd**

"With the exception of lamprey control which lamprey are not a predator of issue here. There are no historical records to show predator control shows substantial population increases in salmon populations despite considerable reductions in predator abundance." Dr Gary Grossman.



The Willamette & Columbia Rivers no longer even meet EPA benchmarks as meeting
The clean water standard criteria under The Clean Water Act.*

The Willamette & Columbia Rivers no longer meet EPA benchmarks as suitable
Cold water habitat to support cold water fish.*

DEQ has temperature data for 20 long-term monitoring sites over a 10 year period. Data analyses indicates that water temperatures are still exceeding rearing and migration and spawning criteria for the five salmon species in the CR

*(DEQ remap 2013)

- Based on scat samples collected from the Columbia River and ocean sites (including the East Mooring Basin Astoria) that 70-90% percent of the time a sea lion's diet does not include salmon or steelhead.

A California Sea lion consuming an American Shad from the Columbia River below the Bonneville Dam.

ODFW scapegoated, trapped, killed and discarded these beautiful animals into the trash for merely being in the Willamette River in Oregon City in April 2019.

Removing sea lions undermines the health and productivity of the oceans & river in the PNW bioregion. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3350522/

Trophic Cascade

- "Taking out predators has a cascading effect on other populations down to the plant life," John Terborgh a professor of environmental science at Duke University in Durham, North Carolina.

- We now know how wolves have the ability to alter a river's flow.*

- The sea lions help create the lushness of phytoplankton which are the cornerstone of the food chains for all life in the ocean**. Marine mammals help feed and assist with fish distribution throughout the Columbia River (CR) estuary. Sea lions. remove the old and sick, and weak fish which strengthens the genetics of the wild fish allowing both species to thrive together for over ten thousand years in the CR estuary.

- Hatchery fish have been shown to alter the DNA and weaken the genetics of the wild endangered fish in just one life cycle which is the direct opposite of the sea lions relationship with wild fish.

*https://www.youtube.com/watch?v=ysa5OBhXz-Q

** http://bioscience.oxfordjournals.org/content/51/7/537.full fecal pellets

- Cancer rates are 50 % higher in human populations that eat fish weekly out of the Columbia- Willamette Rivers more than once a month.*

- Unfortunately, sea lions an not read fish consumption warnings but humans can. Sea Lions can not order pizza.

- Humans have many other food and habitat choices that the sea lions and wild cold water fish do not.

- SOURCE:

* http://tinyurl.com/oad2cdc

Extinction is Forever

- Unlike the previous five extinctions, this one is caused not by vast natural processes but by human behavior, and not sea lions, so that means we can take action to slow the extinction of the wild salmon, and alter our behavior so that maybe we can save ourselves too in the process.

- Protection & Respect for time honored relationships amongst sea lions and the wild fish will help wild salmon, wild steelhead and various species of marine mammals stand a chance to beat the odds against extinction.

- Investing in habitat restoration is a time honored and proven action that equates to money well spent that scapegoating native non human animal predators in the CRS is not.
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- Toxic remediation of our air and waterways and regulating industries to adhere to the Clean Air & Clean Water Act standards at the minimum have been shown to be measurable as worthy, and effective, actions which will protect many, many, many, species that rely on clean air and cold, clean, flowing water.

- Stream, tributary and riparian habitat restorations such as adding snags, planting trees along the river's banks to create shade & hiding places for wild cold water fish and to allow the original engineers (beavers) to be reintroduce. So they can improve aquatic habitat and thus enhancing ecological relationships that support & sustain wild salmon and 120 other species that rely on this cold water fish for sustenance not sport..

- Sea lion and wild salmon non- scapegoating actions such as focusing on improving water quality and quantity in their critical habitats will save lives. Improving habitat provides measurable and long-term sustainable results that will aid aquatic species and human health. Removing artificial barriers that inhibit migration will increase the odds of wild fish being able to return to their spawning grounds which will increase populations of wild Chinook salmon and Steelhead on the Columbia /Willamette Rivers .

- Restoring aquatic and near- shore and flood plain habitat will be cost effective in providing desired and measurable outcomes in protecting aquatic endangered species long into the future.

- By improving fish passage by removing man-made artificial barriers* that inhibit migratory fish passage across Oregon will increase populations of salmon and steelhead that scapegoating and killing California sea lions for eating fish out of the Columbia River below the Bonneville Dam and in Oregon City, on the Willamette River will not.

- * http://voices.nationalgeographic.com/2013/08/29/rebirth-on-the-riverwashingtons-elwha-flourishing-after-big-dam-removals/

Ocean and River temperatures above 68* degrees and cold water fish die.

- **The End**

- **Questions?**

- **Report created by Ninette Jones, Sea Lion Defense Brigade 2017**
- **Updated: April, 2019.**

References

- Since 1981, Dr. Grossman has been a professor of animal ecology from the University of Georgia. His primary research areas are "population dynamics and habitat selection and fishes."
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- **Oregon Department of Fish and Wildlife Fish Screening Program: Fish Screen Types and Costs S5 | | BERNIE KEPSHIRE**
- ODFW's Near Shore Strategy (pg41) 27,800 fish passage artificial obstructions (those structures, such as culverts, dams, tide gates, levees, ect., placed in fish bearing streams that hinder, or have the potential to hinder fish passage) exist in Oregon
- Oregon Department of Fish and Wildlife Fish Screening and Passage Program Priority Unscreened Diversion Inventory February, 2013Prepared By: Pete Baki
- " Pollution: Toxic Contaminates, Heavy metals, & endocrine disruptors found in fish in the Columbia River" DEQ REMAP REPORT 2008 : http://tinyurl.com/qdvounb
- USEPA (United States Environmental Protection Agency). 2002. Columbia River Basin fish contaminant survey, 1996-1998. EPA 910-R-02-006, Seattle, Washington, USA. 284pp.
- State of Oregon. (OAR 340-041-0007 - 0046). Statewide Water Quality Criteria. Oregon Administrative Rules. Salem, Oregon
- State of Oregon. (OAR 340-041-0101). Basin-Specific Water Quality Criteria (Main Stem Columbia River) . Salem, Oregon
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- State of Oregon. (OAR 340-041-0101). Basin-Specific Water Quality Criteria (Main Stem Columbia River) . Salem, Oregon
- DEQ REMAP REPORT : http://tinyurl.com/qdvounb
- *Oregon Department of Fish & Wildlife Fish Screening and Passage Program
- 2019 Statewide Fish Passage Priority List April 19, 2019
- The Case for Breaching the Four Lower Snake River Dams to Recover Wild Snake River Salmon Carl Christianson, Biologist, retired USACE; Sharon Grace, Attorney; Jim Waddell, P.E., retired USACE1
- Glyphosate and Atrazine are labeled as endocrine disruptors which can not only reduce species ability to procreate they can outright kill fish (39). These endocrine disruptors are known to lower immune function and can wreak havoc on the body's ability to heal. Rachel Carson (38) wrote about endocrine disruptors in her book Silent Spring, and Dr Theo Colborn in her book, Our Stolen Future (40).
- State of Oregon. (OAR 340-041-0007 - 0046). Statewide Water Quality Criteria. Oregon Administrative Rules. Salem, Oregon
- Lichatowich, Jim. "Salmon, People and Place " A Biologist's Search for Salmon Recovery. Corvallis OR: Oregon State University Press, 2013. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3350522/

This slide show is dedicated to 37 beautiful, intelligent and social California sea lions that ODFW and NMFS have scapegoated trapped and killed on the Superfund site called the Willamette River
as of the week of April 29, 2019.

2015 2016, 2017, & 2018 NOAA declares hottest years on record with warming ocean & river temperatures in the Pacific Northwest . Nicknamed the 'blob" warm water blanketed the whole west coast from California to Alaska while record high temperatures in the CRS decimated sturgeon and wiped out returning runs of wild and hatchery steelhead and salmon.