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Sea lion defense Brigade Volunteer

Pinniped Task Force
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It is this researcher's position and historians also note that there has always been some sort of bottleneck on the Columbia River (70). **There were log jams, beaver dams, or the great Celilo Falls are historically where the salmon would pool and rest before ascending the tumultuous waters of the Columbia River .**

Moreover, sea lions and seals could easily feed on these fish through the winter until the spring as Mother Nature intended, and there were **always enough salmon** for the tribal fisheries, abundant populations of bears (grizzly and black), wolves, coyotes, bobcats, lynx, osprey, terns, loons, herons, eagles, mergansers, American dippers, cormorants and on and on that all subsisted in part on differing life histories of salmon and steelhead within the Columbia Basin. Celilo Falls created an impassable bottleneck for pinnipeds on the Columbia River (B. Mc Millan 2008).

Invest in Habitat not Predator Removal

Millions of dollars have been invested in targeting and removing important native non human animal predators on the CRS when they are viewed as competitors with the eight million plus human animals now residing in the Columbia River basin predated on salmon and salmon habitat.

Native non human animal predators are all a very important part of a functioning natural or "wild" river ecosystems

The sea lions help create the lushness of phytoplankton which are the cornerstone of the food chains for all life in the ocean. Sea lions and seals help feed and assist with fish distribution throughout the CR basin.

In addition to regulating species abundance, distribution and diversity, top non human animal predators provide essential food sources for scavengers (9) and remove the sick and weak individuals from prey populations .

In addition, "The volume of plant plankton has declined across much of the world over the past century, probably as a result of rising global temperatures **but the decline appears to have been steepest [where whales and seals have been most heavily hunted](#)** the fishermen who have insisted that predators such as seals should be killed might have been **reducing, not** enhancing, their catch," .

"Maybe it's more accurate to describe pinniped poop as the nearshore fertilizer equivalent to a gardener's Miracle-Gro because it promotes the well-being and lushness of phytoplankton populations, from giant kelp beds to microscopic marine algae," .

Moreover these native non human animal predators remove the old and sick which contributes to strengthening the genetics of the wild fish. Therefore this is the direct opposite of the DNA altering effects that hatchery fish have on their wild salmon counterparts. Hatchery fish have been shown to alter the DNA and weaken the genetics of the wild endangered fish in just one life cycle.

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

Athens, Georgia says:

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

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

Therefore the fact that most predation occurs when young fish migrate down river, so this means these young fish are either aided by river flow or they are not. And now river flow is controlled by the BPA, not Mother Nature. The experts agree that juvenile salmon are pushed to the sea when water is released over the dams. The amount of flow controlled by the BPA will contribute to determining whether the wild salmon will make it to the sea in a timely manner and if not according to the experts can suffer high mortality which clears the sea lions of any wrongdoing whom do not predate on baby salmon although small mouth bass, channel catfish and walleye in the CRS do .

In Oregon, as it is in California it is the Fish and Wildlife Commission that decides whether the bass are treated as a nuisance predator that should be flushed out of the system or prized for its value as a game fish. Oregon’s Fish and Wildlife Commission has recently lifted all catch restrictions on bass, shad, pike minnow, walleye, and channel catfish from the CRS .

On the other hand the sea lion and seabird sustenance has been shown to have NO impact on returning adult salmon passing over the Bonneville Dam because NMFS’s reports that these runs are either stable or recovering.

WDFW advertises “Surplus” Chinook Salmon for sale while condemning sea lions for eating one fish in five years --ODFW donates 175 tons of Hatchery Chinook salmon to food banks across the county and The State of Oregon. Apparently there is no shortage of salmon for tomato fertilizer, cat, fish, dog or factory farmed pig food. Yet, ODFW and NMFS do not want to share any fish with the sea lions.

In the PNW, temperatures greater than 15°C (59 degrees) have been shown to increase smallmouth bass consumption rates and predation on juvenile salmon (Fayram and Sibley, 2000; Tabor et al., 2007)(144). (pg 5 -11)

As an example, juveniles of fall run chinook salmon (*Oncorhynchus tshawytscha*) are smaller than spring–summer run chinook juveniles, and preference by alien smallmouth bass (*Micropterus dolomieu*) for them may reflect size-selective preferences (Tabor et al. 1993, Zimmerman 1999).(pg 05 -11)

In addition to smallmouth bass, other non-native predators such as channel catfish, American shad are present throughout the PNW (Sanderson et al., 2009). Results from studies to date indicate that juvenile shad prey heavily on zooplankton taxa, which are also a primary prey resource for juvenile Chinook in the same habitats ([Haskell et al. 2006a](#))(146). At least **54%** of the resident fish species in Washington, **50%** in Oregon, and **60%** in Idaho are non-natives (Sanderson, etal.2009).

In the Columbia River system alone, juvenile Pacific salmon will encounter no fewer than eight documented nonindigenous predator and competitor fish species en route to the estuary. Many invertebrate and plant species that were also introduced into this system have documented impacts on native communities ([Boersma et al. 2006](#)).

1960 Introduced shad have increased greatly from 1960 to 1990 with 2-4 million adults per year migrating up the Columbia past Bonneville Dam. They migrate 600 km up the Columbia and Snake. (Bill Bakke).

Nationwide, introduced fish species have been cited as a factor leading to placement on federal threatened or endangered species lists in 70% of the fish listings ([Lassuy 1995](#))(150) and as a causal factor in 68% of the 40 North American fish extinctions in the last 100 years ([Miller et al. 1989](#)).

For example, salmonids composed up to 100% of channel catfish diets in the Columbia and Yakima rivers, and similar percentages were reported for smallmouth bass and walleye diet.” Sanderson Beth 08 .

When identified, **Chinook salmon is the most frequently consumed salmon species. At dams on the lower Snake River, salmon composed a higher proportion of the fish consumed by smallmouth bass at Lower Granite Dam (2007)**. An especially critical impact is the smallmouth bass predation on wild subyearling Chinook salmon where salmon rearing habitat overlaps with small bass habitat. (10)pg357)The listing of lower Snake River fall Chinook salmon as threatened (under the Endangered Species Act) underscores the negative significance of this impact. (pg 357) **Small mouth bass is now the most widespread non native fish in the PNW** ((Boersma et al., 2006; Sanderson et al., 2009;)

At locations in the Columbia River, smallmouth bass and walleye consumed between 18,000 to 2,000,000 and 170,000 to 300,000 juvenile salmonids per year, respectively. Similar predation rates were noted in all geographic areas (Columbia, Snake, and Yakima rivers, and Washington lakes and coast)(NMFS, Sanderson 2009).

Sanderson said results of their survey indicate that of the \$385 million distributed by BPA over the three-year study period, only approximately 0.3% was directed in whole or in part toward research on the impacts of NIS ([figure 9](#)), and slightly less than 1% of funds were allocated to efforts to control nonindigenous fish species. (2008)

***A greater proportion of funding (approximately \$20 million, 5.2%) was spent on projects dedicated to the control and removal of noxious weeds and **important native predators** (e.g., pikeminnow and avian predators such as terns and cormorants).(Sanderson 2008)

The presence of nonindigenous fishes poses one of the greatest threats to the persistence of healthy native fish populations ([Lassuy 1995](#), [Richter et al. 1997](#), [Rahel 2002](#)). The proliferation of brook trout has led to the decline of native bull trout and cutthroat trout through hybridization, displacement, competition, and predation ([Gunckel et al. 2002](#), [Dunham et al. 2004](#), [Peterson et al. 2004](#)). The US ACOE has listed the lack of available prey for wild Chinook salmon as contributing to their decline.

We're not interested in taking on the recreational fishing industry," NMFS's Beth Sanderson said. Many of the introduced stocks, such as bass and walleye in the Columbia and Snake rivers, are prized fisheries regulated by the states (156). Unfortunately, the ecological and food web effects of non-native invertebrates have received limited attention, and their potential effects on the Basin's native fishes are still poorly described. Given that aquatic invertebrates constitute much of the food of native fish and wildlife (McCabe et al. 1997).

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Let us do the Math:

2016 CSL's 149 (rounded 150) ate 6,676 salmon at the Dam

6,676 salmon divided by 150 sea lions = 44.5 salmon a piece per CSL sea lion

44.5 salmon per sea lion divided by 5 months (Jan 01 –May 31) for a five month period
=

EQUALS =8.9 salmon per month per CSL

8.9 salmon divided by 30 days (one month) EQUALS = 0.296 salmon or roughly ¼ salmon a day per sea lion.

150 CSL sea lion's live on 1/10 th of the salmon than what the US ACOE is reporting that they ate.

Necropsy reports done on the 59 CSL killed at the Bonneville Dam in 2016 showed 2.3 salmon as the maximum actual salmon in the belly of the CSL sea lions.

Moreover, investment into toxic remediation gives the wild salmon better long term odds for survival given the amazing power of the wild Chinook and the ecology's ability to restore itself when given the opportunity.

Fish Screens, Unblocking Fish Passage, Dam Breaching and Toxic Remediation: Oh My

While the odds of survival for endangered and threatened species goes exponentially up when the water and soil sediments are not hazardous, this tactic, coupled with improving safe passage—removing, man made obstacles that disorientate, stun, and kill fish which adds a measurable, cost effective results for our efforts.

The wild salmon's survival success can be cost effective and measured by investing in fish screens across Oregon and Washington State's culverts and water diversions to ensure safe wild fish passage . The fish screens will need to be cleaned and maintained to ensure that they are working properly. Wild Salmon need to be able to reach their spawning grounds, and sufficient escapement goals that need to be met to help feed the ecosystem. Emphasis needs to be placed on preventing wild fish from dying in farmer's fields, culverts, water bypasses and from being sucked into agricultural water delivery systems across the bio-region..

“The benefits of fish screens are clear. Ninety-eight percent of young Salmon survive an encounter with a properly designed fish screen. Oregon's sport and commercial fisheries are improved and fish screens are a critical component of native fish restoration. Fish screens help achieve both sustainable agriculture and sustainable fisheries.”

--- Roy Elicker, ODFW Director Fish Screen Report to Oregon Legislators 2011.

Thousands of water diversions remain unscreened in Oregon, placing fish at risk” says Curt Melcher, then Interim ODFW Director in the 2013 -15 ODFW’s Fish Screen Report. (Pg. 2, 5).

As well:

“Barriers are frequently associated with irrigation, municipal, industrial and hydroelectric water diversions that can **cause fish loss in the millions,**” says ODFW’s Pete Bakki.

The most current information for Oregon shows that approximately **27,800 fish passage artificial obstructions** (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.** SOURCE: ODFW Near shore strategy Pg 4.

In addition The US NAVY working with Washington’s Department of Ecology in 2014 identified over **30,000 blocked fish passages** in Washington State alone .

The Dangers of Endocrine Disruptors

“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.”

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

Round Up (glyphosate) contributes to reduced reproduction in many human and non-human animal species and often can outright kill the very important sources of prey for wild Chinook and other endangered species.

Glyphosate and Atrazine are labeled as endocrine disruptors which can not only reduce species ability to procreate they can outright kill fish . 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*..

In addition, one of the world's leading experts on the pesticide Atrazine, Dr. Tyrone Hayes, and the EPA have found it to be very harmful to amphibians and other aquatic life . Moreover, The State of California has labeled Atrazine as a dangerous "reproductive toxin," because it decreases the male species ability to produce sperm. Atrazine is the most common pesticide found in drinking water, rivers and streams across this country. In addition Atrazine does not readily degrade, so we are really compounding the degrading biological, ecological and synergistic negative effects across the CRS. Atrazine is the second most widely used pesticide in the USA next to "Round Up."

Altogether, chronic exposure in utero and the bio accumulation effects in host species can lead to epigenetic effects found in their offspring . Glyphosate has been found to be carcinogenic in rats and Atrazine is a reproductive toxin. Therefore these pesticides ought not to be used for weed abatement or anything else especially around water or on the river's bank in the CRS if we are serious about protecting and increasing wild endangered Chinook and steelhead populations.

The original food web of the Columbia River was destroyed. The Pacific Lamprey was once deemed a dangerous "predator" to salmon by sport fishermen who once accused Pacific Lamprey of predating on way "too many" of "their" salmon just like how some like to blame the sea lions, cormorants and pike minnow today and erroneously, call for them to be scapegoated and culled under the false guise of so called "saving" the salmon.

Unfortunately, to appease the cries of sport and commercial fishermen from **1940-1980---** **ODFW engaged in poisoning the Pacific lamprey from basins around the State.** (WHOOPS) <http://tinyurl.com/q3zpj4v>

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

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

In this case predation may be the "Approximate" cause of mortality but the contaminant is actually the "ultimate" cause,".

"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," says Dr. Gary Grossman

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

- **The extinction of lower Columbia River coho is the result of Oregon and Washington fishery management that maximized harvest of hatchery coho and set no conservation standards for wild coho salmon.***
- **This official approach to fish management set the stage for coho salmon extinction. ***
- **2004 Because the wild populations are not identified and have no specific program for conservation management. ***
- **2004 the region is unable to maintain or protect the legacy of biological diversity that has evolved over the last 40 million years.**
- **2004 The Technical Review Team for the lower Columbia and Willamette rivers publish a status report for salmonids. ***
- **They find that all spring chinook and winter steelhead populations are either at very high risk or high risk of extinction and that there are no wild populations that are viable. (*Bakke,B)**

Sources:

***Bakke, B.** CHRONOLOGY OF SALMON DECLINE IN THE COLUMBIA RIVER 1779 TO THE PRESENT Based on the historical record Brown, Larry, Chase, Shawn Mesa, Matthew, Beamish, Richard, and Moyle, Peter, editor Published by the American Fisheries Society Publication date: December 2009

“The volume of plant plankton has declined across much of the world over the past century, probably as a result of rising global temperatures. But the decline appears to have been been steepest where whales and seals have been most heavily hunted. The fishermen who have insisted that predators such as seals should be killed might have been reducing, not enhancing, their catch”.

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

(How wolves Change Rivers

<https://lewisandclarkjournals.unl.edu/search?utf8=%E2%9C%93&qfield=text&qtext=phoca+rock>

<https://lewisandclarkjournals.unl.edu/item/lc.jrn.1806-02-23>

B. Mc Millan 2008 Researching Columbia Sea lion Population

DEQ Columbia River Re Map Study of 2009: <http://tinyurl.com/qdvounb>

“Thousands of water diversions remain unscreened in Oregon, placing fish at risk.”

(Pg. 2, 5) Curt Melcher, Interim ODFW 2013 -15 fish screen report.

<http://tinyurl.com/ojsybay>

Oregon Department of Fish and Wildlife Fish Screening and Passage Program Priority Unscreened Diversion Inventory February, 2013 Prepared By: Pete Baki

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.

<https://youtu.be/BsAaNn2OZsA> 30,000 blocked fish passages

ORS §498.306 requires ODFW to identify 3,500 priority unscreened diversions.

An initial report of priority unscreened diversion was released in 1990 (*An Inventory of Water Diversions in Oregon Needing Fish Screens* – prepared by David Nichols, ODFW, 1990. Source:<http://tinyurl.com/nfs7s4l>

DO the MATH : 3,500 x 3 salmon per culvert = 10,500 salmon killed and that is more salmon consumed by all the sea lion’s combined at the Bonneville Dam in 2015. — Fish screens that meet lamprey criteria are needed as well with a full time crew employed to maintain them in watersheds across Oregon /Washington

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Dr. Gary Grossman Phd

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.” 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

<https://academic.oup.com/bioscience/article/64/4/279/2754168/Using-Beaver-Dams-to-Restore-Incised-Stream>

<https://www.americanrivers.org/2016/09/five-years-later-elwha-reborn/>

The Case for Breaching the Four Lower Snake River Dams to Recover Wild

<http://www.estuarypartnership.org/press-release/2013/federal-support-toxics-reduction-needed-columbia-river>

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

Save Our Wild Salmon

(Sanders Deliberate poisoning also decimated Pacific lamprey in the last century. “From the late 1940s through the 1980s, the Oregon Fish Commission used rotenone in basins throughout the state to eliminate non-game species including Pacific lamprey,” reports a 2004 Northwest Power and Planning Council document. SOURCE: found at Link

<http://oregonstate.edu/terra/2014/01/survivors-from-the-depths-of-time/>

<https://academic.oup.com/jmammal/article-abstract/58/4/672/848180/Home-Ranges-of-Utah-Prairie-Dogs?redirectedFrom=fulltext>

<http://oregonstate.edu/terra/2014/01/survivors-from-the-depths-of-time/>

Sanderson 2008 study) <http://bioscience.oxfordjournals.org/content/59/3/245.full>

<http://tidelines.org/columns/scoop-pinniped-poop-0>

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

<http://phys.org/news/2012-05-sea-lions-fuel-ocean-life.html>

<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0013255>

<http://tinyurl.com/qbu4q9k>