Save the Salmon, Save the Whales

INTRODUCTION The majestic killer whale, or orca, is well known for its striking black and white pattern, playful nature, and charismatic intelligence. A beloved icon of the Pacific Northwest, orcas are the focus of much scientific inquiry and hold particular cultural and spiritual significance for Northwest tribes, who often feature them in art and stories, such as those of the “blackfish” who assisted their people during times of famine.

The Southern Resident orca population, comprised of the J,K, and L pods that frequent the inland waters of Washington and British Columbia, differ from other orcas in appearance, habitat preference, social structure, and prey selection. Due to their proximity to the coast, they are perhaps the most well-known wild orcas in the world. Each whale has been identified by its unique markings and dubbed with a nickname. Individuals and family groups have been documented since 1975, providing a glimpse into their complex and highly stable pods.

Living & Hunting in Family Groups
Southern Residents are highly intelligent, social creatures that live in complex communities, much like our own. They communicate with distinctive calls and whistles, create a culture of learning by modeling specific behaviors to younger animals, and demonstrate cooperation and sharing. Southern Resident J26, known as Mike, frequently swims caringly alongside his younger siblings, the orca equivalent of babysitting, and he is not alone. Alloparenting, where animals other than a genetic parent feed, protect and play with infants, is common among these whales. Pod members have even been known to take over full time care of an orphaned calf.

ON THE BRINK OF EXTINCT Southern Residents have been listed as endangered under the Endangered Species Act since 2005 but have continued to decline despite the added federal protections. With an estimated population of only 82 animals and a nearly two-to-one death-to-birth ratio in recent years, Southern Residents are on the edge of extinction. The National Oceanic and Atmospheric Administration (NOAA) agrees. In 2015, NOAA identified Southern Resident orcas as one of eight species most likely to go extinct in the near future unless immediate action is taken.

The unusually high number of births marking the period between December 2014 and September 2015 is good news for the struggling population. However, calf mortality is extremely high during the first year of life, and although these calves have survived the odds thus far, they face many threats.

THREATS TO SURVIVAL Southern Resident orcas face a barrage of pressures, including pollution, noise, oil spills, and, above all others, lack of prey.

Despite increased pollution control in recent decades, Southern Residents are among the most contaminated marine mammals in the world exhibiting high levels of PCBs and other contaminants known to cause immune and reproductive dysfunction. Southern Residents are subject to extreme stress from Navy training and testing exercises, shipping, ferry operations, irresponsible whale watching, and associated noise pollution. Orcas rely on sound to navigate, communicate and locate prey - essential activities made incredibly challenging in an increasingly noisy ocean. Fidelity to Puget Sound makes Southern Residents particularly vulnerable to the risk of oil spill.
Chinook must outsmart and outswim eagles, sea lions, and other predators, dodge fishing lines and nets, and out-compete hatchery fish. They must navigate through waters contaminated with urban and agricultural run-off. The aforementioned challenges pale in comparison to surviving the slog over the eight large dams that lie between them and their spawning grounds.

Male Chinook that survive the grueling hike over the dams into the high mountain streams are often emaciated; females swollen with eggs and fatigued. Most fish are bruised and battered with torn fins and other outward signs of the journey’s strife. Many never complete the journey to their birth place but they have good reason to try.

**HABITAT TO DIE FOR** Above the lower Snake River dams is the most pristine Chinook salmon habitat remaining in the Lower 48, a vast expanse of high-elevation spawning and rearing streams crisscrossing millions of acres of unspoiled wilderness. High elevation and persistent snow pack creates a cool refugia, uniquely buffered from the impacts of climate change.

**A RICH CYCLE OF LIFE** The female builds her nests, or redds, using her body and tail to create depressions in the river gravel into which she deposits her eggs so that the male can deposit his sperm atop them. Once several thousand eggs are laid they are left to incubate and the exhausted salmon die within days, a sad but important part of their life cycle. Salmon carcasses are a primary food source for terrestrial species, like otters and bears, and the decomposing bodies release vital nutrients necessary to support the production of plant and insect life. These plants and bugs maintain the balance of the delicate river ecosystem and will nourish the salmon’s own offspring once hatched.
Newly hatched salmon, or smolt, remain in freshwater for weeks to months before beginning their journey to the sea. During this time they detect odors and other subtle environmental stimuli, a crucial step of imprinting on their birthplace in order for them to be able to one day return. On their ocean bound migration they will encounter many dangerous obstacles, the most deadly being the very dams traversed by their parents.

**DAMMED** The Columbia River Basin is the most hydroelectrically developed river system in the world. Warm, slack-water reservoirs created by dams present a formidable challenge to young Chinook. In a free flowing river, smolt are carried swiftly out to sea in cool water. Above the dams, young salmon must swim in the warm, still waters, delaying their entry into the ocean and increasing their susceptibility to predation, disease and stress related mortality. Federal and state agencies attempt costly mitigation techniques to ameliorate the lethal effects of the dams but have so far achieved only modest results. In 2014, Bonneville Power Administrative reported Federal Columbia River Power System mitigation costs associated with Snake River Chinook of nearly 35 million dollars, yet Chinook remain imperiled.

**THE CONNECTION** There is a direct connection between the recovery of Chinook salmon and the survival of Southern Resident orcas. Southern Residents are highly selective in prey choice, opting for bigger, fattier Chinook over other types of fish. They are often observed foraging along the Washington State coast, and their visits to the mouth of the Columbia River coincide with high concentrations of returning adult Chinook. Like most marine mammals, Southern Residents’ movements are determined by their food source. They must follow the salmon, and they do so with exceptional skill.

**When Chinook are plentiful they account for approximately 80 percent of Southern Residents’ diet. When Chinook are not plentiful, the consequences are dire.**

**THE DEATH OF J32** In a devastating blow to J pod, on December 4, 2014, J32, an 18 year old female Southern Resident nick-named Rhapsody, died unexpectedly - marking the fourth Southern Resident death that year alone. Tragically, Rhapsody, one of very few reproductively viable females in the endangered population, was pregnant with a near term fetus. Examination of Rhapsody’s body revealed severe malnutrition. Her blubber layer was thin and dry of oil, consistent with inadequate diet for an extended period. For orcas, malnutrition is especially dangerous because fat loving pollutants, like PCBs, PBDEs (flame retardants) and DDT build up in their blubber. Pollutants remain sequestered until the whale experiences a scarcity of food. Starving whales metabolize their fat stores in a last ditch effort to survive, but in a tragic twist, flood their bloodstream with hormone-mimicking toxins known to cause immune-suppression, reproductive impairment, brain deficits, and birth defects. J32’s death is a warning to us all: if we don’t take drastic measures fast, we will lose these whales forever.

**Southern Resident orcas are starving. Scientists agree they are dying due to cumulative pressures tied to lack of prey. According to NOAA “the single greatest change in food availability for killer whales since the late 1800s has been the decline of salmon in the Columbia River Basin.”**

**A CALL TO ACTION** Save the salmon; save the whales. We have the ability to restore abundant, sustainable runs of the mighty wild Chinook to the Columbia River Basin and across its historic range. In doing so we will breathe life into the salmon economy in the Pacific Northwest and ensure the survival of an entire network of species including the beloved Southern Resident orcas that depend on Chinook salmon.

Both of these magnificent species are resilient and adaptive. If we give them a fighting chance, they will respond. But we must act now and, like the salmon and the whales, be swift and powerful in our action.
Resources and Additional Reading


Orca Salmon Alliance Members