CALISTA CORPORATION
www.calistacorp.com

September 28, 2023

Calista Corporation's Comments to the Board of Fish Hatchery Committee

Dear Sir or Madam:

Calista Corporation ("Calista") is an Alaska Regional Corporation, created pursuant to the Alaska Native Claims Settlement Act ("ANCSA"). The Calista Region encompasses about 57,000 square miles and is the second largest Alaska Native Claims Settlement Act region in land size, roughly the size of the state of New York. Calista serves nearly 37,000 Shareholders and thousands more Descendants of Shareholders. The Calista region hosts approximately 30,000 residents and a substantial number of Calista's Shareholders and Descendants live in the Calista Region who rely upon salmon for financial, social, and cultural support.

The Calista Region is isolated; there are no roads nor rail connecting it with outside communities. Consequently, all necessities must be flown or barged to each community. The cost of food, fuel, transportation, and energy in the Calista Region is extraordinarily high – often the highest in the nation; the cost of heating fuel in the Calista Region is currently seven times the national average. The community members of the Calista region depend primarily on a subsistence way of life, as jobs are scarce, and until recently, commercial fishing in the Yukon Kuskokwim region was a pivotal part of the economy. With the collapse of the commercial fishing industry and recent limits on subsistence living, numerous communities within the Calista region have experienced outmigration, primarily among the younger generations. When outmigration occurs, the communities suffer. Language is lost and tribal members' connection to their community, culture, and traditional way of life is eroded.

While organized as a for-profit corporation under Alaska state law, Calista, along with the other Alaska Native Corporations ("ANCs"), has a broad social and cultural mission. ANCSA expressly provides that ANCs are to act as vehicles for the provision of various benefits to their shareholders, such as financial distributions (dividends), elder benefits, homesite lots, education scholarships, cultural preservation, land and subsistence protection, and community economic development programs.[1] These benefits and programs are allowed to be provided to both shareholders and to family members of shareholders "on a basis other than pro rata based on share ownership."[2] As the United States Supreme Court has recognized, "ANCs are *sui generis* entities created by federal statute and granted an enormous amount of special federal benefits as part of a legislative experiment tailored to the unique circumstances of Alaska and recreated nowhere else."[3]

As an ANC created under ANCSA, Calista exists to serve the interests of the Alaska Native people of the Calista Region through profitability, celebration of rich heritage and through

[1] *See* 43 U.S.C. § 1606(r).
[2] *Id.*
[3] *Yellen v. Confederated Tribes of the Chehalis Reservation*, 141 S. Ct. 2434, 2443 (2021) ("*Chehalis*").

stewardship of the traditional Native lands transferred to Calista under ANCSA. Calista is guided by an overarching vision of intergenerational prosperity for its Shareholders and Shareholder Descendants. Calista's mission is to promote the economic, social and personal well-being of the Alaska Natives of the Calista region through innovation, growth, leadership, partnership, execution and financial discipline. Calista furthers this mission through a variety of strategic support for Shareholder communities and through financial and non-financial benefits and assistance to its Shareholders and Descendants. For example, in 2021, Calista spent over $22,000,000 on direct financial assistance for its Shareholders and Descendants, including Shareholder and Descendant employment, scholarships, internships/apprentices, donations, distributions, and funeral assistance. Calista also provides numerous non-financial benefits and services to its Shareholders and Descendants. This includes management of its lands to permit Shareholders and Descendants to hunt and fish and to facilitate the maintenance of a traditional subsistence lifestyle for Shareholder communities.

The Decline of AYK Salmon and its effects.

Starting in 1993 with the collapse of the chum salmon run on the Kuskokwim River, the commercial salmon fishing industry has been struggling, and continued to decline until all commercial fishing ceased. Even then, the commercial fishermen spoke of the intercept of the salmon in Area M. This decline continued and eventually subsistence fishing on the Kuskokwim and Yukon rivers was limited, and eventually closed altogether.

Historically, salmon sustained the population of the Calista region year-round. Salmon runs were strong enough for the population to dry or freeze enough salmon to sustain the population through the winter, mitigating the high cost of living in the region while providing a healthy food staple for the people. With the decline of salmon, the population was forced to rely on alternative sources of food, consisting of protein from other fish and game stocks, and from the grocery store. Until recently, it was common to see fish racks and smokehouses filled with salmon along the Yukon and Kuskokwim Rivers. Today, the salmon is gone with but meager amounts of nutritiously inferior species in their place, such as it is other species of fish, such as northern pike, whitefish, and small game. Harvest of local game such as moose and caribou have increased considerably as well. As a result, these species are beginning to show signs of distress: Reports of poaching have increased, including members of the Yukon and Kuskokwim Region openly defying a recent ban on subsistence fishing. It is important to note that subsistence and a traditional way of life are the foundation and essence of life in the region.

Hatcheries' Rapid Rise and Contribution to the Salmon Crashes Statewide.

Starting in the 1970s, at statehood, hatchery operations in Alaska totaled approximately 50,000 fish annually. The original intent of hatchery production was to restore previously depleted salmon runs due to overexploitation prior to statehood. In the time since statehood, operations have increased the initial output 2,000-fold to over 1.8 billion salmon released annually[4], focused primarily on enhancement of pink and salmon runs. Each year, the number of hatchery salmon released by United States hatcheries into the North Pacific grows, with Alaska leading the way

[4] NPAFC Statistics Metadata Report (July 2023).

with 1.8 billion salmon released annually. These salmon are not native to any streams, and though they will stray into streams, do not meaningfully contribute to subsistence uses among Native Alaskans. In fact, the sheer volume of these salmon actually harm the wild populations.

The vast majority of studies, including studies by ADF&G, clearly demonstrate that the release of hatchery salmon has negative impacts on wild salmon. In recent years, the consensus has increased from a vast majority to near unanimity, with the only beneficial findings for hatcheries limited to restoration of severely depleted stocks[5]. There isn't just one, or even a handful of negative impacts either. Hatchery salmon compete against wild salmon for limited food stocks in the North Pacific, leading to higher ocean mortality and reduced fitness for migration into the terminal fisheries for the wild stocks competing for limited food sources. When hatchery salmon share migration patterns with wild stocks, they lead to increased fishing, which can contribute to overfishing of wild stocks. Furthermore, high levels of salmon in streams can lead to hypoxia, causing mass mortality among wild and hatchery stocks alike. Straying hatchery salmon produce offspring with considerably lower survival rates than their wild counterparts, even when spawning with wild salmon. Finally, though Alaska's enhancement hatcheries are intended to increase productivity and profitability of Alaska's commercial fishery, recent events indicate that it may be having the opposite effect.

Hatchery Salmon threaten the carrying capacity of the North Pacific

Alaska is in the midst of a multi-system and multi-year fishery collapse, with multiple species crashing and suffering mass mortality events. Hatchery salmon are playing a part in eroding the North Pacific carrying capacity. Pink salmon stocks began to increase in the 1970s across much of their range in the North Pacific Ocean. Returns of Pink salmon stocks were augmented by 10-20% annually since the 1980s, primarily in the United States and Russia, and now constitute approximately 70% of the total of all species of Pacific salmon combined.[6] Pink salmon have a unique 2-year life cycle, and are roughly 25 times more abundant in odd years than even.[7] Since the 1990s there has been growing evidence that the explosion in pink salmon populations has had a negative effect on other resident species of the North Pacific and Bering Sea through competition for common prey sources and altering the food webs and ecosystem function. A recent study shows that pink salmon can have major top-down impacts on species and food webs that include phytoplankton, zooplankton, fishes, marine birds, and marine mammals over vast regions of the North Pacific Ocean, and even into the southern hemisphere. Pink salmon must grow to 500 times their size in approximately 18 months and are thus voracious eaters. This exerts a strong top-down effect on the shared pool of prey that adversely affects pelagic ecosystems in the North Pacific Ocean.

[5] J.R. McMillan, B. Morrison, N. Chambers, G. Ruggerone, L. Bernatchez, J. Stanford, H. Neville, A Global Synthesis of Peer-Reviewed Research on the Effects of Hatchery Salmonids on Wild Salmonids. *Fisheries Management and Ecologyy* Vol. 30, Issue 5, (2023)

[6] G. T. Ruggerone, J. R. Irvine, Numbers and Biomass of Natural and Hatchery-Origin Pink, Chum, and Sockeye in the North Pacific Ocean, 1925-2015. *Mar Coast Fish* 10, 152-168 (2018)

[7] Id.

Hatchery Pink Competition with Sockeye

Pink salmon have the highest diet overlap with sockeye salmon, focusing primarily on planktivores, as well as small fish and squid. Though sockeye runs in the Yukon and Kuskokwim are abundant due to favorable conditions, studies have shown that consumption of plankton and squid declined 50 to 58% in odd numbered years. As a result, sockeye turn to less energy rich foods. This in turn affects growth, age, survival, and abundance of sockeye salmon throughout their range in the North Pacific. These effects decreased sockeye salmon productivity by 5% in the Bering sea, 6% in the Gulf of Alaska, and 15% in Canada and Southeast Alaska.[8]

Hatchery Pink Competition and Chinook Salmon

In the 1970s Alaska Commercial fisheries averaged 619,000 chinook (commonly called kings) salmon per year. The state's preliminary commercial harvest report currently shows a statewide catch of 190,000 chinook salmon.[9] Chinook salmon have been found extensively in the offshore areas of the North Pacific Ocean and Bering Sea, where they overlap with pink salmon, and diet overlap can be substantial, as pink salmon in their second season consume squid and small fishes. Squid is a major component of chinook salmon in the North Pacific, comprising as much as 80% of the diet of chinook in the Bering Sea. However, in odd years, chinook salmon consumed 72% less squid and 44% less fish, but 44% more euphausiids than in even years. In the years since the pink salmon exploded, the chinook salmon population and average size has declined. In 1977 the average chinook salmon weighed 20.5 lbs., and from 2015-21 averaged 12.6 lbs.[10] The effect of pink salmon on chinook salmon growth was stronger than that of other tested oceanographic variables. For instance, salmon that didn't migrate into hatchery infested waters were not as negatively associated with pink salmon abundance.

Hatchery Pink Competition on Coho Salmon

Coho have been on a significant decline in the last several years statewide. Coho diets overlap with pink salmon diets in the pinks' second season when pink salmon feed on small fish and squid. Over the past 50 years, the average weight of coho declined while the average weight of pink salmon increased. A recent study stated the "most likely mechanism responsible for those relationships involves predation by maturing pink salmon on squid, a key prey of maturing coho salmon. The biennial life cycles of pink salmon and squid contribute to distinct biennial abundances of maturing squid that are consumed by a single cohort of ocean age-1 coho and pink salmon."[11] A NOAA study found that in warmer ocean temperatures, coho salmon are able to grow to a greater length than in colder years. "Thus, evidence indicates that predation by abundant

[8] G. T. Ruggerone, A.M. Springer, G.B. van Vilet, B. Connors, J.R. Irvine, L. D. Shaul, M.R. Sloat, W. I. Atlas, From Diatoms to Killer Whales: Impacts of Pink Salmon on North Pacific Ecosystems. *Marine Ecology Progress Series*: Vol. 719: 1-40 (2023).

[9] Alaska Commercial Salmon Historical Harvests, Alaska Department of Fish and Game

[10] G. T. Ruggerone, A.M. Springer, G.B. van Vilet, B. Connors, J.R. Irvine, L. D. Shaul, M.R. Sloat, W. I. Atlas, From Diatoms to Killer Whales: Impacts of Pink Salmon on North Pacific Ecosystems. *Marine Ecology Progress Series*: Vol. 719: 1-40 (2023).

[11] G. T. Ruggerone, A.M. Springer, G.B. van Vilet, B. Connors, J.R. Irvine, L. D. Shaul, M.R. Sloat, W. I. Atlas, From Diatoms to Killer Whales: Impacts of Pink Salmon on North Pacific Ecosystems. *Marine Ecology Progress Series*: Vol. 719: 1-40 (2023).

odd-year pink salmon leads to fewer squid available to maturing coho salmon in odd years and to their reduced growth and body size."[12]

Hatchery Pink Competition on Chum Salmon

Chum salmon also show decreased consumption of their typical foods in odd years. Chum typically feed on gelatinous plankton. However, chum feed on 40% less high calorie prey in odd years compared to even, substituting the high calorie food for jellyfish and pteropods. Overall, chum salmon returns were 32% lower in odd years compared to even years over the last 5 years.[13]

Hatchery Pink Competition on Migratory Birds.

Studies on shearwaters, migratory seabirds that share common prey with pink salmon, were shown to be in poorer physical condition and to succumb in roughly 25 times greater numbers in odd years than in even years.[14] Additionally, migratory bird mass mortality events (commonly known as "wrecks") were rarely observed in flocks of the North Pacific, and only in odd years. However, beginning in 2007, coinciding with an increase in odd-year pink salmon, wrecks were observed in every odd year to at least 2013.[15]

Hatchery Competition's Effects on Wild Salmon Migration.

Salmon need to store energy for migration into the rivers of Alaska, particularly for the Yukon and Kuskokwim rivers. However, competition from hatchery salmon has left many salmon incapable of making this journey. Salmon are entering the rivers smaller with less energy stores. Salmon are more susceptible to ichthyophonous and other infections. As a result, salmon have been observed dead on the banks of the Yukon and Kuskokwim rivers with their eggs and milt intact. Moreover, smaller salmon have less productive success when spawning.[16] Though the state of Alaska neared another record year commercial fishing, the salmon in the rivers were alarmingly underprepared for the arduous journey to the spawning grounds.

Hatchery Competition on Other Ocean Fisheries

Alaska is in the midst of a multisystem collapse of ocean fisheries. Halibut numbers statewide are declining. Crab populations declined by the billions in recent years. Cod populations

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[12] J.R. Russell, S.C. Vulstek, J.E. Joyce, R.P.Kovach, D.A. Tallmon, Long Term Changes in Length ad Maturity of Pacific Salmon in Auke Creek Alaska. NOAA Technical Memorandum NMFS-AFSC-384. Us Department of Commerce (Oct. 2018).

[13] MEPS study. *See also*,G Knapp, C.A. Roheim, J.L. Anderson, The role of Hatcheries in North American Wild Salmon Production. *The Great Salmon Run: Competition between Wild and Farmed Salmon* (March 2007)

[14] EG Lobkov, Phenomenon of the Cyclic Increase of Mortality of Seabirds in Coastal Kamchatka. *Proceedings of Tenth All-Union Ornithol Conference,* Minsk, Belarus: Navuka i Tekhnika (Navuka i Tehnika, Minsk, Belarus, pp 99-101 (1991). *See also* G Thompson, BA Drummond, MD Romano, Biological monitoring at St. Paul Island, Alaska in 2014, *US Fish and Wildlife Service Report,* AMNWR 2014/12 (2014).

[15] GT Ruggerone, JR Irvine, Numbers and Biomass of Natural and Hatchery-Origin Pink, Chum, and Sockeye in the North Pacific Ocean, 1925-2015. *Mar Coast Fish* 10, 152-168 (2018). *See also,* www.npafc.org/new/science_statistics.html.

[16] Cite Study

are threatened. In each of these crashes, one of the factors indicated as a cause is a collapse of the food sources. Each of these species competes with hatchery fish for these food sources.

Hatchery Fish Effects on Commercial, Sport, and Subsistence.

It is commonly observed that hatcheries turn a free resource into an expensive resource. With the collapse of fish prices this year, it also appears that they have substituted Alaska's prized fish for worthless fish. Hatchery fish command significantly lower prices than the other four species. However, due to the glut of hatchery salmon in Alaska and Russia, combined with record salmon runs of sockeye, the price of hatchery pinks dropped below $0.10 per pound, and in early September, many processors stopped purchasing fish. The prices were so low that many drift and set net fishermen were left concerned over how to continue operations with such depressed runs. The only boats that could operate profitably were the handful of seiners who could harvest pinks in sufficient numbers to offset the low prices. However, despite another record year of commercial fishing, in-river runs of salmon crashed or remained depressed throughout Alaska. Hatchery pinks do not migrate deep into the rivers of Alaska, if at all, and do not contribute to subsistence or sport fishing uses.

Subsistence and sport fishing have again taken a backseat and borne the brunt of conservation efforts. The science clearly demonstrate that hatcheries pick winners and losers in the ecosystem, favoring hatchery pink salmon over chum, coho, and chinook. The economics clearly demonstrate that hatcheries also pick winners and losers amongst the users, harming sport and consumptive users in favor of commercial fishermen. Alaska was once renowned for its legendary salmon runs and sport fishing, generating a substantial economic benefit for both subsistence and sport fishermen and for the State's economy. However, with closures of Alaska's rivers to sports and subsistence fishing, the state is shifting an unconscionable burden on hundreds of thousands of end users in favor of a handful of processors and seiners.

The depression of in-river salmon runs also has negative effects on the ecosystems throughout Alaska. Bears, wolves, and other predators derive significant sources of protein from salmon in the rivers. Without this once-abundant food source, predators have been forced to target other food sources, including moose and caribou. People are not immune from this pressure, forcing them to focus on other protein sources in the ecosystem. When considering these downstream (or upstream) effects, the harmful impacts of hatchery salmon cannot be quantified.

The Board of Fish Must Consider the Importance of Subsistence to Alaskan Natives.

Initially included in the Alaska Native Claims Settlement Act (ANCSA), last minute adjustments to ANCSA led to the removal of the protection of subsistence rights for Native Alaskans. Congressional intent was for the Secretary of Interior and state of Alaska to "take any action necessary to protect the subsistence needs of the Natives." Many believed this would be sufficient, but it soon became apparent that more concrete protections were needed. Congress next attempted to correct this injustice and enshrine subsistence guarantees to Native Alaskans through the Alaska National Interest Lands Conservation Act (ANILCA). ANILCA initially contained a Native Alaskan subsistence priority, but this provision was changed to a rural subsistence priority at the urging of the State of Alaska, contending that an Alaska Native priority would be

unconstitutional. Despite this concession and the adoption of ANILCA, the State of Alaska's Supreme Court held the rural subsistence priority unconstitutional, nonetheless.[17] More than 50 years after relinquishing much of their sovereignty and their control of 70% of the state of Alaska, Alaska Natives continue to be denied a promise that was at the core of the ANCSA bargain – protection of their subsistence way of life. Within subsistence, salmon harvesting is central to all cultures within the Calista region. Culture and spirituality in the Calista region revolved around balance with the environment and harmony with animals captured. Many tribes within the Calista region were nomadic and traveled depending on the seasons to suit the animals harvested. Many animals, including salmon, play integral parts in cultural and religious ceremonies to this day.

Calista Supports Proposals 43 and 59.

One of the principal precepts of bioethics is the maxim *primum non cocere*, or "first do no harm." The Alaska Department of Fish and Game in previous years has contended that there is no definitive proof that Alaska's excessive hatchery production is harmful to wild stocks. This impossibly rigorous standard exceeds even those required for introducing such evidence in court. However, the overwhelming evidence suggests that the Board's hatchery program in its current state is harming ecosystems throughout Alaska, including especially the in-river salmon runs that communities in the Calista region have depended upon for thousands of years.

The Board's ethical mandate is to first ensure that the salmon are not further harmed by destructive hatchery and bioengineering policies. This will not only ensure that salmon are preserved for future generations but will also aid in reducing the glut of worthless fish in the ocean, while bringing back the fish that were the pride of Alaska.

Sincerely,

CALISTA CORPORATION

Andrew Guy
President & CEO

[17] McDowell v. State. 785 P.2d 1 (1989).