

Gale Kristina Vick
Fairbanks, Alaska 99709

COMMENTARY TO THE ALASKA BOARD OF FISHERIES (BOF) ¹
October 14, 2023 Hatchery Committee of the Whole Meeting

My name is Gale Vick. I am a 55 year resident of Alaska, a former drift gillnetter in Prince William Sound, and for 32 years a contractor on fisheries policy all over the state. I have been working on Yukon River / AYK fisheries issues since 2014. I am a member of the Fairbanks Advisory Committee (FAC) and chair of the FAC Fisheries SubCommittee. Comments here are my own but are based in numerous discussion with the FAC and among many stakeholders of the Yukon River and other AYK groups.

I preface these comments by my over-arching concern for Alaska wild salmon stocks. All my comments are related to the concern to both protect wild salmon stocks and ensure that our management and management policies are consistent with statutes to that effect.

These comments are in sections, but this is by far an incomplete picture of the need for a more comprehensive oversight and review of Alaska's enhancement program. So while these comments are opinionated, the real intent is to encourage an *on-going* dialogue we have not previously had. Most people in Alaska, including many of our local ACs and stakeholders, have no to limited understanding of Alaska's PNP hatchery program. An *independent* venue for a public dialogue, that would also include many national researchers, is desperately needed.

While the Board of Fisheries Hatchery Committee has limited regulatory authority, it also currently provides the singular venue for the public to get information and ask questions about Alaska's enhancement program. We need increased research and reporting and relativity to production, costs, and wild stock impacts to fully understand whether or not our hatchery program is decimating our wild stocks and who really benefits.

My responses to the Open Forum topics to be discussed at the October 14, 2023 Board of Fisheries Hatchery Committee meeting are being submitted separately.

I fished a hatchery system for over 21 years and there was no one that was a stronger advocate during that time. When you are dependent on that system, all you can see is the immediate (seasonal) benefit. But I also had a stepson on one of the RAA (regional aquaculture association) boards and I learned from that perspective that the costs of keeping a hatchery running were endlessly dependent on state loans and endlessly at the mercy of the markets. The way RAAs deal with that is to (a) increase egg production as they are permitted, (b) increase cost recovery percentages – which take from the common property, (c) increase – in

¹ DRAFT #2

some cases – the enhancement tax as allowed by law and approved by fishermen, (d) increase their loan requests.

When I left commercial fishing and returned to the AYK, I felt like I was getting out of a bubble. The increasing crisis in the AYK and the loss of subsistence opportunity to so many has made me see hatcheries within the context of entire ecosystems. Subsequent research and discussions with some of our top West Coast salmon scientists have only confirmed my belief that hatcheries everywhere, not just in Alaska, are having profound impacts on wild salmon stocks.

OUR REAL CONVERSATION: ARTICLE 8 CONSTITUTION OF THE STATE OF ALASKA

Alaska’s State Constitution, Article 8, Natural Resources, is very specific about the management of Alaska’s natural resources for

- Maximum benefit of its people (Sec. 8.2 General Authority)
- Reserved to the people for common use (Sec 8.3 Common Use)
- Fish, forests, wildlife, grasslands and all other replenishable resources belonging to the State shall be utilized, developed and maintained on the sustained yield principle, subject to preferences among beneficial uses.

What this Article does *not* say is that we are to manage by “maximum sustained yield” (MSY) or that a portion of this managed resource is for the benefit of non-residents.

GENERAL CONCERNS

Since 1974, Alaska has conducted a private non-profit (PNP) salmon enhancement / hatchery program that has grown exponentially. This program has largely been promoted as essential to Alaska’s economy with very little oppositional viewpoint. Perhaps because it has become a de facto integrated system of hatcheries, state government, processors, fishermen and fishing communities and marketing that are all interdependent on each other. The Alaska Board of Fisheries committee had not convened between 2002 and 2018.

Because the Alaska Limited Entry program cannot discriminate between resident and non-resident, a significant benefit of hatchery production goes to Outside fishermen. The only offset is the enhancement tax that every fishermen must pay if fishing within an RAA¹ area. Very often this distinction is not reported in hatchery economic reports.

The 2019 Alaska Enhancement Report illustrates the enormous financial impact that hatcheries have. These percentages have actually increased since then. The State proudly distributes these numbers as evidence of the “success” of the hatchery program with no real discussion of short-term or long-term impacts on wild stocks.

In 2019, the approximately 50 million hatchery-produced salmon harvested in the commercial fisheries had an estimated exvessel value of \$118 million and comprised 18% of the statewide

commercial harvest exvessel value (Figure 6; Appendix D1). The exvessel value of the commercial hatchery harvest was 40% chum salmon, followed by pink (36%), sockeye (13%), coho (8%), and Chinook salmon (3%; Figure 6).¹⁰

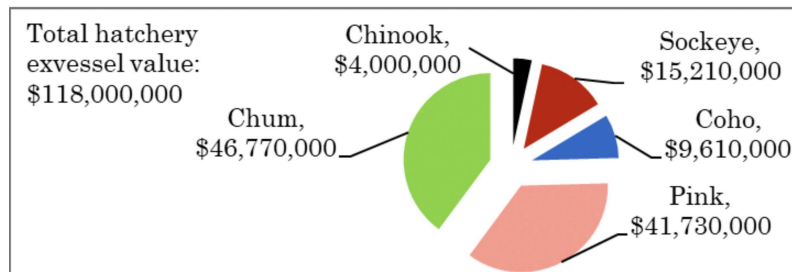


Figure 6.—Species composition of the 2019 Alaska hatchery contribution to the commercial harvest, with the exvessel value by species. Commercial exvessel value is the estimated value paid to fishers for the common property harvest and to aquaculture associations for cost-recovery harvest.

Confined primarily to the Gulf of Alaska, Alaska’s PNP hatcheries have grown to the point where by 2021 hatchery production was already over 34% of Alaska’s total salmon harvest² with more than 80 percent of these two species of returning salmon-value pinks.³ “These fish are part of the explosion of pinks that have made the smallest and least valuable salmon the most dominant salmon species in the North Pacific Ocean. They now outnumber all other species of salmon combined and have been [directly tied to declines in productivity of wild pink salmon and strongly linked to possible, North American-wide declines of much more valuable sockeye, Chinook and coho salmon.](#)”⁴

“The negative effects of pink salmon on the growth, survival, and abundance of other salmon also impacts commercial, subsistence, recreational, and cultural values humans derive from them. Although climate warming has enhanced overall harvests of sockeye salmon in Bristol Bay, for example, approximately 59 million fewer sockeye salmon returned there during 1977–1997 (excluding the cyclic Kvichak population) after interacting with abundant pink salmon in odd-numbered years, and those fish would have had a value to fishermen of approximately US \$310 million if they had survived (Fig. 8d; Ruggerone et al. 2003). In many regions of the Pacific Rim, especially in the Arctic–Yukon–Kuskokwim region of western Alaska, people depend on salmon for subsistence and cultural needs in addition to monetary income from commercial fisheries (Brown et al. 2022). Salmon subsistence harvests, particularly Chinook salmon, have declined over the past 25 yr, and this may partially reflect adverse interactions with pink salmon (e.g. Ruggerone et al. 2012, 2016b, Agler et al. 2013, Cunningham et al. 2018, Frost et al. 2021). Although declines in the abundance of salmon are the most obvious impact to humans, declining body size of salmon over time, which is partially linked to growing abundances of pink salmon, also has the potential to affect both humans and ecosystem services such as meals, price, eggs, and marine-derived nutrients per fish (Bigler et al. 1996, Oke et al. 2020).⁵

This brings us to the proliferation of peer-reviewed research being conducted around the globe on the impacts of hatchery fish to wild fish.⁶ In the North Pacific, there is a double whammy of hatchery impacts from Asian hatcheries (Japan, Russia, Korea) and Alaska PNP hatcheries. These impacts on wild stock are just beginning to be understood but what we do know is very disturbing – from competition with forage food to straying.

The only real research we are conducting within the State of Alaska is on straying and we are only doing that on a limited basis. Our research is very likely not keeping up with the increasing number of straying of pinks and chum especially.

“In Alaska, most hatchery salmon production occurs with Pink Salmon in Prince William Sound and Chum Salmon in Southeast Alaska. These hatcheries are operated by private non-profit organizations and follow state regulations to minimize impact to wild populations. State law requires use of local broodstock and selection of release sites away from significant wild populations, among other measures. In both Prince William Sound (PWS) and Southeast Alaska (SEAK), hatchery-origin strays have been observed in wild populations. Straying is a natural component of salmon biology but straying of hatchery-origin fish raises concerns of potential introgression of maladapted traits into wild populations. To address these concerns, the Alaska Department of Fish and Game and hatchery operators began the Alaska Hatchery Research Program (AHRP) in 2011. The AHRP seeks to understand the impact of straying hatchery fish on wild populations by assessing (1) the baseline genetic stock structures and evidence of introgression, (2) the extent of and variability of straying, and (3) the effect of straying on salmon fitness.”⁷

How we treat our salmon as a *commodity* has everything to do with the Alaska hatchery program. When Alaska implemented the Limited Entry Act in 1973, expanding on the previous year’s adoption of tools for “restoring and maintaining” Alaska’s fishing economy, including opening the door in 1974 to the Alaska Hatchery Act, we made an unconscious decision to follow the pre-Statehood historical practice of exploitation of Alaska’s salmon for commercial use.

What this means in practical terms is that the vast majority of management attention and spending is centered on commercial fishing, often to the detriment of subsistence, personal use and sports. This creates a cycle of reduced opportunity for other sectors. It also puts pressure on the entire system to increase hatchery production. Fortunately, there are limits provided through statute, the Commissioner’s authority and through economics and environmental limitations.

Unfortunately, commercial fishing, because of the rules of interstate commerce, cannot be confined to Alaska residents. In 2005, 23% of Limited Entry permits were held by non-residents.⁸ By 2023, that number is up to 34% in the aggregate and much higher in some fisheries.⁹ In addition, many of the highest quartile levels of earnings go to Outside fishing vessels. This is also true of processing revenue. We have not calculated the real cost-benefit of our salmon harvest and/or production. The unspoken factor in all this is how our emphasis on commercial

fishing affects wild stock management and the majority of Alaskans access to salmon as a food security source? Hatcheries factor into this equation because no matter how much we are increasing hatchery production, it is only to the benefit of the commercial sector and may have an ultimate disadvantage to the sustainability of wild stocks.

Because the PNP hatcheries must, by regulation, “pay their own way,” this has forced production of low-end / high volume pinks which has led to and is currently leading to severe economic stress for many PNP hatcheries’ ability to meet their debt service. Hatcheries get revenue from only a few basic sources: (a) cost recovery, (b) enhancement taxes, (c) loans, (d) grants. Cost recovery and enhancement taxes are subject to the variabilities of returning salmon and market pricing. Because hatchery fish run with wild stock, common property fishermen *must* pay the established enhancement taxes (1-4% of ex-vessel prices) regardless of whether they catch hatchery fish or non-hatchery fish within a RAA. *These factors all increase the pressure to increase hatchery production in an unending cycle.*

Pink salmon egg production is the fastest way for hatcheries to increase cost recovery revenue... although that option is diminishing because the world markets are now saturated with pinks and the price is decreasing accordingly. This means, to make up the market value loss, hatcheries must play a volume game and increase production if allowed. Pink salmon, on the other hand, are largely implicated in the marginalization of wild stock.¹⁰

Egg production is the primary authority of the Board of Fisheries. It is the BOF that must approve the egg permits. But continued proposals to decrease PNP egg production have been ignored.

- In January 2001, the hatchery managers promised the Governor and the BOF that they would reduce hatchery production of chum salmon by 24% and never increase it again - reference Joint Protocol on Salmon Enhancement #2002-FB-215. This promise has not been kept.¹¹
- In 2001, a petition by a large contingent of Western Alaskans Representatives of Western Alaska wild chum fishermen wanted the board to reduce hatchery output, saying the hatcheries have glutted both the market and the ocean ecosystem. As a result, they argued, demand for Western chums has dropped. In addition, they fear the wild fish might be losing a battle in the ocean for food with hatchery fish, resulting in the recent poor chum returns to Western Alaska rivers.¹² Governor Tony Knowles had asked the Board to “stop or reduce” hatchery production but the response was there was no scientific evidence of hatchery fish impacting wild salmon.
- Subsequent proposals to reduce the hatchery egg take have been dismissed
- **From 1977-2019, egg takes at PNP hatcheries increased from 250,000 to 2.1 billion eggs.**¹³

**A LITTLE BACKGROUND PRIMER:
BRIEF HISTORY OF ALASKA'S PRODUCTION SCALE HATCHERY PROGRAM ¹⁴**

Alaska has been the home to finfish hatcheries since 1891¹⁵ when operated by the federal government. Even during Territorial days, Alaska's salmon hatchery programs involved salmon ranching, where salmon eggs are hatched, reared to a juvenile stage, and released into the natural waters of the state. Salmon farming involves hatcheries also, but since 1990 Alaska does not allow salmon farming in the state.¹⁶

“Alaska’s modern hatchery program was developed in response to historically low salmon abundance in the early 1970s. Alaska’s modern hatchery program began in 1971, when the Alaska Legislature established the Division of Fisheries Rehabilitation, Enhancement and Development (FRED) within the Alaska Department of Fish and Game (ADF&G.) In 1972, Alaska voters amended Article 8, Section 15 of Alaska’s Constitution to provide tools for restoring and maintaining the state’s fishing economy. The amendment provided an exemption to the “no exclusive right of fishery” clause in the state constitution, enabling limited entry to Alaska’s state fisheries and allowing the development of aquaculture in the state. Alaska’s salmon hatchery program developed under this authority and was designed to supplement—not replace— sustainable natural production. Alaska’s salmon fishery harvests were just 22 million fish in 1973 and 1974.” ¹⁷

In 1974, the Alaska Legislature expanded the hatchery program, authorizing private nonprofit (PNP) corporations to operate salmon hatcheries:

It is the intent of this Act to authorize the private ownership of salmon hatcheries by qualified nonprofit corporations for the purpose of contributing, by artificial means, to the rehabilitation of the state’s depleted and depressed salmon fishery. The program shall be operated without adversely affecting natural stocks of fish in the state and under a policy of management which allows reasonable segregation of returning hatchery-reared salmon from naturally occurring stocks.²

BUT, we haven’t exactly done that.

- We have given private corporations carte blanche to create their own little systems with oversight requirements but, in reality, a lot of latitude to push limits
- We know that rules and regs and management often does not compare to fishery operations on the ground that are dependent on hundreds of factors
- We have had adverse impacts on wild stock that we know about and likely many we do not know about

PNP hatcheries have a fishery enhancement objective and hatchery permits are issued for production-scale hatcheries.¹⁸ They may have regulations they must pay attention to (they do) but there is a general mindset strictly on production and not on preservation or protection of wild stock. Hatchery proponents defend their systems almost religiously. I know... I did that for

years. So, **this is not a condemnation on anyone in the system; it is a reality that goes with the culture.** No different than the realities for any of us trying to make an economic engine work. But that culture, aligned with processors and fishermen and even fishing communities, often prevents an ability to stand back and look at an entire ecosystem.

Hatcheries, as we have discovered around the world, are not contributors to ecosystems and they do not contribute to biodiversity. In some cases they can have direct detrimental impacts, such as in the potential for disease being transmitted into the wild, but most impacts are more diffuse.

“In the past production hatcheries have also played a role in slowing the decline of natural populations. Now, however, they are becoming increasingly implicated as one of the factors causing the decline. Among their citations include the transplantation and straying of fish, over harvest, and effects on carrying capacity of receiving environments. Most production hatcheries were built when wild salmon stocks were healthy, and genetic diversity of stocks was not a concern. Today, many stocks in the Pacific Northwest are listed as threatened or endangered under the terms of the U.S. Endangered Species Act (ESA), and the need to preserve biodiversity has brought about a new era of management strategies for the conservation of wild stocks. As current hatchery practices and methods are now recognized as contributors to the overall decline, there have been strong arguments for the reform of hatchery management, particularly in the Columbia River Basin. The goal is to reduce the overall impact of hatchery fish on the survival of wild stocks.”¹⁹

Alaska developed its PNP hatchery program without benefit of any real biological studies at all and we *still* have less information than we should. There are a few fishermen who consider the ecosystems consequences of all fishing practices, but to be fair, most fishermen are just interested in the availability of fish and more of it. Therefore, the pressure for review and scrutiny must come outside of the general fishing world and that, unfortunately, creates a confrontational potential.

It comes down to a single question: Are we going to save our wild salmon? And how?

WHAT IS NEEDED?

While there are individual RAA (regional aquaculture association) enhancement reports and annual Department enhancement reports, the general public, the legislature, and even members of the RAA, do not have available a comprehensive (annual and aggregate) reporting procedure that gives an in-depth picture of the true costs (financial, environmental) and impacts (environmental) of the hatchery program that answers the questions most often ignored or deliberately misrepresented.

Most of us do not have the bandwidth to research what is available and certainly there is a lot of information not available to the public. Therefore, the Alaska Board of Fisheries might consider requesting the following:

- (1) Full cost-benefit analysis of hatchery production and operation including (but not limited to)
 - a. Record of egg production for each hatchery going back to the implementation of each hatcheries' production history
 - b. Record of common property benefit by each RAA, delineated by resident vs. non-resident
 - c. Record of cost recovery by species, volume, percentages and contract operators by year and since 1974
 - d. Full review, back to 1974, of the loans, paybacks and defaults of PNP hatcheries to the State
 - e. Full review on the enhancements taxes, how they are paid and how they are returned to the RAAs
- (2) Real cost of the State's participation in governing and managing the Alaska PNP hatchery program in relation to revenue. With the incredibly increased production of hatcheries since 1974 it raises questions about where we put our efforts. Finfish hatcheries are largely confined to the Gulf of Alaska but it would be good to know if the State of Alaska (ADF&G, DEC, CFEC, CCED, DNR, Labor) puts a disproportionate amount of time, money and energy into hatchery production than in wild stock management for the entire state.
- (3) Comparison of ASL (age-sex-length) of wild stock fish since the beginning of the hatchery program
- (4) On-going comprehensive reporting and analysis of straying studies
- (5) "Formation of a Hatchery Science Advisory Group made up of ocean ecologists and biologists with published, peer-reviewed work on straying, competition, predation and trophic-level impacts. Please refer to the attached literature review for a list of hundreds of such experts. Please also refer to the Hatchery Reform Project and their Independent Scientific Review Group in the Pacific Northwest as a strong model as well as to the B.C. Wild Salmon Advisory Council. We cannot simply ignore the mountain of data that indicates that the hatchery program is jeopardizing our salmon fisheries. The board has to do the politically difficult thing for the benefit of all Alaskans, especially Alaskan fishers."²⁰

CONCLUSION

There is a single question that we, as Alaskans, need to ask: Are we going to save our natural wild stock, per our State Constitution, or are we going to simply rely on hatchery production? This is a model that has failed almost all of the Pacific Northwest. At least in the PNW, they had other complications and barriers to overcome. We can't say that in Alaska.

We have a reckoning coming our way. Actually, we are long past due.

Cc: Members, Fairbanks Advisory Committee
 Karen Gillis, Bering Sea Fishermen’s Association
 Serena Fitka, Yukon River Drainage Fisherman’s Association
 Chief Brian Ridley, Tanana Chiefs Conference
 Marna Sanford, Tanana Chiefs Conference

Footnote:

ALASKA BOARD OF FISHERIES HATCHERY COMMITTEE MEETINGS: BRIEF HISTORY

The Alaska Board of Fisheries has limited authority over the PNP hatchery program. In a November 6, 1997, Alaska Department of Law Memorandum to the Board, the “Authority of the Board of Fisheries Over Private Nonprofit Hatchery Production” offered these summary answers:

1. The legislative scheme for the regulation of private, nonprofit hatcheries vests the more detailed, comprehensive authority in the commissioner and department.
2. Although the board initially had broad rule-making authority over all aspects of the private, nonprofit hatchery program, the legislature significantly restricted that authority by an amendment to AS 16.10.440(b) in 1979.
3. The Board may exercise indirect authority over hatchery production by regulating the harvest of hatchery-released fish in the common use fishery, hatchery brood stock and cost-recovery harvests, and by amending those portions of hatchery permits relating to the source and number of salmon eggs, hatchery harvests, and the designation of special harvest areas by the adoption of appropriate regulations. However, Board action that effectively revokes, or prevents the issuance of, a hatchery permit is probably not authorized.
4. The Commissioner of the Department of Commerce and Economic Development is independently responsible for the implementation of the hatchery loan program under AS 16.10.500 - 16.10.560.

Possibly because of this limited authority, the following is a brief record of the Board of Fisheries hatchery oversight:

1974-1977	No BOF hatchery oversight
1977	“White Law” determined by the Alaska Department of Law regarding BOF hatchery authority
1977-1999	No BOF hatchery oversight
1999	First Alaska Board of Fisheries Hatchery Committee formed
2001	BOF ad hoc hatchery committee met – one day
2002	Board of Fish met to establish joint protocols for salmon enhancement.
2003-2018	No BOF hatchery discussions
2018	BOF reinstated a Hatchery Committee of the Whole
2019	BOF Hatchery Committee met for one day in Anchorage, mostly for reporting
2020	BOF Hatchery Committee met for one day in Anchorage, mostly for reporting
2021	No hatchery committee held because of COVID
2022	BOF Hatchery Committee met for one day in Anchorage, mostly for reporting

-
- ¹ Regional aquaculture association
- ² *8th largest salmon hatchery home-coming since 1977* by Laine Welch, Sitka news March 2022
- ³ Regional Information Report No. 5J22-02 Alaska Salmon Fisheries Enhancement Annual Report 2021
<https://www.adfg.alaska.gov/FedAidPDFs/RIR.5J.2022.02.pdf>
- ⁴ *Alaska's overlords* [craigmedred](#) March 26, 2022
- ⁵ "From diatoms to killer whales: impacts of pink salmon on North Pacific ecosystems", Greg Ruggerone, et.al., 2023
- ⁶ "A global synthesis of peer-reviewed research on the effects of hatchery salmonids on wild salmonids" **Article** in Fisheries Management and Ecology · July 2023 DOI: 10.1111/fme.12643 John McMillan, et.al.
- ⁷ Alaska Hatchery Research Program Synthesis, 2022, for MSC/RFM Sustainability Certification, Dec 12-14, 2022
- ⁸ <https://www.cfec.state.ak.us/pregs/Homan30YrsLimitedEntrySummary.pdf>
- ⁹ <https://www.cfec.state.ak.us/pstatus/14052023.htm>
- ¹⁰ "From diatoms to killer whales: impacts of pink salmon on North Pacific ecosystems", Greg Ruggerone, et.al., 2023
- ¹¹ BOF PWS proposal #54, 2020
- ¹² "Fish board votes down hatchery chum production cuts", Peninsula Clarion, February 1, 2001
- ¹³ 2019 Alaska Salmon Enhancement Report
- ¹⁴ For purposes of reference to this commentary, Alaska statutes and regulations currently applicable to the Alaska Private-Non-Profit (PNP) are found under Alaska Statutes Title 16 and under 5AAC Alaska Salmon Hatchery and Enhancement Regulations.
<https://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheriesRegulationsPolicies.main>
- ¹⁵ *Development of Public and Private Hatcheries in Alaska*, by Terry Ellison, Alaska Department of Fish and Game, FRED Division, Presented at the 9th Annual Meeting of the Aquaculture Association of Canada, Vancouver, British Columbia June 1-3, 1992
- ¹⁶ *Development of Public and Private Hatcheries in Alaska*, by Terry Ellison, Alaska Department of Fish and Game, FRED Division, Presented at the 9th Annual Meeting of the Aquaculture Association of Canada, Vancouver, British Columbia June 1-3, 1992
- ¹⁷ Regional Information Report No. 5J23-04 Alaska Salmon Fisheries Enhancement Annual Report 2022 Lorna Wilson, February 2023
- ¹⁸ Regional Information Report No. 5J23-04 Alaska Salmon Fisheries Enhancement Annual Report 2022 Lorna Wilson, February 2023
- ¹⁹ ECOLOGICAL AND BEHAVIORAL IMPACTS OF ARTIFICIAL PRODUCTION STRATEGIES ON THE ABUNDANCE OF WILD SALMON POPULATIONS A Review of Practices in the Pacific Northwest By Thomas A. Flagg, Barry A. Berejikian, John E. Colt, Walton W. Dickhoff, Lee W. Harrell, Desmond J. Maynard, Colin E. Nash, Mark S. Strom, Robert N. Iwamoto, and Conrad V.W. Mahnken National Marine Fisheries Service Northwest Fisheries Science Center Resource Enhancement and Utilization Technologies 2725 Montlake Blvd. E., Seattle, WA-98112-2097
- ²⁰ Kachemak Bay Conservation Society, letter to the Board of Fisheries, March 7, 2020