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Ms. Watson & Ms. Cleaver:

We submit the following comments responding to your March 2023 discussion prompt and survey regarding the development of a purpose and need and range of alternatives for a programmatic Environmental Impact Statement (EIS) for the groundfish fisheries. The Boat Company is a charitable foundation with a 40 year history of operating in Alaska where it conducts multi-day conservation, education, sport fishing and adventure tours in Southeast Alaska aboard two small cruise vessels. The Boat Company's charitable work focuses on Alaska conservation issues, including efforts to protect and maintain fishery resources and fish habitat which support local fishing economies throughout Alaska. These comments respond to Question 4: What changes would you like to see to the current groundfish management policy, its management goals and objectives?

The Boat Company requests the addition of both ecological and coastal community socio-economic objectives to Goal 1 (prevent overfishing), which provides three objectives relative to optimum yield from the fisheries. Goal 1 has just three objectives which include conservative harvest levels, use of optimum yield caps and specification of optimum yield as a range. Both Fishery Management Plans assume that chosen optimum yield ranges are not likely to have any significant detrimental impact on the industry.[1] The Fishery Management Plans also recognize that the potential need to revisit optimum yield if major changes occur in the relevant ecological, social, or economic factors.[2]

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[1] NPFMC. 2020. Fishery Management Plan for Groundfish of the Bering Sea and Aleutian Islands at §3.2.2.2. Anchorage, AK. November 2020; NPFMC. 2020b. Fishery Management Plan for groundfish of the Gulf of Alaska at §3.2.2.2. Anchorage, AK. November 2020.

[2] *Id.*

Socio-economic and ecological changes, and the broad definition of optimum yield in the National Standard guidelines warrant the addition of several optimum yield objectives. The fishing "industry" in Alaska has diverse participants and the optimum yield caps and ranges have different effects on different fishermen. Goal 1 should include objectives that provide for all Alaska fishery participants rather than a single "industry." Specific objectives could include: (1) ensuring a broader measurement of optimum yield that fully considers some costs that are externalized to a significant extent, such as trawl industry bycatch and (2) measuring optimum yield with specific reference to Alaska's coastal fishing communities.

Many Alaska fish species are at lower abundance levels, triggering reduced harvest quotas and other restrictions. Lower abundances magnify the impacts of bycatch on Alaska's commercial, sport and subsistence fisheries. Alaska fishing fleets are diverse, ranging from community-based fishermen working in skiffs and small boats to large catcher processors from Seattle.[3] Most of the commercial fleet – nearly 6,000 vessels – consists of smaller boats less than 58' long.[4] Nearly a half million residents and visitors sport fish in Alaska each year and many rely on hundreds of sport fish guide businesses concentrated in coastal communities near the most desirable sport species: halibut and Chinook salmon.[5]

The Council often perceives management measures as presenting a choice in balancing "competing" requirements of the Magnuson-Stevens Act National Standards - particularly standards 1, 8 and 9. These three standards direct fishery managers to achieve of "optimum yield" from U.S. fisheries, to provide for the sustained participation of fishing communities and to minimize bycatch.[6] Bycatch management measures often fall short of coastal community expectations because the Council seems to interpret "optimum yield" in terms of achieving trawl industry grounfish quotas. The Council sets bycatch limits high (or does not set them at all for some species) in part because of the belief that trawl vessels must continue operating year-round even with high bycatch rates because "cost accrual on such large platforms would be unsustainable."[7]

The proportion of high value fish species taken as bycatch by trawlers is also unsustainable for salmon, sablefish, halibut and crab fishermen, many of whom now face complete closures in some fisheries and reduced access in others. Council analyses and decisions do not fully incorporate the socio-economic values generated by sport, subsistence and commercial fisheries that are diminishing in significant part because of cumulative impacts from heat waves, and bycatch and habitat harms associated with the trawl industry.

External costs, or "externalities" are an economic concept that refers to uncompensated social or environmental effects.[8] Without considering external costs

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[3] McKinley Research Group, LLC. 2022 The economic value of Alaska's seafood industry at 24. January 2022. Prepared for Alaska Seafood Marketing Institute. *Available at:* https://www.alaskaseafood.org/wp-content/uploads/MRG_ASMI-Economic-Impacts-Report_final.pdf

[4] *Id.*

[5] Himes-Cornell, A., K. Hoelting, C. Maguire, L. Munger-Little, J. Lee, J. Fish, R. Felthover & C. Geller. 2013. Community profiles for North Pacific fisheries- Alaska. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-259, Vol. 1, 70 p. Tables 19-21.

[6] 16 U.S.C. § 1851 (a)(1), (8), (9); *see also* § 1802(33); 50 C.F.R. § 600.310(f)(1)(ii).

[7] NPFMC/NMFS 2021c. Considering Management Tools to Limit Trawl Sablefish Overages at 14.

[8] https://www.eltis.org/glossary/costs-internal-external-costs

imposed on society via bycatch or habitat harms caused by bottom trawling, it is impossible to meaningfully assess optimum yield in terms of the true costs or benefits of their products or services to society.[9] Fishery analysts explain that: "[i]n economic terms, bycatch is a negative externality, comparable to carbon emissions and air pollution, which occurs when an economic transaction by a private economic entity (for example, a fishing firm) imposes a cost on society that is unpriced or only partially priced by markets ….[10]

There should be an explicit objective in Goal 1 that incorporates the external cost of bycatch and habitat impacts in the determination of optimum yield for the fisheries. Average annual trawl bycatch of species targeted in other fisheries between 2017 and 2021 was 46,365 Chinook salmon, 392,345 chum salmon,4,272,000 round pounds of sablefish, 4,293,000 net pounds of halibut, over 1.1 million individual tanner and snow crab and 27,187 red king crab.[11] Some of these losses are more easily quantifiable than others, but the losses all accrue to other fisheries.

National Standard 1 also emphasizes the importance of local community-based fisheries – optimum yield is not just a single target number but rather "the amount of fish that will provide the greatest overall benefit to the nation … *as reduced by any relevant, economic, social, or ecological factor.*"[12] The social factors identified in the National Standard 1 guidelines overlap with National Standard 8's concern for fishing communities and should be among the Goal 1 objectives. Social factors include "preservation of a way of life for fishermen and their families, and dependence of local communities on a fishery (e.g., involvement in fisheries and ability to adapt to change).[13] The availability of alternative employment opportunities and economic contributions to coastal fishing communities in Alaska are also economic factors relevant to considering optimum yield.[14]

As explained in a 2021 study by the University of Alaska Anchorage's Institute for Social and Economic Research (ISER):

> …while total employment increases with resource extraction activities in the oil-rich North Slope borough in Alaska, local residents receive little to none of these benefits. A similar story may be true of Alaska's fisheries. While Alaskan fishers represented 71% of permit owners in 2015, they earned only 33% of the total value of catch. Further, only 65% of the wholesale value from commercial fisheries can be attributed to a

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[9] *See, e.g.* https://en.wikipedia.org/wiki/Externality

[10] Booth, H., W.N.S. Arlidge, D. Squires & E.J. Milner-Gulland. 2021. Bycatch levies could reconcile trade-offs between blue growth and biodiversity conservation at 1. Nature Ecology & Evolution Vol. 5, June 2021 715-725; Snyder, H.T. & J.T. Erbaugh. 2020. Fishery observers address arctic fishery discards. Environ. Res. Lett. 15 (2020) 0940c4 https://doi.org/10.1088/1748-9326/aba57d ("Socially, discards are foregone animal proteins and therefore represent wastage, and in some cases, can threaten adequate animal protein intake among coastal populations. Discards are also economically wasteful).

[11] Fisheries Catch and Landings Reports in Alaska | NOAA Fisheries

[12] 50 C.F.R. § 600.310(e)(3).

[13] 50 C.F.R. § 600.310(e)(3)(iii)(B)(1).

[14] 50 C.F.R. § 600.310(e)(3)(iii)(B)(2).

processor based in Alaska. *Thus, a large portion of the value of commercial fisheries in Alaska may never enter into local economies.*[15]

The socio-economic impacts of locally harvested and processed seafood differ significantly from the impacts of non-resident harvest and processing. Local ownership of fishery resources means earnings are spent locally on goods and services and local crew members, creating induced effects on local economies.[16] Each dollar in resident fishery earnings translates to 1.54 dollars in total community revenue and over 7 jobs per million dollars of fishery earnings.[17] The majority of Alaska fishermen own smaller catcher-seller vessels, so that when non-resident earnings leave the region, "the induced and indirect effects of commercial fishing in local economies can be expected to be small."[18]

Bycatch impacts to the halibut fishery illustrate the importance of an objective under Goal 1 recognizing that optimum yield for Alaska community-based coastal fisheries may be different than optimum yield for Seattle companies such as the Amendment 80 fleet owners. Bycatch reductions result in directed halibut fishery catches at more than a 1:1 ratio – 115 percent on average.[19] Halibut fishery revenues lost to bycatch accumulate over extended periods of time and are a significant factor in reduced socio-economic outputs from Alaska commercial and recreational fisheries. The projected 2023 Alaska commercial catch is the lowest in recent history - 19 million pounds.[20] In 2023, for the first time, regulations will close guided sport fishing in Southeast Alaska each Monday beginning July 24.[21]

Research shows that the economic outputs from commercial and recreational fisheries in a typical year, such as 2019, exceeded a billion dollars, providing over 9000 jobs.[22] Seventy percent of the direct earnings per dollar accrue to Alaska, with the most earnings flowing to communities that are home ports for vessels, have local vessel and quota ownership and processors and are in close proximity to sport fishing locations.[23]

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[15] Watson, B., M.N. Reimer, M. Guettabi & A. Haynie. 2021. Commercial Fishing and Local Economies at 8. Institute of Social and Economic Research, University of Alaska Anchorage.

[16] *Id.*

[17] *Id.*

[18] *Id.* (adding that these "findings demonstrate the importance of local resource ownership for generating benefits for local economies").

[19] Stewart, I.J., A.C. Hicks & P. Carpi. 2021; *see also* Valero, J.L. and Hare, S.R., 2011. Evaluation of the impact of migration on lost yield, lost spawning biomass, and lost egg production due to U32 bycatch and wastage mortalities of Pacific halibut. *Int. Pac. Halibut Comm. Report of Assessment and Research Activities*, *2010*, pp.261-280 (yield loss due to the long term impact exceeds immediate impact of halibut bycatch mortality).

[20] IPHC 2023. International Pacific Halibut Commission Fishery Regulations (2023). IPHC–2023–FISHR23, 20 pp. *Available at:* iphc-2023-regs.pdf

[21] *Id.*

[22] Hutniczak, B. 2022. Pacific halibut multi-regional economic impact assessment. IPHC-2022-AM098-INF04

[23] *Id.;* Hutniczak, B. 2021. Pacific Halibut Multiregional Economic Impact Assessment (PHMEIA): summary of progress at Figure 3. IPHC-2021-IM097-14. *Available at:* iphc-2021-im097-14.pdf

Fishery Management Plan Goal 4 seeks to reduce bycatch and waste. Some of the objectives have not been prioritized enough in Council decisionmaking, particularly Objective 17, which encourages the development of management measures that encourage the use of gear and fishing techniques that reduce bycatch. Regulatory changes should encourage gear shifts to lower impact gear types where feasible and incentivize gear shifts.[24] Promoting more selective fishing is often the principal approach and has worked in many fisheries.[25]

Trawl gear is responsible for the largest proportion of the bycatch mortality of valuable commercial, sport and subsistence species in the Bering Sea and Gulf of Alaska.[26] Impacts include the majority of halibut bycatch, significant numbers of Chinook and chum salmon each year that originate in Alaska rivers that are experiencing record low productivity for some stocks and at times large numbers of sablefish. There is significant reported crab bycatch and substantial unobserved crab mortality due to encounters with trawls on the sea floor. The bycatch includes a high proportion of juvenile fish which reduces future yields for sport, subsistence and commercial fishermen who would otherwise harvest the bycaught species once mature.[27]

Because of the habitat impacts and disproportionate volume of bycatch, the most appropriate focus for bycatch management is on mobile bottom fishing gears.[28] Bottom trawling has the highest overall environmental impact in terms of any of the ten major fishing gears used in U.S. fisheries and has a disproportionate impact on marine biodiversity.[29] All fishing gears generate bycatch but trawls are highly non-selective compared to other fishing gears, particularly bottom trawling – the largest source of bycatch.[30] More selective fishing gears such as those used in the targeted hook and line and pot fisheries for salmon, sablefish, halibut and crab in Alaska allow for the survival of significant numbers of escaping or released fish.[31]

Trawlers tow a net continuously, concentrating captured fish in the back of the net.[32] Captured fish "burst swim" at their maximum swimming speed until exhausted

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[24] Chuenpagdee, R, L.E. Morgan, S.M. Maxwell, E.A. Norse & D. Pauly. 2003. Shifting gears: assessing collateral impacts of fishing methods in US waters. Front Ecol Environ 2003: 1(10):517-524.

[25] Perez Roda, M.A. (ed.), Gilman, E., Huntington, T., Kennelly, S.J., Suuronen, P., Chaloupka, M. and Medley, P. 2019. A third assessment of global marine fisheries discards. FAO Fisheries and Aquaculture Technical Paper No. 633. Rome, FAO. 78 pp.

[26] Fissel, B. et al. 2021. Stock assessment and fishery evaluation report for the groundfish fisheries of the Gulf of Alaska and Bering Sea Aleutian Islands Area: economic status of the groundfish fisheries off Alaska, 2019, Table 12: Prohibited species catch (PSC) by species, area and gear 2015-2019.

[27] Cook, K.V., A.J. Reid, D.A. Patterson, K.A. Robinson, J.M. Chapman, S.G. Hinch, S.J. Cooke. 2018. A synthesis to understand responses to capture stressors among fish discarded from commercial fisheries and options for mitigating their severity. Fish and Fisheries 2018:1-19

[28] Perez Roda, M.A. (ed.). 2019; Gilman, E., A. Perez Roda, T. Huntington, S.J. Kennelly, P. Surronen, M. Chaloupka & P.A.H. Medley. 2020. Benchmarking global fisheries discards. Scientific Reports (2020) 10:14017. https://doi.org/10.1038s41598-020-71021-x.

[29] Steadman, D., J.B. Thomas, V.R. Villanueva, F. Lewis, D. Pauly, M.L. Deng Palomares, N. Bailly, M. Levine, J. Virdin, S. Rocliffe & T. Collinson. 2021. New perspectives on an old fishing practice: Scale, context and impacts of bottom trawling.

[30] *Id.;* Cook, K.V., et al. 2018; Perez Roda, M.A. (ed.), 2019.

[31] International Council for Exploration of the Seas (ICES). 2005. Joint report of the study group on unaccounted fishing mortality and the workshop on unaccounted fishing mortality, 25-27 September 2005, Aberdeen, UK. ICES Document CM 2005/B:08. 68 pp.

[32] Cook, K.V. et al. 2018.

and often die before hauled on deck for sorting.[33] Discard mortality is high due to capture and handling injuries on deck or after being discarded alive.[34] The large volumes of fish caught in trawls can result in long sorting times.[35] Those fish released alive are vulnerable to predators that concentrate around trawls, resulting in intensive predation pressure relative to other fisheries.[36] There are also indirect pre-catch and post-discard mortalities that are diverse and difficult to quantify.[37] In all cases high catch densities exacerbate these risks.[38]

Bottom trawling is also the largest human cause of damage to global sea bed habitats.[39] Mobile bottom trawl gear constantly contacts the sea floor, degrading or destroying seabed habitats and damaging a variety of sea floor species.[40] Trawls "mow" cold water coral reefs and disturb soft-sediment habitats.[41] The result is barren habitats with effects comparable to forest clear-cutting.[42] These disturbances degrade habitats used by fish for spawning, breeding, feeding or growth to maturity.[43]

Finally, the meaning of Objective 21 - reduce waste to biologically and socially acceptable levels – could be clarified or updated. The interpretation of the biologically and socially acceptable level of bycatch can be very subjective and would differ considerably between a Seattle-based catcher-processor company and a western Alaska village. Added objectives should explicitly identify at least two thresholds at which North Pacific trawl bycatch cannot exceed harvests in directed fisheries: (1) when directed fisheries are closed for conservation purposes, and (2) levels at which trawl bycatch consumes a disproportionate share of the harvestable quota.

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[33] *Id.*; Perez Roda, M.A. ed. 2019.
[34] Perez Roda, M.A. (ed.)2019; Cook, K.V. et al. 2018.
[35] Cook, K.V. et al. 2018.
[36] *Id.*; Perez Roda, M.A. ed. 2019.
[37] Perez Roda, M.A. ed. 2019; *See also* NMFS. 2004. Evaluating bycatch: a national approach to standardized bycatch monitoring programs. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO-66 108 p. (Unobserved mortality occurs when fish escape from fishing gear before it is retrieved but die due to stress or injury from the encounter).
[38] *Id.*
[39] Steadman, D. et al. 2021.
[40] *Id.*; Cook, K.V., et al 2018; Olsgard, F., M.T. Schaanning, S. Widdicombe, M.A. Kendall, M.C. Austen. 2008. Effects of bottom trawling on ecosystem functioning. Journal of Experimental Marine Biology and Ecology 366 (2008) 123-133.
[41] Armstrong, C.W., G.K. Vondolia & M. Aansen. 2016. Use and Non-use values in an applied bioeconomic model of fisheries and habitat connections. Marine Resource Economics 32, No. 4; Olsgard, F. et al 2008.
[42] *Id.;* Olsgard, F., et al. 2008.
[43] Chuenpagdee, R, L.E. Morgan, S.M. Maxwell, E.A. Norse & D. Pauly. 2003.