EVOSTC Science Panel Review of 2222LTRM budget reallocation proposal for Trustees

The Gulf Watch Alaska Long-Term Research and Monitoring (GWA LTRM) program consists of highly integrated projects that rely on coordination and collaboration among them to maintain efficiencies and broaden the collective knowledge gained from each. The EVOSTC's decision to fund some projects and not others resulted in leaving some funded projects fragmented and unable to achieve their goals. Thus, the LTRM Program Management Team (PMT) wishes to redirect funds from the Science Coordinator position in project 2222LTRM-A (Program Coordination and Science Synthesis) to specific data collection and analyses within other projects that were compromised due to funding reductions in FY22-FY26, or loss of funding for FY27-FY31. Specifically, data collection from unfunded projects 114-E (Long-term monitoring of marine bird abundance) and 111-R/K (Prince William Sound aerial juvenile fish surveys) was to be implemented in funded project 114-C (Monitoring long-term changes for forage fish populations). Additionally, the PMT is requesting to reallocate funds to an existing PI to conduct the pelagic component synthesis which was not approved for FY27-FY31 and to support a reduced project 114-N (Killer whale monitoring). This will maintain the integration and continuity within the LTRM program that was established during the first 10 years of the Gulf Watch Alaska and Herring Research and Monitoring programs. The Science Panel strongly supports this proposal.

The PMT is an exceptional group with a deep, broad, collective knowledge of the ecological history in the spill area and the important questions remaining to be answered about lingering effects of the oil. Answers to those questions are essential to the mandate of the EVOSTC, and beyond that to a fuller understanding of the ecology of Prince William Sound (PWS), the spill area, and the greater Gulf of Alaska (GOA). The LTRM coordination and synthesis work has been excellent and key to the success of this program, and the PMT has maintained the trust and support of the investigators and the EVOSTC Science Panel over the years. Now, their wish to continue funding for components they view as crucial to the greater good of the highly successful overall program should be favorably considered by the EVOSTC.

In essentially all cases, the longer that systematic monitoring studies such as those in PWS and the GOA continue, the more interesting and important they become. A recent example eloquently illustrates this point. Interannual variability, and multi-year anomalies, such as the Pacific Marine Heatwave (PMH) in the last decade, have meaning primarily in the context of longer-term knowledge. Had EVOSTC studies been suspended before the PMH struck, many of its effects on individual species affected by the spill and modes of interactions in the PWS and GOA ecosystems would have been missed. However, they were not missed, and much was learned about essential ecosystem processes (see for example Arimitsu et al. 2020, Piatt et al. 2020, Suryan et al. 2021). Not funding specific GWA project components will decrease the resolution of what can be learned about resiliency and ongoing recovery after the PMH. Environmental events are seldom predictable, so systematic research such as long-term studies must be maintained. All of this is crucial to fulfilling the mandate of the EVOSTC to understand the effects of the spill.

We believe that the elimination of funding for those important components of the LTRM program near the end of this unprecedented study was short-sighted and detrimental to science and the legacy of the EVOSTC. The highly successful program has run this long, so why disrupt it near

the end? The GWA LTRM program has had, and will continue to have, a high benefit-cost ratio, in part because of the large amounts of non-EVOSTC funding it leverages. The proposed reallocations are based on the informed judgment of the PMT, which the Science Panel fully supports. We provide additional justification for funding these eliminated components below.

Justification for supporting pelagic component synthesis

This work was included in the 2222LTRM-A proposal for the FY27-31 funding cycle. The Council approved work for the FY22-FY26 cycle, with the proposal to be reviewed again in FY26 for the next 5-year funding cycle. Given the uncertainty of funding from the Research subaccount after FY26, the Science Panel believes it would be logical to fund this work now to ensure a comprehensive synthesis effort that includes all ecosystem components. Emergent knowledge of ecosystem function created from the syntheses noted above stands among the program's greatest scientific contributions.

Justification for supporting work in unfunded project 114-E (Long-term monitoring of marine bird abundance)

Seabirds are highly visible, tractable ecosystem sentinels and are often the first to signal changes in prey populations and food webs important to many species. Not funding this project left a data gap in the analyses of important predator-prey relationships, on which project 114-C deliverables are dependent. Furthermore, studies of seabirds have been important in distinguishing effects of the EVOS from those of climate change and other ecosystem variability in the spill area and the greater GOA ecosystem.

Justification for supporting work in unfunded project 111-R/K (Prince William Sound aerial juvenile fish surveys)

Many species of juvenile fishes are crucial to higher trophic-level predators, ecosystem function, and commercial fisheries as they recruit to harvestable sizes. But they are difficult to enumerate. Therefore, combinations of approaches offer the best opportunities to monitor distributions and abundance, both of which can provide advanced knowledge of dynamics important to setting future subsistence and commercial quotas, and help explain variability in consumer populations. This is of particular importance in the case of herring, an injured resource that has not recovered. The PWS aerial surveys are designed to provide crucial information on distribution and abundance of juvenile fish species, including herring, to supplement and ground-truth information gathered by vessel-based surveys of project 114-C. The aerial surveys also provide an index of juvenile herring abundance years before herring reach the age of recruitment to the fishery, which could be especially important in view of the recent (decadal scale) changes in herring spawn distribution. Furthermore, the aerial survey data set is the only long-term index of year-class strength of herring, and is essential to proper management of this ecologically and commercially important stock, and the continuation of the commercial herring fishery.

Justification for continued support for limited work in project 23120114-N (Long-term killer whale monitoring)

Killer whales, the highly visible apex predators in PWS, the GOA, and beyond, were the most extremely damaged species by the EVOS. The AT-1 population will likely go extinct as a result. The AB pod, also heavily impacted, appeared to be recovering but newly available data suggest increased mortality during the recent heatwave. Studies the PIs have undertaken are contributing important scientific knowledge needed for the conservation of this iconic species, as well as on stock structure of killer whales in the spill area and in the broader region that absolutely must be factored into their overall management. An excellent Opinion piece on the important issue of killer whale bycatch allocations to commercial fishing fleets and the stability of killer whale populations recently appeared in the Anchorage Daily News (Matkin 2024). Although that immediate concern was identified beyond the EVOS spill area, knowledge gained within the spill area from studies supported by the EVOSTC, e.g., Myers et al. (2021), is of central importance to identifying this problem and will be yet another legacy of EVOSTC-sponsored research. The value of EVOSTC research in broader domains cannot be overstated.

References

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Opinions

OPINION: Protecting killer whales in the Bering Sea requires following the science

By Craig Matkin
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A pod of orcas swim in Agnes Cove on the Aialik Peninsula in Kenai Fjords National Park on Sunday, May 16, 2021. (Loren Holmes / ADN)

The recent deaths of killer whales caught and drowned in the nets of the Bering Sea flatfish bottom trawl fishery, otherwise known as the Amendment 80 fishery, is a tragedy. While the Amendment 80 fleet is taking this seriously, NOAA Fisheries, the agency responsible for protecting these killer whales, is failing to follow the science to ensure their survival.

Unconscionably, the agency refuses to recognize that the fish-eating or "resident" killer whales in western Alaska are distinct from other resident orcas south of the Aleutians, as numerous scientific studies have shown. In doing so, the number of killer whales allowed to be killed by the trawl fisheries is artificially inflated, delaying protections kicking in to safeguard these unique whales.

Rather, NOAA Fisheries currently considers all the Alaska resident killer whales to be part of one "stock." A "stock" refers to a distinct group of marine mammals that live and interbreed together. In the case of Alaska resident killer whales, the current NOAA Fisheries stock structure combines all Alaska killer whales, stretching from the Southeast up to the Aleutian Islands and the Bering Sea. Yet, a landmark genetics study by Kim Parsons and colleagues in 2013 clearly showed that the western Alaska/Bering Sea population of resident killer whales is a unique stock. Photo identification studies, which keep track of numbers by identifying individual killer whales, also support the creation of two Alaska resident stocks. Finally, satellite tagging does not suggest any mixing of the proposed stocks.

While NOAA Fisheries agrees that the current stock structure of killer whales in Alaska needs to be reassessed, 10 years have passed since that seminal 2013 study, and they've taken no action to do so. The problem is that stock structure is used to determine the "Potential Biological Removal," or "PBR," for each stock. PBR is essentially the number of animals within the stock that NOAA Fisheries believes can be sustainably seriously injured or killed by human activities, called "take" in regulatory speak. Because all of Alaska's resident killer whales are lumped into one stock, the "take" allowed is unsustainably high. Accurate PBR is critical because stronger protections for marine mammals kick in only once PBR is exceeded.

The unscientifically vast resident killer whale stock organization has resulted in a PBR of 19 whales a year based on an Alaska-wide population estimate of 1,920 whales (PBR is set for this stock at roughly 10% of the population). This means that the Amendment 80 fleet and other commercial fisheries and human activities, like ship strikes, can collectively kill up to 19 killer whales a year before stronger management kicks in. But there are not actually 1,920 killer whales in this unique western Alaska resident population. Instead, there are around 900 western Alaska resident killer whales, and if PBR was set specifically for this unique population, it could be as low as nine killer whales a year, and therefore, stronger protections from fishery bycatch would kick in much earlier.

Let me be clear: Nine human-caused killer whale deaths a year, which in recent years have been predominantly from the Amendment 80 fleet, are far too many and could set the western Alaska resident population on a road to endangerment. None of us want to see this. The revamping of the killer whale stock assessments for Alaska has been a priority for scientists for years, including myself. We have been extremely frustrated that all the available scientific analysis has not been used to reshape the stock assessments.

This is such a critical issue because the majority of the whales dying in trawl nets are females. These females are not only vital for producing young whales and ensuring the population remains vibrant, but they are leaders of the groups and critical for the population's long-term survival. Resident killer whales are matriarchal, which means that the adult females help ensure the survival of all members of their groups, from their grand-calves to their adult sons. While some whales die in the trawl nets seeking fish, some live to tell the tale of their death-defying fishing trip. As some escape death with full bellies, they will teach other whales to replicate their risky behavior. Be advised, that this problem will not go away, but rather, I am incredibly concerned it will spread like wildfire and lead to an exponential amount of whale deaths.

After catching nine killer whales in their nets this summer, the Amendment 80 fleet decided to switch to different target fish species where they haven't had killer whale takes. Now, the fleet and scientists are cooperating to design and test net modifications. If they find solutions, Amendment 80 has said they will voluntarily implement them. If they don't, the slaughter may continue. Regardless, NOAA Fisheries should not count on the Amendment 80 fleet to voluntarily find and implement gear solutions nor stop fishing to protect these killer whales as we move forward.

NOAA Fisheries should step up and support the science and development of solutions, and require their implementation once solutions are found. The agency must also take urgent action to accurately structure Alaska's resident killer whale stocks to guarantee that PBR is correct and not exceeded.

With additional pressure, focus, and cooperation between scientists, NOAA Fisheries, and the Amendment 80 fleet, these unique killer whales can be afforded the necessary protections to ensure their survival.

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Link to article: https://www.adn.com/opinions/2023/12/31/opinion-protecting-killer-whales-in-the-bering-sea-requires-following-the-science/