Area M Seiners Association
P.O. Box 32
Sand Point, AK 99661

Concerned Area M Fishermen
35717 Walkabout Road
Homer, AK 99603

May 11, 2023

Sent Via Email: Senate.Resources@akleg.gov

Dear Senate Resource Committee Members:

Thank you for the opportunity for Area M Seiner's Association to present in Senate Resources on May 1, 2023. We appreciated the dialogue and opportunity to clear up any confusion as to actions taken at the Alaska Board of Fisheries February 2023 meeting regarding Area M.

While listening to testimony presented by others, we noticed some inaccuracies we would like to clarify or correct.

"The BOF took no actions to limit chum harvest bound for Yukon and Kuskokwim Rivers"
This is false. The Board adopted Proposal 136 with amendments which resulted in **22% less fishing time** in the first fishing period, a **closure that is 2.4 times longer** in between the 1st and 2nd fishing periods which resulted in **25% less fishing time** in the second period. The maximum fishing time allowed by regulation will be further reduced due to voluntary fishermen directed chum avoidance. The total time will be based on the new BOF adopted time reductions plus voluntary standowns based on chum encounter rates (i.e., if there are a lot of chum, the fleet will fish less; if there aren't many chum, the fleet will fish more within regulatory parameters). And most significantly, the board **closed Sanak Island Section of Unimak District to all gear types**. This entire district was closed because it was known for high chum harvests.

During the hearing, it was mentioned that the Area M fishermen were happy with the outcome of the meeting. This is not true. With a reduction in fishing time and a loss of an entire area, the Area M fishermen took a substantial hit. 1/ BOF Record Copy 190
http://www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/2022-2023/peninsula/rcs/RC190_ADFG_for_Member_Jensen_Substitute_language_and_Calander_Proposal_136.pdf

"The majority of Coastal Western Alaska (CWAK) chums come through Area M"
There is no science that delineates the migratory path of CWAK chum across the North Pacific and Bering Sea. What is known based on genetic studies from WASSIP 2007-2009 and 2022 is that the harvest rate of CWAK chum in the June Area M fishery is from 2.2% to 6.9% for the four years when genetic stock identification was conducted. So we know a portion of chum bound for Bristol Bay, Kuskokwim, Yukon and Norton Sound pass through Area M. /2 WASSIP studies ADF&G
https://www.adfg.alaska.gov/index.cfm?adfg=wassip.main

"BOF leans towards Commercial interests and is full of commercial seats"
Though the BOF has no designated seats by regulation, the makeup of the board at the BOF meeting in February was Marit Carlson Van-Dort (subsistence), McKenzie Mitchell (sport) John Wood (sport), Stan Zuray (personal use/subsistence and a Yukon River resident), Tom Carpenter

(commercial), John Jensen (commercial), and Mike Heimbuch (commercial). It can also be argued that both Jensen and Carpenter are also considered sport due to the fact their current businesses cater to the sport fishing industry. /3 Board of Fish Bios
https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.bofmembers

Proposal 140 was voted down 3-4, with Jensen, Carpenter, Heimbuch, and Wood in opposition. Split votes are common and are not as significant as proponents of the proposal are making them out to be.

"Bycatch vs. Legal Harvest":
There is 100% observer coverage in the Bering Sea trawl fleet because they are managing to regulatory Prohibited Species Catch (PSC) caps of *bycatch*. SeaShare is a federal NMFS sanctioned program so that 100% mandatory retention of PSC can be processed and donated for food security, whereas there is no regulation or rationale for the state to participate in SeaShare since mixed stock salmon harvest is legal and therefore all salmon will be sold i.e. not considered "waste". /4 definition PSC
https://www.fisheries.noaa.gov/alaska/bycatch/bycatch-and-prohibited-species-catch-groundfish-and-shellfish-fisheries-alaska
5/ Alaska statute Wanton Waste
https://www.akleg.gov/basis/statutes.asp#16.05.831

"Request to consider adding a non-Area M Seiner to the board of the Adaptive Management Program"
Adding a non-Area M Seiner would violate confidentiality waivers that vessels provide, as the data is not available to the public. The benefits of the Adaptive Management process would be diluted by including members that are not on the water with real time information to offer to the decision-making process, which could result in losing the fleet's confidence in the program. However, Area M offered during the BOF meeting to have a representative of the Yukon River region visit during the June fishery, similar to the offer made to Board of Fisheries members in 2022 (which resulted in the Board chair and one other member spending several days in Sand Point and King Cove).

"Dutch Harbor is part of the Alaska Peninsula economic statistic area"
It was stated closing the salmon fishery in the Alaska Peninsula would be fine because other fisheries delivered to Dutch Harbor supply much of the economic input for the region. Dutch Harbor is **not** part of the Alaska Peninsula economic statistical area. Areas included in the Aleutians East Borough include: Akutan, Cold Bay, False Pass, King Cove, Nelson Lagoon, and Sand Point. These small communities rely heavily on the June salmon fishery. /6 ADF&G Alaska Peninsula statistical area map
https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/akpeninsula_stat_map.pdf

"The salmon fishery can easily be replaced by other fisheries: crab, cod, etc."
This statement is erroneous because not all commercial salmon permit holders own permits for other fisheries. Most commercial fishermen that fish Area M only hold permits to fish salmon and rely on this fishery as their sole income. Some vessels do participate in other fisheries similar to how subsistence users switch resources depending on abundance and the seasons. The majority of Area M salmon fishing permits are owned and used by Alaska residents, and

specifically for Area M purse seine, AEB residents averaged 72% of the permits fished between 1980-2020 /7 Aleutians East Borough Economic Memo January 26, 2023
See attached

"Amount of chums harvested in 2022"
Approximately 544,000 chum salmon were harvested in Area M during the 2022 June fishery. Of that number, 96,000 were identified as Coastal Western Alaska (CWAK) genetic stock group which includes salmon from Norton Sound, Kuskokwim, Yukon, and Bristol Bay and systems in between. This translates to some much smaller, but unknown proportion of the 96,000 chum being of Yukon or Kuskokwim origin. Furthermore, the 301,000 chum harvested in Bristol Bay in June 2022 were of CWAK origin, a portion of which would have been Yukon and/or Kuskokwim chum. /8 ADF&G Special Publication 23-97. Dann, T. Genetic Stock Composition of Chum Salmon Harvested in Commercial Salmon Fisheries of the South Alaska Peninsula, 2022
https://www.adfg.alaska.gov/FedAidPDFs/SP23-07.pdf

"Chum Chucking"
The term "chum chucking" has garnered a lot of attention with zero proof this happened in the last few decades. The most recent report of chum chucking took place in 1995 when it was purported that four vessels threw fish overboard (see attached memo). However, as noted in the memo the occurrence of variance on fish tickets to actual harvest was determined to be quite low. The decades-old issue of discarding chum is often repeated and may make a nice talking point, but it is not the reality today.

Today's fishery priority is to harvest sockeye, roll them on deck and into the hold and get the net back in the water. Fishermen do not sort their fish but do attempt to assess the proportion of sockeye to chum so they can determine whether to continue fishing or move to an area that yields a higher sockeye ratio. Salmon are sorted by species on the tender, generally at the end of the day. It was also mentioned that tenders dispose of chum prior to delivering to the processor. This would be impossible due to the fact all fish are weighed prior to being loaded on the tender and ADF&G fish tickets are issued reporting the total catch. The fish tickets must match up with the delivery the tender makes at the dock to the processor.

What gets lost in the misinformation addressed above is the scientifically documented reasons for the AYK chum decline. Research conducted by NOAA Fisheries, by an international group of scientists from Canada, Korea, Japan, Russia and the USA, and by ADF&G shows that extremely warm ocean years in the Bering and North Pacific from 2016-2019 resulted in terrible environmental conditions for food, growth and survival. This is reflected in the dismal chum returns in 2020 - 2022. /9 Area M Seiners Reference page
See attached

Constitutional Concerns
There is a fundamental Constitutional problem with SB128 under Alaska Constitution article VIII, section 17 (uniform application clause). The uniform application clause requires that "[l]aws and regulations governing the use or disposal of natural resources shall apply equally to all persons similarly situated with reference to the subject matter and purpose to be served by the law or regulation." SB128 proposes a full closure of the Area M salmon fishery in June. Such a

closure would substantially impair Area M commercial salmon permit holders rights to engage in commercial fishing as it is a complete closure during the high point of the annual sockeye run. SB128 applies only to salmon permit holders in Area M; no other commercial salmon fishery is mentioned.

The uniform application clause requires that natural resource laws and regulations treat similarly situated persons equally. Any natural resource law that burdens equal-access rights protected by article VIII must serve an important legislative purpose and the means used to accomplish that purpose must be narrowly tailored. *Baker v. State*, 878 P.2d 642, 644 (Alaska 1994). Thus, the "means used to accomplish the purpose must be designed for the least possible infringement on article VIII's open access values." *McDowell v. State*, 785 P.2d 1, 10 (Alaska 1989). This is particularly true in the commercial fisheries context because the right to engage in commercial fishing is "important." *Commercial Fisheries Entry Comm'n v. Apokedak*, 606 P.2d 1255, 1266 & nn. 45–46 (Alaska 1980). Some factors to consider when determining whether commercial fisheries are similarly situated for uniform-application clause purposes include historical catch levels, number of gear operators, and biological spawning patterns. *Gilbert v. State, Dep't of Fish & Game*, 803 P.2d 391, 399 (Alaska 1990).

It can be assumed "that preservation of economic benefit and conservation of a natural resource are two important goals underlying the legislature's regulation of commercial fishing." *Baker v. State*, 878 P.2d at 645. Although SB128 has not stated purpose in its text as introduced, much of the public testimony provided in support of SB128 has focused on Yukon and Kuskokwim River bound chum conservation.

SB128 does not apply equally to all persons similarly situated with reference to Yukon and Kuskokwim River-bound chum. If the purpose of SB128 is to protect Yukon and Kuskokwim River chum from being harvested before they return to their natal rivers, then SB128 as written violates the uniform application clause by targeting only one commercial fishery that potentially harvests Yukon and Kuskokwim River chum. For example, the Area T (Bristol Bay) commercial fishery is similarly situated to Area M with regard to Yukon and Kuskokwim River-bound chum; both fisheries are in a position to intercept Yukon, Kuskokwim, Bristol Bay, and Norton Sound-bound chum while targeting sockeye, and Area T has higher historical chum catch levels and more gear operators than Area M. Thus, SB128 must pass the strict scrutiny test stated in *Baker v. State* to be constitutional.

SB128 would not accomplish the purpose of Yukon and Kuskokwim River-bound chum conservation for at least two reasons. First, there is no reliable measure of how many chum caught in the Area M June fishery are actually bound for Yukon and Kuskokwim Rivers; most chum caught in Area M are of Asian origin and there is no way to distinguish Kuskokwim and Yukon River chum from chum bound for other Central Western Alaska (CWAK) rivers. The best available genetics science can't distinguish between Yukon, Kuskokwim, Norton Sound and Bristol Bay chum. That's why they are grouped as the CWAK chum genetic stock group for harvest analysis purposes (ADF&G Special Publication 23-07). Second, SB128 is not calculated to achieve Yukon and Kuskokwim River-bound chum conservation because even if the Area M June fishery is completely closed, Yukon and Kuskokwim River-bound chum passing through Area M are at high risk of being caught in other commercial fisheries, including those of Area T.

Even if SB128 could be argued to accomplish an important purpose, the bill is not narrowly tailored because it does not accomplish its purpose using the least possible infringement on article VIII's values to allow equitable open access to state fishery resources. The complete closure of Area M includes statistical subdistricts that have no measurable chum harvest. The Board of Fisheries already concluded that the goal of Yukon and Kuskokwim River-bound chum conservation could be accomplished with less restrictive measures than a full closure of Area M. Closing Area M in June does not create any incentive to other commercial fisheries to practice chum conservation, putting Yukon and Kuskokwim River- bound chum in more danger of being harvested before they return to their natal rivers by other commercial fisheries.

The Legislature has strongly defended the Southeast Alaska (SEAK) troll fishery against closure by a Federal district court due to the low impact that the SEAK troll fishery has on Puget Sound Chinook salmon stocks which are prey for Southern resident killer whales (SRKW). *See* House Joint Resolution 5 (March 2023). In HJR 5, the Legislature recognized the importance of commercial fishing to the state's economy, acknowledged that environmental pressures outside of Southeast Alaska are the driving force behind SRKW population declines, and stressed "the improbability of the [SEAK troll fishery] closure resulting in meaningful benefits to southern resident killer whales." The Legislature's reasoning in HJR5 applies equally to this situation and counsels against passage of SB128. The Area M June fishery has a low impact on Yukon and Kuskokwim River-bound chum salmon and environmental factors such as ocean temperatures are more likely to blame for the recent decline in chum returns to the Yukon and Kuskokwim Rivers. Closure of the Area M June fishery is unlikely to yield meaningful benefits for Yukon and Kuskokwim River-bound chum while wreaking havoc on the economy of the eastern Aleutians.

Thank you for this opportunity to respond. As always, we are available to answer any questions you may have.

Sincerely,

Kiley Thompson, President Area M Seiners Association
Steve Brown, Concerned Area M Fishermen

January 26, 2023

Re: The Importance of Salmon to the Aleutians East Borough and Communities

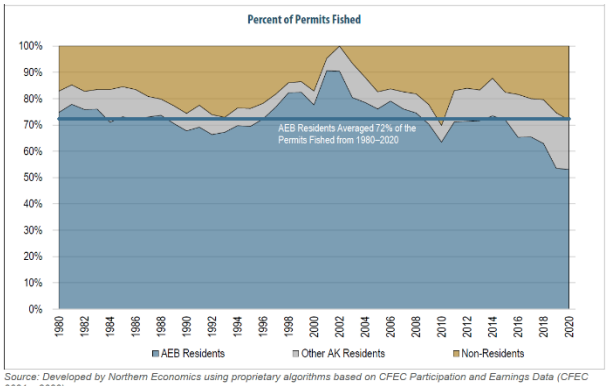
On January 12, 2023, the Aleutians East Borough Assembly adopted Resolution 23-33 Supporting the Current South Alaska Peninsula Salmon Management Plan and Opposing Certain Proposals Before the Board of Fisheries. This resolution states AEB support for June 2022 fishermen actions to conserve chum salmon in order to address AYK stock concerns. It also states support for the current South Alaska Peninsula Management Plan that allows sufficient time and area during the salmon season for these conservation efforts. Finally, Resolution 23-33 states the Assembly opposition to Proposal #s 133, 134, 135, 136, 137, 138, 139, 140, 143, 148, 149, and 150, that threaten the South Alaska Peninsula salmon fishery.

Impacts to the Aleutians East Borough

The Aleutians East Borough was founded in 1987 to assume responsibility for schools in the Borough, and for building and maintaining boat harbors, docks, roads, schools, clinics, airport terminals and overall facilitating transportation and well-being for our communities. The Borough represents six communities including Akutan, Cold Bay, False Pass, King Cove, Nelson Lagoon, and Sand Point. Many Borough-led infrastructure projects have required securing bonds; our annual bond debt service is 2.5 million and our total bond debt as of March 2022 was 20.5 million dollars. Bond debt was accrued over the years to improve quality of life in our communities; schools have been repaired and new ones built to provide for our children's education, airport improvements for better access, and harbors built to provide safe haven for the local fishing fleet and transient vessels for repair and rest for the crew.

The Borough collects a 2% tax on raw fish delivered to onshore processors within the Borough and our communities. AEB fish tax on salmon for fiscal year 2022 amounted to 32% of all AEB fish tax, making 2022 the largest proportion of salmon fish tax since at least 1999 due to the declines in groundfish stocks. Salmon fish tax was 30% of all FY2018 fish tax, 18.6% in FY2019, 19.3% in FY2020 and 20% of FY2021 fish tax. Salmon remains an important component of AEB's overall revenue. Salmon raw fish tax is particularly important to the cities where it is delivered and processed: False Pass, King Cove and Sand Point.

Further losses in salmon revenue combined with lost groundfish and crab fisheries, plus the predicted loss of pollock revenue to the Borough, could jeopardize critical infrastructure projects and bond repayment, potentially resulting in the establishment of property taxes on Aleutians East Borough residents and businesses.



Source: Developed by Northern Economics using proprietary algorithms based on CFEC Participation and Earnings Data (CFEC 2021a, 2022)

Figure 1. Real revenue in the Area M Purse Seine salmon fishery, 1980-2020.

Impacts to Aleutians East Borough Residents

Aleutians East Borough communities were founded on local salmon fisheries. Salmon processing was established in King Cove, False Pass and Port Moller over one hundred years ago, and these communities are the heart of South Alaska Peninsula

ANCHORAGE OFFICE • 3380 C Street, Ste 205 • Anchorage, AK 99503-3952 • (907)274-7555 • Fax: (907)276-7569
KING COVE OFFICE • P.O. Box 49 • King Cove, AK 99612 • (907)497-2588 • Fax: (907)497-2386
SAND POINT OFFICE • P.O. Box 349 • Sand Point, AK 99661 • (907)383-2699 • Fax: (907)383-3496

Salmon Management Area. The majority of Area M salmon fishing permits are owned and used by Alaska residents, and specifically for Area M purse seine, AEB residents averaged 72% of the permits fished between 1980-2020 (Figure 1). Fishermen and processors have diversified to other species of fish, but salmon remains the economic and cultural backbone of our communities. Resident subsistence activities are also closely tied to the commercial salmon fishery.

In 2022, the AEB commissioned Northern Economics to conduct an economic analysis on the importance of salmon fisheries to the AEB using publicly available data (final report in process)[1]. There is a major concern regarding the decline of groundfish stocks in Alaska, and this is reflected in the key findings of the report. Beginning in the early 2000's, there has been a slow but steady decline in the proportion of groundfish and shellfish revenue generated by AEB resident harvesters, causing an increased reliance on salmon revenue (Figure 2). This is further demonstrated by the steady decrease in AEB resident groundfish and shellfish permits, while in contrast, salmon permits have remained relatively constant since the early 2000's (Figure 3). What these figures do not reflect (due to limitations in available data) is the continuous decline or absence of groundfish and crab stocks since 2020, which would have significantly increased the proportion of revenue generated by salmon.

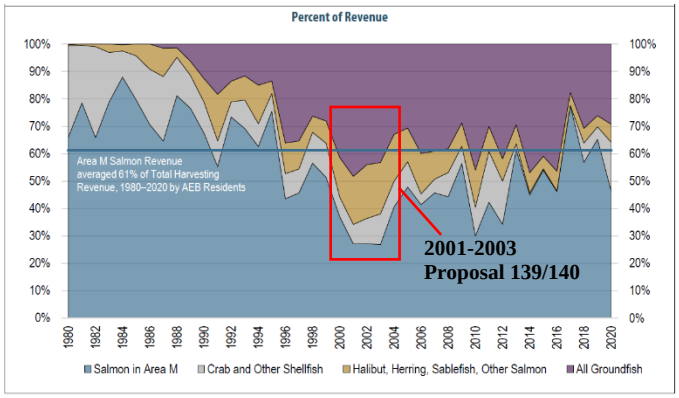


Figure 2. Revenue generated by AEB residents in all Alaska fisheries by species group, 1980-2020.

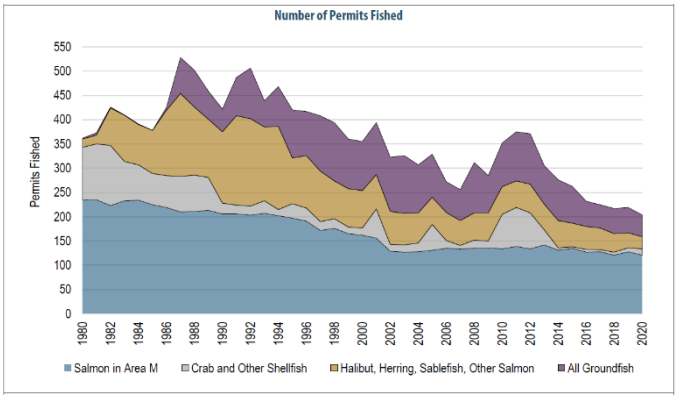


Figure 3. Permits fished by AEB residents in all Alaska fisheries by species groups, 1980-2020.

As noted previously, most AEB communities were founded on salmon fisheries and have entirely fisheries-based economies. Without fisheries, there are very few employment opportunities. As of 2020, total employment in the AEB across all industries was approximately 2,250 employees representing the total private ownership sector (which includes harvester and seafood processing companies) accounting for 90% of the work force (Figure 4).

There are several proposals before the Board of Fisheries that would severely limit South Peninsula salmon fisheries, that will harm local economies and trigger a significant loss of fish tax revenue for the Aleutians East Borough and communities. Of greatest concern are Proposals 139 and 140, that seek to replace the current management plan with the 2001-2003 management plan. When this

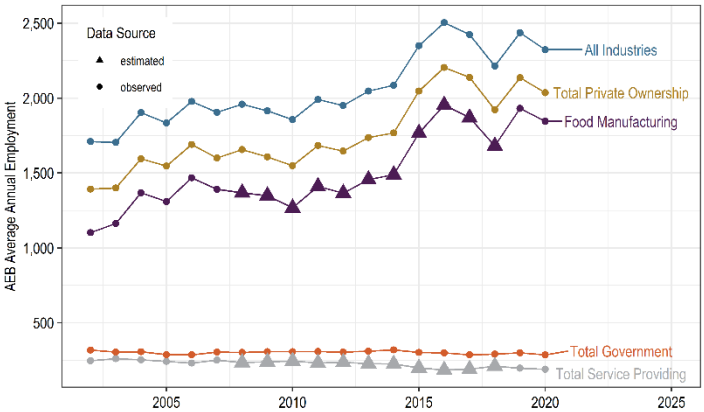


Figure 4. Total AEB Employment by Industry

[1] Northern Economics, Inc. *The Importance of Fisheries to the Aleutians East Borough*. Prepared for Aleutians East Borough. March 2022.

management plan was implemented over 20 years ago in 2001, it resulted in 37% loss of active Area M permits by 2003 – the lowest number of permits held in history. While the number of permits stabilized after that management plan was superseded, many local permits were lost permanently, and the fishery never fully recovered to pre-2001 levels. Due to the high costs and volatility of fishing, in order to sustain their livelihoods, local fishermen must diversify their participation in other fisheries. The drastic drop in salmon permits after the 2001 management plan likely made it difficult to afford a fishing lifestyle, resulting in a loss of permits for other fisheries such as groundfish and shellfish (Figure 2). The devastation of this management plan is further reflected by the lowest salmon AEB fish tax revenue during the 2001-2003 period (Figure 5).

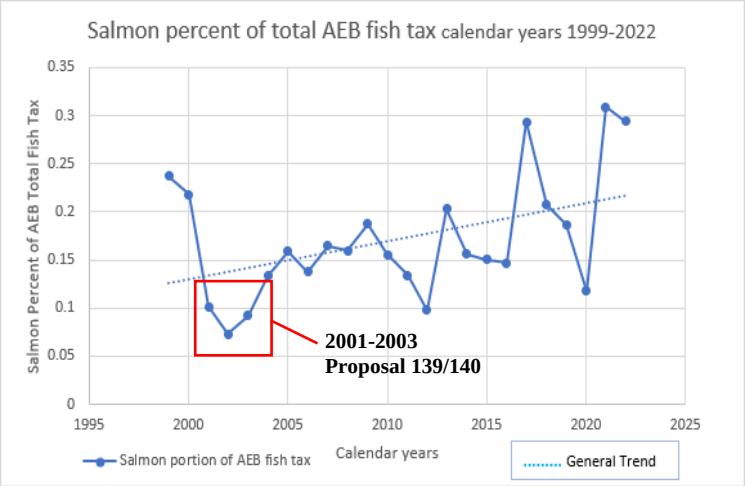


Figure 5. Proportion of AEB fish tax revenue generated by salmon between 1999-2022.

The Aleutians East Borough supports the current South Alaska Peninsula Salmon Management Plan unchanged as critical to our Borough financial obligations and commitments to our residents.

www.aebfish.org/resolution23.33.pdf
www.aebfish.org/draftNE2022report.pdf

MEMORANDUM *State of Alaska*

TO: Ronald L. Otte
Commissioner
Department of Public Safety

DATE: August 9, 1995

FILE NO:

TELEPHONE NO: 269-5509

FROM: Colonel John Glass
Director
Fish and Wildlife Protection

SUBJECT: False Pass Fishery

During the last several years there has been much discussion concerning the False Pass Fishery. The main question has been if "chum chucking" or "chum dumping" has been occurring in the False Pass Fishery.

As you and I discussed after my appointment as Director, we did not feel that sufficient effort or attention had been given to determine if "chum chucking" was in fact being done.

As a result of those conversations and observations, I directed a special program in the False Pass fishery for this season. Following is the results and observations of our enforcement efforts:

During the last three weeks of June 1995, Fish & Wildlife Troopers conducted a special salmon enforcement program in the area M region, commonly referred to as the False Pass fishery. Seiners & gillnetters target 3.5 million red salmon and are allowed up to 700 thousand chum salmon before a closure is imposed to protect chum stocks in other areas, including the Yukon river. The fishery ended short of both allocations, with 535 thousand chums and 2.2 million red salmon taken.

The purpose of the program was to determine if there was any substance to complaints that "chum dumping" (the discarding and waste of dead chum salmon back into the ocean) was occurring, and if so, to what degree. Troopers were also to determine if processors were under-reporting the numbers of chum salmon to stay below the 700,000 chum salmon cap allowed by the Board of Fisheries.

The division deployed a large scale effort in this program, using four major vessels with boarding skiffs and an amphibious aircraft. The staffing was comprised of personnel from all over the state, including a 1st Sgt Supervisor, ten troopers, two investigators, eleven civilian crewmen, a dispatcher, and assisted by ADF&G biologists.

Approximately 7,000 miles were patrolled, 284 fishing vessels boarded, and 1,243 fishermen & processors contacted in the three week period by the team. The investigation could not substantiate the dumping of any dead chum salmon back into the waters of Alaska although live chum salmon were found to be released frequently. Only four vessels were observed to throw live chum salmon back, but many skippers & crews provided information that they do return live chum salmon to the ocean as soon as possible. Review of fish tickets revealed that nearly all vessels were delivering some chum Salmon, and most fishermen interviewed indicated they would move to a different area if the percentage of chum Salmon became too high. It was observed that as the season progressed, the fishermen released fewer chum salmon as the catches were weak enough that available chum salmon were kept to offset expenses.

Inaccuracies were determined to exist in the reporting of fish poundage from the fishing vessel to the processors, however these errors, or "variances" as the industry calls them, were found by the investigative team to be less than 3%. In the case of a 700,000 fish chum salmon cap, this could amount to a total of a 21,000 chum salmon variance, a relatively small amount considering the 3.6 million red salmon caught. The cause for the errors are primarily the weather conditions at the delivery sites to the tenders.

Fish & Wildlife Troopers, in the course of routine patrol and boardings, wrote a total of 137 citations to fishermen, tenders, & processors;

Closed waters/period	6
Permit violations	8
License violations	37
Gear violations	10
Fish ticket violations	72
Sport fish violations	4
Warnings issued	23

Area M Seiners Association

Sand Point, Alaska

Scientific Literature, Presentations, and Information regarding AYK Chum Stock Status

Ens, N. 2022, Distribution and Abundance of Salmon Prey Species in the Eastern Gulf of Alaska as Observed by the Winter 2022 IYS Pan-Pacific Expedition
Synopsis: Low prey availability during winter months has been posited as a limiting factor of salmon biomass in the Pacific Ocean. As such, appreciable efforts have been made to quantify patterns of spatiotemporal distribution and abundance of prey species consumed by salmon during their oceanic phase.

Gilk-Baumer, S., Genetic stock identification of sockeye, chum, and pink salmon from the 2022 Pan-Pacific winter expedition
Synopsis: Chum salmon samples from the Central region (N = 479) were composed 83% Asian stocks, while chum from the Eastern region (N = 127) were 25% Asian stocks

Howard, K., 2022. Western Alaska Chinook and Chum Salmon Marine Research
Synopsis: Future run size of Yukon Chinook is determined very early in their life – before their first winter at sea. Relationship of fry abundance in Yukon and adult return, the R^2 is 0.82, highly correlative. Juvenile chum had similar correlation as Chinook until 2016 when the marine environment got very warm and Yukon chum survival crashed. https://meetings.npfmc.org/CommentReview/DownloadFile?p=3a0643f9-e99e-451e-bc4a-96848c3cc26d.pdf&fileName=PPT%20D1a%20WAK%20Chinook%20and%20Chum%20Salmon%20Marine%20Research.pdf

International Year of the Salmon Research program website with dozens of most current ocean chum salmon symposia and papers. https://yearofthesalmon.org/

Larson, S. and Howard, K. 2019. Exploration of AYK Chinook Salmon Egg Thiamine Levels as a Potential Mechanism Contributing to Recent Low Productivity Patterns, 2014 and 2015
Synopsis: In 2015, 58% of the eggs had thiamine concentrations associated with secondary effects of thiamine deficiency that can lead to mortality

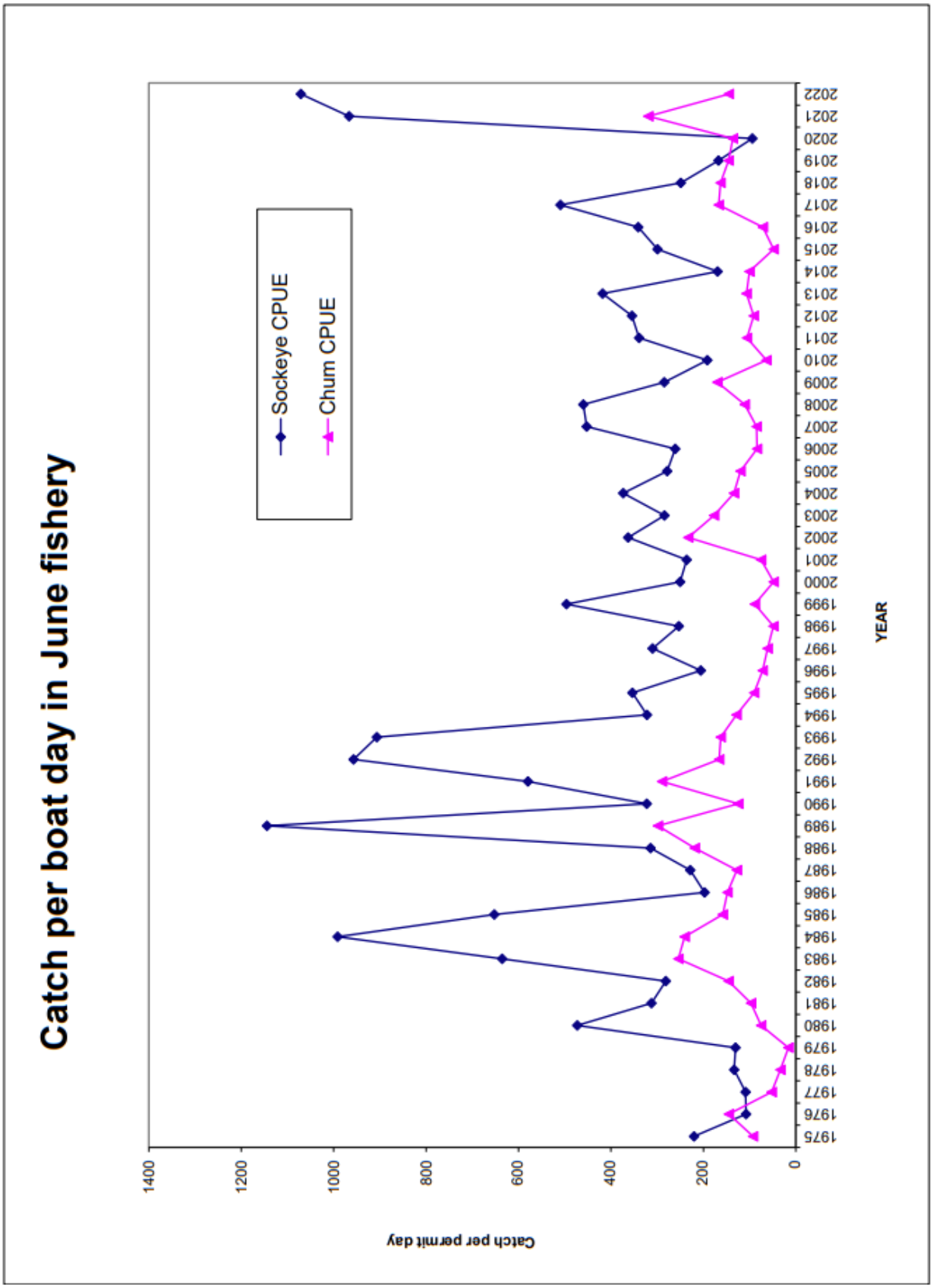
Miller, T. 2022, Nutritional Ecology of Juvenile North Pacific Salmon During Winter Existence: Results from the 2022 International Year of the Salmon Surveys
Synopsis: Using proximate composition (percent lipid and protein) and stable isotope analyses, we assessed the nutritional condition and isotopic (trophic) life histories of Pacific salmon from the 2022 International Year of the Salmon (IYS) winter month surveys across the North Pacific, a period of reduced prey availability and potentially higher resource competition

Murphy, J. 2022 Coastal Surveys in Alaska and Their Application to Salmon Run-Size and Harvest Forecasts
Synopsis: The first critical period occurs during the estuarine or initial marine period of salmon. Predation-based mortality can often be the key factor during this critical period of salmon. The second critical period is believed to be primarily dependent on the ability of salmon to reach a critical size or nutritional state required to survive marine winters (Beamish and Mahnken 2001)

Ruggerone, G. Bottom-up and Top-Down Processes Drive the survival and Abundance of Pacific Salmon.
Synopsis: exceptional pink salmon abundance in 2018 & 2019 contributed to sharp decline in other salmon species productivity and harvest in 2020 and beyond. https://npafc.org/wp-content/uploads/1-5_Ruggerone_trim-c8e65a4348451a3edd0b25c9822214e1.mp4

Urawa, S. & Sato, S. Stock Identification of Chum Salmon Overwintering in Gulf of Alaska by Using a New SNP Baseline.
Synopsis: Study year 2019 and observation of juvenile and sub-adult chum salmon in North Pacific, part of the International Year of the Salmon research. Ocean age -1 chum had lower lipid content than older chum. Depletion of energy reserves observed. Frequent occurrence of skinny chum. CWAK stock poorly represented, especially ocean age-1 almost nonexistent.

https://npafc.org/wp-content/uploads/Day-1-Keynote-Presentation-5-Shigehiko-Urawa-Shunpei-Sato-Terry-b7b0b5fed162183a8dd511b59cd452f2.mp



Catch per boat day, all permits fished by year. Sockeye catch per boat varies widely, whereas chum catch per boat has far less variation. 2021 was a recent anomaly, although similar to1989 and 1991.

Area M Seiners References

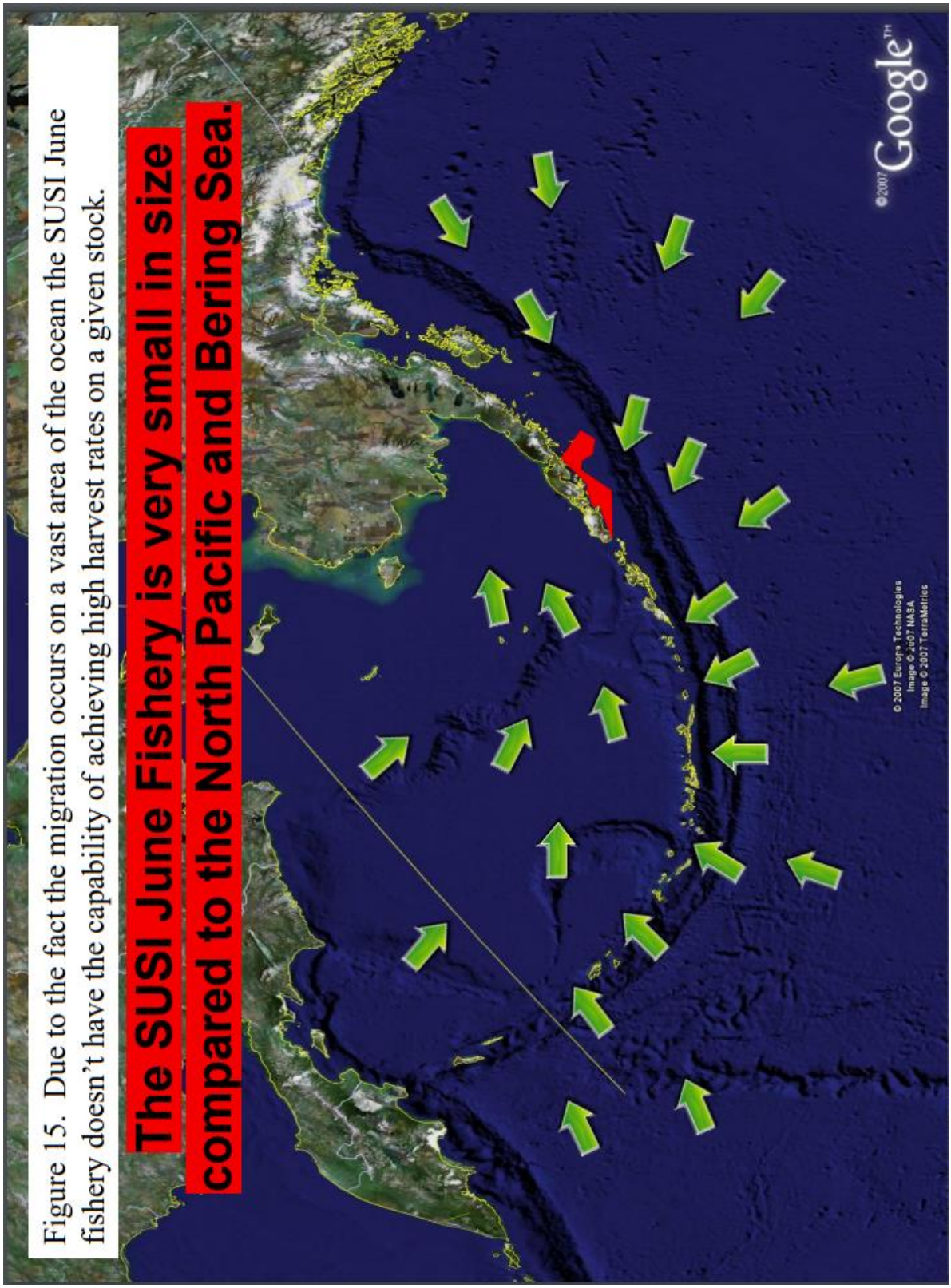


Figure 15. Due to the fact the migration occurs on a vast area of the ocean the SUSI June fishery doesn't have the capability of achieving high harvest rates on a given stock.

Area M is a small area compared to the board area where chum and sockeye migrate back to their natal streams. This helps explain why the harvest rate on CWAK stocks consistently remains in the low single digits.

Area M Seiners References