



International Gulf of Alaska Expedition

What did they find?

- International collaboration WORKS!! This collaboration crossed countries and generations. It will significantly impact the future of ocean science.
- For the first time abundance estimates for salmon in the Gulf of Alaska were calculated with a very preliminary estimate of 55 million salmon in the survey area.
- Salmon species differed substantially in their distributions with some showing potential links to environmental conditions
 - Sockeye in the north associated with cool water compared to pink salmon that were captured in the south and in warmer water.
 - Chum salmon were most broadly distributed and caught in majority of sets.
 - Coho salmon were the second most abundant salmon species caught in expedition. This was a surprise as generally considered to be more coastal in distribution, however in this expedition they were caught over 1000 kms offshore.
 - Pink salmon were in low numbers and mainly in the southern end of the survey area associated with warm waters. The low numbers were a surprise given this is a year when Pink salmon are expected to be abundant.
 - A surprising difference in fish condition over the study area but even within a single set. The largest difference was observed for chum salmon when fish of both good (robust) and poor (skinny) condition would be captured in a set. DNA analysis will help determine if the variability is due to stock origin.
- Interesting north south differences in some species other than salmon including some abundant species of jellyfish and salps.
- At sea-genetic sequencing was successful providing real time stock composition. While at sea they were able to learn the stocks of origin with 1-2 days. Coho caught were from SE Alaska to the Columbia River, with the majority originating from British Columbia.
- Development of the spring phytoplankton bloom was observed on the southern part of the survey during our expedition.
- Much more to come from laboratory analyses ashore.

- The first video to be recorded on adult salmon behavior within the trawl net on the high seas provided preliminary evidence that salmon exhibit schooling rather than solitary feeding behaviour expected in the high seas in winter.
- The Gulf of Alaska is a relatively free area from floating macroplastic particles. Estimated macroplastic occurrence ranged from 0 to 2.3 pieces per km² based on twenty hours of daytime observation. There were no macroplastics spotted during fifteen of the twenty hours of observation. Samples were taken to document microplastics and results will be available when the laboratory analyses are complete.
- There is more analysis to come but Expedition can be considered an extremely successful proof of concept that validates the International Year of the Salmon initiative.
- Next steps include planning future cruises through 2021.