GWA QUARTERLY CURRENTS
Volume/issue: 4.3 2020 (Year 9)

3rd Quarter: August 1, 2020 - October 31, 2020

Greetings!

The Gulf Watch Alaska (GWA) Principal Investigators (PIs) continue their research and monitoring to the best of their capabilities as COVID-19 persists in our communities into fall and winter. The most significant achievements this quarter include completion of fall surveys, ecosystem indicators for the annual report to the North Pacific Fisheries Management Council, and submission and approval of GWA FY21 Work Plans. The GWA program is now looking forward to the next and final quarter of monitoring year nine. Be well everyone!

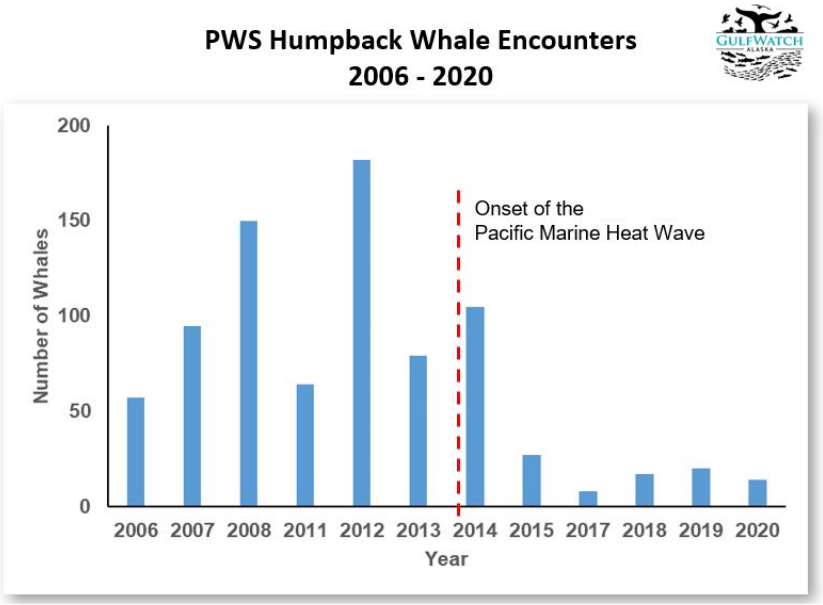
Here is a brief summary of our program's third quarter activities and accomplishments:

Science Update:

- This fall GWA PIs contributed 22 Gulf of Alaska ecosystem indicators (taylored time series datasets) to the 2020 Ecosystem Status Report compiled by the Alaska Fisheries Science Center and presented to the North Pacific Fisheries Management Council. The Herring and Research Monitoring program submitted two Prince William Sound (PWS) herring indices.

- Surveys completed by GWA PIs this fall as we continue to safely operate under COVID-19 include oceanography by the environmental drivers component and whales by the pelagic component. The humpback whale portion of the PWS Integrated Predator and Prey survey was the only project able to conduct a survey under COVID-19 restrictions thanks to some creative solutions with collaborators and partnerships.

- Results from the PWS humpback whale survey this October revealed that whale encounters (14 adults) remain low in PWS since the onset of the marine heatwave. Calf sightings have been extremely low during the marine heatwave but this fall two calves were seen in PWS.



Program Management Team (PMT):

- The PMT coordinated with GWA PIs to respond to comments and questions posed by the *Exxon Valdez* Oil Spill Trustee Council Science Panel on the program's FY21 annual Work Plans and participated in the virtual Public Advisory Committee and Trustee Council meetings in October. The PMT appreciates the Trustee Council's decision to fully fund the GWA program for FY21.

- The PMT is preparing for our annual GWA PI meeting which will be held on November 17-18 in coordination with the Herring Research and Monitoring PI meeting on November 19. The meeting will be held virtually this year due to the COVID-19 pandemic.

Outreach:

- The Nearshore component has updated their webpages to highlight the diverse types of data collected by the team from their sampling areas in western PWS, Kenai Fjords National Park, Kachemak Bay, and Katmai National Park and Preserve. These webpages feature their long-term monitoring of intertidal communities, intertidal temperatures, bivalves, oystercatchers, sea otters, and marine birds. Please visit at: https://gulfwatchalaska.org/monitoring/nearshore-ecosystems-4/

Publication Highlight:

Danielson, S. L., Hill, D. F., Hedstrom, K. S., Beamer, J., & Curchitser, E. (2020). Demonstrating a high-resolution Gulf of Alaska ocean circulation model forced across the coastal interface by high-resolution terrestrial hydrological models. Journal of Geophysical Research: Oceans, 125, e2019JC015724. https://doi.org/10.1029/2019JC015724

Fresh precipitation and snowmelt runoff from the land enters the salty waters of the Gulf of Alaska, where it plays important roles in determining oceanic temperature and salinity distributions. Salinity distributions influence marine biological productivity, including that of economically important fisheries. Earth system hindcast models help us understand past conditions at times and locations that lack field observations. Models have struggled with generating accurate reproductions of the salinity field in the coastal Gulf of Alaska in part because coastal runoff directly enters relatively deep shelf waters (where mixing is relatively weak) and in part because of insufficiently accurate representations of coastal runoff. In this study we document an improved hindcast, whose results rely on both more accurate depictions of the runoff and the manner of incorporating this runoff into the ocean model. Our approach is compared to model results using more common configurations. This study improves our understanding of the fate of coastal runoff in the northern Gulf of Alaska.

Important Upcoming Dates:

- **November 17-18, 2020** - GWA Annual PI Meeting (*virtual*)
- **November 19, 2020** - HRM Annual PI Meeting (*virtua*l)
- **January 26-28, 2020** - Alaska Marine Science Symposium (*virtual*)

Please see the GWA quarterly photo on next page

Gulf Watch Alaska quarterly photo:

Primed and ready to grab seawater and profile the water column. University of Alaska Fairbanks Oceanographers on the R/V Nanuq prepare to deploy a rosette loaded with Niskin bottles and a CTD (conductivity, temperature, and depth) profiler near GAK1 station. Sunny Cove, Resurrection Bay, October 2020. (Photo provided by Seth Danielson.)