



Mar 14, 2019 Update

48 43.3N 138 16.2W  
95.4 degrees at 8.9 knots

### **Fishing in the western and eastern North Pacific**

The Russian Research Vessel *Professor Kaganovskiy* left Vladivostok, Russia, on January 11, and arrived in Vancouver, Canada, on February 15, 2019. In the month between leaving Vladivostok and arriving in Canada, the ship spent two weeks sampling a research grid in the Western Pacific, consisting of regularly-spaced sampling stations.

We talked to two of the Russian fish biologists who have been on the ship since it left Vladivostok, Aleksei Somov and Albina Kanzsparova, about the catches in the Western Pacific compared to our catches in the Eastern Pacific. The western and eastern sampling areas are similar in many respects: both are in international waters just outside the Russian and Canadian-US EEZs, respectively, used similarly-spaced grids with stations spaced 60 nautical miles (1 degree longitude) apart, and used the same trawl for the same tow duration (1 hour). The western grid is a little further south than the eastern grid, but both have similar cold water temperatures in the northern half of each grid.

Aleksei said that catches on both sides of the Pacific were surprisingly similar. He thought that 85-90% of the fish, squid, jellyfish, and salps (odd, finger-sized gelatinous organisms), were the same species on both sides of the Pacific Ocean and in comparable numbers. Albina pointed out that catches in the Western Pacific also included warm water species such as sardines and tunas at the southern-most stations, species that aren't present in the eastern grid. These southern stations in the western grid have warm, subtropical water, which isn't present in the eastern grid due to differences in ocean currents on the two sides of the Pacific Ocean.

They were also surprised they didn't catch more pink salmon in the western Pacific, where they typically catch lots of pink salmon later in the spring. They thought it was because pink salmon were either closer to shore (within the Russian EEZ where they weren't sampling) or in the Sea of Okhotsk, where they are known to overwinter. Similarly, Chrys Neville of DFO, is also wondering why catches of pink salmon in the eastern Pacific weren't higher, since there is large production of pinks from the Fraser River, central BC and transboundary rivers (which originate in Canada but flow through SE Alaska), and Prince Williams Sound. Pink salmon are the most abundant species of salmon in the North Pacific Ocean, but we don't seem to be catching large numbers of them anywhere.

One thing that really surprised both Aleksei and Chrys was how many coho salmon we're catching in the Eastern Pacific. Aleksei has done surveys in the Western Pacific and Bering Sea for many years, where few coho are typically caught, and says they caught no more than 3 individuals in the Western Pacific on this trip. By contrast, coho salmon are the 2<sup>nd</sup> most abundant salmon in the Eastern Pacific, and early

DNA results conducted on the survey by Christoph Deeg of DFO, indicate that they are from northern BC to Puget Sound.

Albina was also surprised by the separation of jellyfish and salps in the eastern Pacific: jelly fish were abundant in the northern part of the grid, salps in the south, with a clear transition zone with few individuals of either taxa. She mentioned that in the Western Pacific there is considerable overlap between the two groups, because the temperatures where each group is found are closer together due to differences in oceanography.

Aleksei also thinks sockeye originating from different regions are using different parts of the ocean. He thinks the sockeye caught in the western grid likely originate from Russia, those in the middle are from Bristol Bay, and the ones caught in the eastern grid are from North America, including the Fraser River. We'll have to see whether the genetic analysis bears this out!

Both Alexei and Albina are looking forward to getting home, but they've still got another month on the ship before they return to Vladivostok. They'll steam back across the Pacific Ocean, and will stop to spend about 2 weeks sampling the Emperor Sea Mounts before they go home. Alexei is looking forward to seeing his baby daughter (who was 4 months old when he left) and wife, while Albina is looking forward to seeing her friends and family. We wish them a good journey!