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October 5, 2022

### **MEMORANDUM**

**TO: Council Members**

**FROM: Patty O'Toole, Fish and Wildlife Division Director**

**SUBJECT: Opening the oceanic black box: highlights from the 2022 International Year of the Salmon, High Seas survey**

### **BACKGROUND:**

**Presenter:** Laurie Weitkamp, Research Fisheries Biologist, NOAA's Northwest Fisheries Science Center, Newport Research Station

**Summary:** The Council will hear about the largest pan-Pacific research expedition to study the winter ecology of salmon in the North Pacific Ocean. The most recent expedition occurred earlier this year.

**Relevance:** The presentation will include new information about Columbia River salmon such as coho, chum, sockeye, chinook and steelhead gained during the expedition. Improved understanding of high seas ecology will provide increased insight into factors affecting survival of Columbia River salmon and steelhead. The Council's Fish and Wildlife Program calls for monitoring ocean conditions and related salmon survival and endorsing mitigation and management actions that improve the survival, growth and viability of Columbia River salmon in varying ocean conditions.

**Workplan:** Fish and Wildlife Program Implementation, task G: Implement Science & Policy Forums/Regional Coordination Forum/Ocean Forum

Background: At the October Council meeting, we will hear about a unique, international effort to learn about how salmon in the North Pacific use the ocean. For salmon of the Columbia River, we know a little about what they experience in the marine environment from the Ocean Survival of Salmonids project (project number 1998-014-00) recommended by the Council and funded by the Bonneville Power Administration. This project focuses its research and monitoring on the northern California Current, just off the coast of Oregon and Washington on the continental shelf. These surveys occur in spring (May and June), when juvenile fish are present and when weather conditions generally support consistent surveys. The Council receives regular reports from the project staff, typically in March of each year. But what about salmon that do not remain on the continental shelf or in the California current?

Pacific salmon are a uniquely important resource for countries across the entire North Pacific, but there remain significant gaps in our understanding of the mechanisms that regulate salmon distribution and survival in coastal and especially in high seas environments. Since salmon cross ecosystem and international boundaries as they migrate across the North Pacific, a concerted international effort is imperative to improve our knowledge about the conditions that Pacific salmon face in the open ocean. By furthering our understanding of the ocean phase of the salmon life cycle, we can improve our efforts to assess, forecast and manage salmon into the future.

The International Year of the Salmon (IYS) is an initiative by the North Atlantic Salmon Conservation Organization (NASCO) and the North Pacific Anadromous Fish Commission (NPAFC). The focal year of the IYS was 2019, with activities continuing into 2022.

The IYS put together the pan-Pacific research expedition to study the ecology of salmon in the North Pacific Ocean. In a major effort to fill our gaps in knowledge, several research vessels were to go out to sea in late winter 2022 to conduct the largest ever pan-Pacific, epipelagic ecosystem survey during winter, focused on understanding salmon and their ecosystems.

The 2022 Expedition brought together scientists from Canada, Japan, the Republic of Korea, the Russian Federation, and the United States — the five member countries of the North Pacific Anadromous Fish Commission (NPAFC) — to build on research from the 2019 & 2020 International Gulf of Alaska Expeditions.

The major objective of the 2022 Expedition is to demonstrate the utility of an international pan-Pacific winter ecosystem survey to understand how increasingly extreme climate variability in the North Pacific Ocean and the associated changes in the physical environment influence the abundance,

distribution, migration, growth, fitness and survival of Pacific salmon and surrounding species.

This expedition was not funded through the Council's Fish and Wildlife Program, however the information gained about Columbia River salmon will help deepen our understandings of the mechanisms of Columbia River salmon survival.

More Info: <https://yearofthesalmon.org/2022expedition/>