INTERNATIONAL PACIFIC

HALIBUT COMMISSION

Fishery-Independent Setline Survey (FISS)

What is the IPHC FISS?

The International Pacific Halibut Commission (IPHC) Fishery-Independent Setline Survey (FISS) provides catch information and biological data on Pacific halibut (*Hippoglossus stenolepis*) that are independent of the fishery. These data, collected using standardised methods, bait, and gear during the summer of each year, provide an important comparison with data collected from the directed commercial fishery. The FISS is restricted to the summer months but encompasses nearly all of the commercial fishing grounds in the Pacific halibut fishery, although not all areas are sampled every year. In addition, the directed commercial fishery is more variable in its gear composition and distribution of fishing effort over time and spatial range. Biological data collected on the FISS (e.g. the length, age, and sex composition of Pacific halibut) are used to monitor changes in biomass, growth, and mortality of the Pacific halibut population.

The IPHC's FISS is the most extensive fishery-independent survey in the world. The standard design encompasses nearshore and offshore waters from southern California to the northern Bering Sea. FISS stations are located at the intersections of a 10 x 10 nmi square grid within the depth range occupied by Pacific halibut during summer months (~37-503 m [20-275 fm] in most areas).

Commercial fishers target areas where fish are abundant, meaning that in commercial fisheries data, increasing stock trends are amplified while decreasing stock trends are muted. The IPHC's FISS is not influenced by commercial fisher behavior and provides a better year-over-year comparison of population trends. The IPHC's FISS collects catch rate information, as well as biological samples from individual fish, including sex, length, age, maturity, and the presence of prior hooking injury. Data from the FISS is a primary source of population trend information and is supplemented with commercial data for the stock assessment analysis.

The Current Challenge

Problem

The spawning biomass of Pacific halibut is near the lowest levels observed since the 1970s and catch rates in nearly all IPHC Regulatory Areas are at or near the lowest levels observed in 40 years. Precise data to monitor population trends and demographics are critically important. The IPHC has historically paid for the FISS using revenue from selling fish caught, but fish prices and catch rates are down while costs have risen substantially in recent years. The IPHC has had to greatly reduce the geographical footprint of the FISS over the last five years, due to increasing costs and declining revenue. This reduction in scope risks biasing our estimates of population trend and demographics, potentially undermining the management decisions reliant on this information.

Solution

1) Baseline annual funding is urgently required to ensure that essential management supporting information is generated every year regardless of fluctuations in fish prices and catch rates. In the short-term, we estimate that US$2,500,000 is required per year, due to low catch rates and low fish prices. Once fish prices and catch rates recover somewhat, we estimate that the FISS would require a lesser amount of US$1,500,000 per year for the same purpose.

2) An additional US$100,000-$400,000 annually is also needed to rebuild a reserve as a contingency to protect against future fluctuations in fish prices and catch rates, and guarantee precise unbiased FISS information is available every year for management of this resource.

How the FISS works

The FISS is a collaborative effort using contracted industry vessels from both Canada and the United States of America to sample a subset of fixed stations using the same gear, the same bait and the same fishing techniques each year. All marketable fish are retained and sold to offset the costs of the research.

Historically, annual FISS expenses have been offset by fish sales with the goal of long-term revenue neutrality. The relatively high value of Pacific halibut has allowed this model to function over a broad range

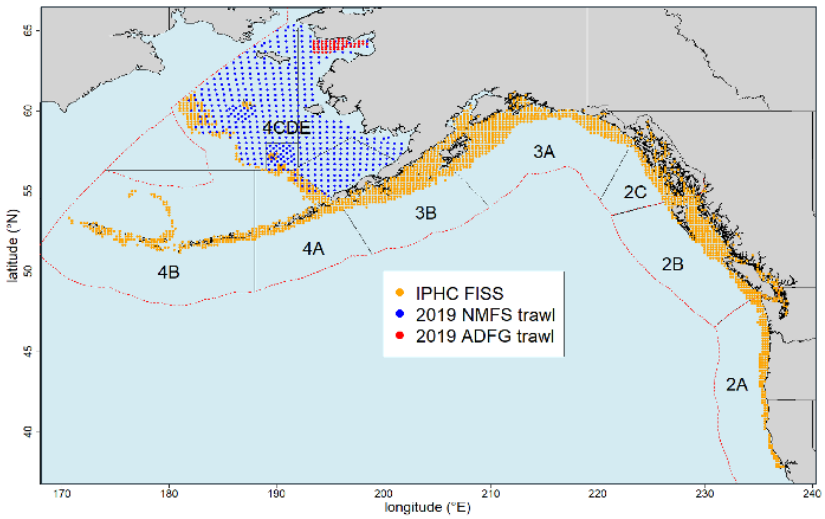

Figure 1. Map of full FISS design.

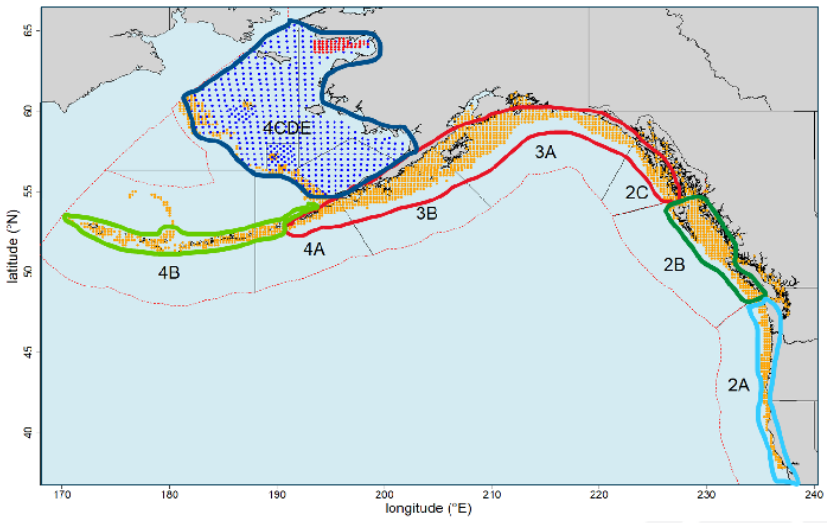

Figure 2. Map of full FISS design and domestic trawl surveys. The trawl surveys are the NOAA Fisheries West Coast trawl survey, the DFO Trawl survey, the NOAA Fisheries Gulf of Alaska Trawl survey, the NOAA Aleutian Islands Trawl survey and the NOAA Bering Sea trawl survey

of price and catch rate fluctuations. However, in recent years COVID-related disruptions to markets, increased expenses, decreased prices and reduced catch rates have resulted in an inability to effectively sample the Pacific halibut stock without financial losses.

Steps already taken

The IPHC uses a statistical model to determine the optimal number and geographical distribution of stations needed each year in order to provide precise estimates of stock trends and distribution with minimal bias. Cost-savings have already been implemented in many aspects of the FISS including bait, multiple gear types, efficient logistical vessel plans, competitive bidding, and other measures.

Importance of Pacific halibut

The Pacific halibut stock supports directed commercial fisheries worth an estimated US$182 million per year (2013-2022 10-year coastwide average landed value), and also supports traditional subsistence uses; as well as recreational fisheries from California to Alaska.

Other FISS products: Beyond the trend and demographic data used directly in the Pacific halibut stock assessment, the FISS provides:

a. For direct industry participation in the management of the resource.
b. Oceanographic monitoring (since 2009) used by the IPHC and other institutions.
c. Biological and trend information on other species that are shared with domestic parties, for a range of scientific purposes including stock assessment.

FISS Importance to decision making

The critical time is now: The FISS is in its 5th year of substantial reductions. This is an urgent problem, with greater uncertainty in scientific estimates and declining stakeholder confidence.

Receiving additional funding is essential for the IPHC to continue working towards the mission to develop stocks of Pacific halibut in the Convention waters to those levels which will permit the optimum yield from the fishery and to maintain the stocks at those levels.

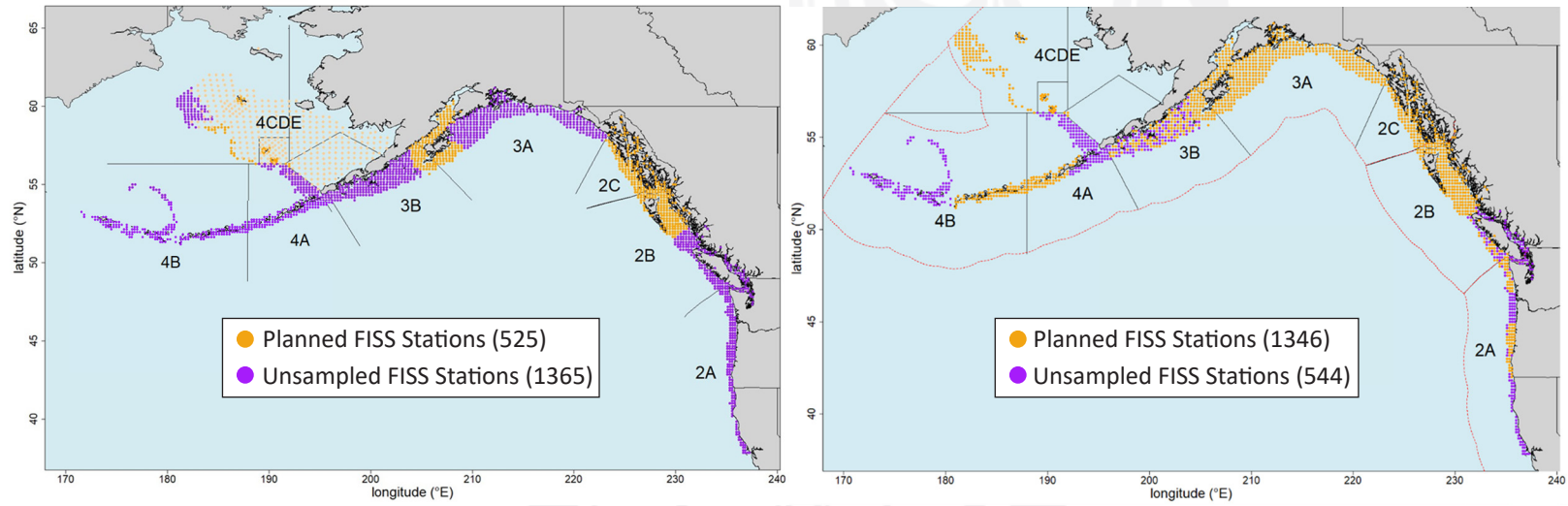

Figure 1. In 2024 the design (left) included sampling 525 stations and not sampling 1365 stations, in 2021 (right) sampling 1346 stations and not sampling 544 stations.

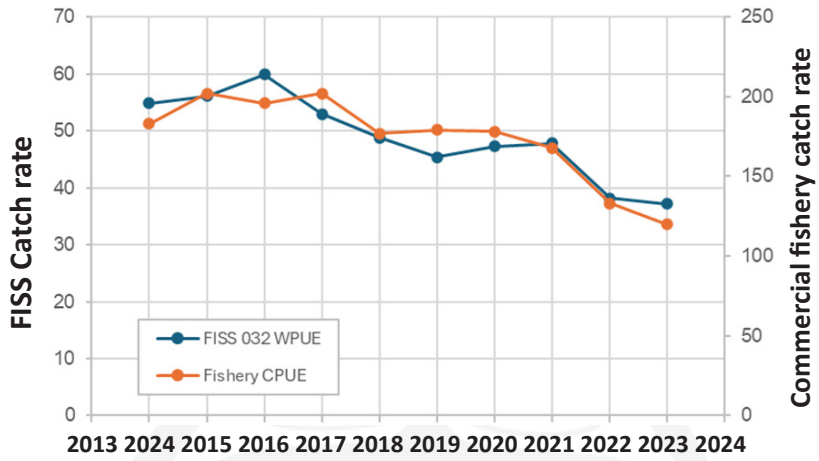

Figure 2. Recent trend in ex-vessel catch rates (standardised commercial and FISS).

Why else is the continuation of the FISS crucial?

- The FISS serves as the primary index of abundance in the IPHC's annual stock assessment and provides crucial demographic information (e.g. the relative strength of individual year-classes).

- Fishery-independent data provide a consistent source of information that is not subject to the many factors affecting where, when and how commercial fisheries operate. Therefore, the FISS provides an input that cannot be fully replaced by fishery-dependent data.

- Increased uncertainty in FISS results translates directly into increased uncertainty in the stock assessment and management supporting information – this leads to a need for more precautionary management and therefore lower mortality limits, and less yield available to the fisheries targeting for Pacific halibut.

- Spatial gaps in the FISS mean that the Commission must be extra precautionary in outlying areas that affect some of our most vulnerable user groups including coastal villages in Western Alaska and in the Aleutian Islands, and US West Coast tribes.

- Stakeholder confidence in the science and process relies on sampling in all Biological regions and all IPHC Regulatory Areas on a regular basis.

- International obligation – the Pacific halibut stock and fishery have been managed under treaty by the IPHC for 100 years. Both Canada and the U.S. have a treaty obligation to support this valuable resource.

Continued support for the FISS is vital to ensuring a sustainable Pacific halibut stock, benefiting ecosystems, local communities, and the Pacific halibut fishery at large. By maintaining robust data collection and management practices, the IPHC can uphold its commitment to responsible stewardship of Pacific halibut.



Want to learn more about the IPHC's FISS?

The Commission

The IPHC currently consists of six members, three appointed by each Contracting Party (the Governor General of Canada and the President of the United States of America), who serve their terms at the pleasure of the Contracting Party.

Canada

Paul Ryall

Neil Davis

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Jon Kurland

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