



6th Annual Meeting of NPAFC

In November, representatives of Canada, Japan, Russia, and the United States met in Moscow, Russia for the sixth annual meeting of NPAFC. Observers from the Republic of Korea, the North Pacific Marine Science Organization, and the North Atlantic Salmon Conservation Organization (NASCO) also attended. David Bevan, NPAFC President, chaired the meeting.

Members of the Committee on Enforcement reviewed unauthorized salmon fishing activities on the high seas—cooperative efforts resulted in the detection of seven vessels engaged in illegal fishing in 1998. The United States apprehended two of these vessels and referred another two vessels to Russia for prosecution. To enhance cooperative efforts, a joint enforcement symposium will be held in Kodiak, Alaska in spring 1999.

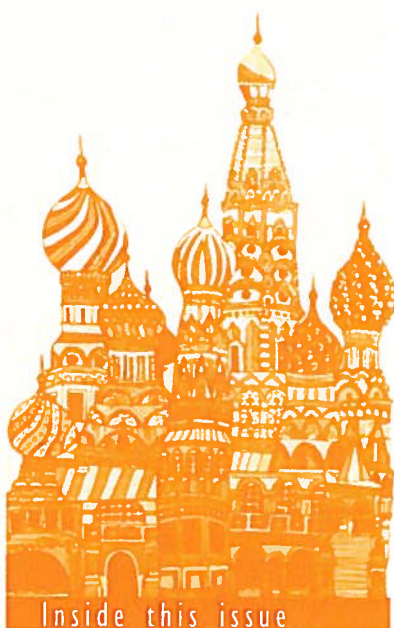
The Committee on Scientific Research and Statistics members discussed new evidence of climate changes and biological phenomena that may have caused the very

low returns of some economically important stocks in 1997–1998 (see CSRS Highlights, page 4). A two-day symposium focusing on this issue, *Recent Changes in Ocean Production of Pacific Salmon*, will be held in Juneau, Alaska in November 1999.

Reflecting low salmon runs, commercial salmon catches by Canada, Japan, Russia, and the United States in 1997 totalled 839,000 metric tons, down from 890,000 metric tons in 1996. Nearly 5.1 billion juvenile hatchery salmon were released in the North Pacific in 1997, up from 4.4 billion in 1996.

We are pleased to announce that the NPAFC approved a cooperative arrangement (Memorandum of Understanding) with the North Pacific Marine Science Organization (PICES) to enhance cooperation on marine scientific research (see Memorandum of Understanding, page 6).

At the meeting, Vladimir Fedorenko of Russia was selected as the next NPAFC Executive Director (see Our People, page 3). His term will begin in July 1999. ■



Inside this issue

6th Annual Meeting of NPAFC	1
Notice Board	2
Our People	3
1998 CSRS Highlights	4
PICES-NPAFC MOU	6
Russian Border Guard Protects Living Resources	7
Salmon Researchers Return to Hokkaido	7
Enforcement of Driftnet Activities	8



Top row, left to right: Vladimir Pautov, Vladimir Fedorenko, Paul Sprout, David Bevan, Gerry Kristianson, Guy McMinds, Douglas Eggers
Bottom row, left to right: Shuji Ishida, Vladimir Izmailov, Hiroko Omori, Irina Shestakova, Koji Imamura, William Hines Photo: Courtesy of EKKA © 1998

Notice Board

Upcoming Events

Enforcement Standardization Symposium

March 16-19, 1999

Goal: to increase and improve working relationships of enforcement personnel. There will be enforcement presentations by each country, a C-130 Coast Guard Flight, and a preseason NPAFC enforcement planning session. Location: US Coast Guard's North Pacific Regional Fisheries Training Center in Kodiak, Alaska.

CSRS Research Planning & Coordinating Meeting

March 24-26, 1999

Empire Landmark Hotel and Conference Centre, 1400 Robson St., Vancouver, BC, V6G 1B9.
Phone: (604) 687-0511
Fax: (604) 687-2801
Toll Free: 1 (800) 830-6144.

7th Annual NPAFC Meeting

October 24-29, 1999

Westmark Baranof Hotel
Juneau, Alaska.

International Symposium, "Recent Changes in Ocean Production of Pacific Salmon"

November 1-2, 1999

Juneau, Alaska. See details on this page at right.

International Symposium '99

The US government, under the auspices of the NPAFC, will host an international symposium, "Recent Changes in Ocean Production of Pacific Salmon." Westmark Baranof Hotel, Juneau, Alaska, November 1-2, 1999.

Purpose

Dynamic changes in Pacific salmon populations have attracted widespread attention. Symposium participants will consider the latest scientific findings and explore new methods and technologies for investigating and forecasting ocean salmon production.

Symposium Topics

- Physical and biological factors affecting ocean production of Pacific salmon
- Detection of trends, patterns, and changes in historical salmon and environmental data
- Forecasts and models of Pacific salmon dynamics
- New research methods and techniques in ocean salmon research

Call for Papers

Abstracts for oral or poster presentations must be received by March 20, 1999 at the NPAFC Secretariat. Presenters will be selected by the end of April 1999. Abstracts must be 400 words or less, written in English, and include title, author's name and position, and a summary of the study. A second page may be added for tables and figures.

Information

For more information, please contact the NPAFC Secretariat or a member of the Steering Committee:

Dr. John Helle (Chairman)

National Marine Fisheries Service
Alaska Fisheries Science Center
Auke Bay Laboratory
11305 Glacier Highway
Juneau, Alaska 99801-8626 USA
Ph: (907) 789-6038; Fax: (907) 789-6094
E-mail: jack.helle@noaa.gov

Dr. Yukimasa Ishida

Hokkaido National Fisheries Research Inst.
Fisheries Agency of Japan
116 Katsurakoi
Kushiro 085-0802 JAPAN
Ph: (81) 154-91-9136; Fax: (81) 154-91-9355
E-mail: ishiday@hnf.affrc.go.jp

Dr. Donald Noakes

Department of Fisheries & Oceans
Pacific Biological Station
Nanaimo, BC V9R 5K6 CANADA
Ph: (250) 756-7040; Fax: (250) 756-7141
E-mail: noakesd@dfp-mpo.gc.ca

Dr. Vladimir Radchenko

Pacific Scientific Research Fisheries Centre (TINRO-Centre)
4, Shevchenko Alley
Vladivostok 690600 RUSSIA
Ph: (423) 225-7346; Fax: (423) 225-7783
E-mail: tinro@online.marine.su ■



Our People

Honors & Awards

The NPAFC recognizes the achievements in 1998 of several CSRS scientists.

Richard Beamish, Pacific Biological Station, was appointed as a Member of the Order of Canada in recognition of his outstanding service and contributions to his community and country.

Vladimir Karpenko, Kamchatka Research Institute of Fisheries & Oceanography, was awarded his second doctoral degree, which is the highest level of university degree in the Russian academic system.

Skip McKinnell, Pacific Biological Station, successfully defended his PhD dissertation, "Atlantic Salmon (*Salmo salar* L.) Life History Variation: Implications for the Baltic Sea Fishery," at Swedish University of Agricultural Sciences, Department of Aquaculture.

Kate Myers, School of Fisheries, University of Washington, received a PhD degree from Hokkaido University, Faculty of Fisheries. The title of Kate's dissertation is "Stock Origins of High Seas Salmon as Determined by Scale Pattern Analysis." ■



Toasting in Moscow. (left to right) Vladimir Karpenko, Skip McKinnell, Kate Myers, Richard Beamish.

Photo: Courtesy of NPAFC

Richard Beamish, Canada, and Irina Shestakova at the 6th annual meeting of NPAFC.

Photo: Courtesy of NPAFC



A Change at the Helm

Irina Shestakova has served as the first Executive Director of NPAFC since April 1994. At the 1998 NPAFC annual meeting in Moscow, Dr. Shestakova was recognized for her "commitment, dedication and capable stewardship in guiding the Commission during its formative years." In his closing remarks, Vladimir Izmailov (Russia) expressed his deep gratitude to Dr. Shestakova, and noted that "here in Russia we are awaiting her return to service at the same organization that she left to join the NPAFC Secretariat."

When asked about life after retirement from NPAFC, Irina says "after 41 years of devotion to fisheries, I will make taking care of my granddaughter Bella the first priority of the rest of my life." And who knows? In the year 2025, Bella may be applying for the position of the NPAFC Executive Director.

In July 1999, Vladimir Fedorenko will assume the office of Executive Director. Mr. Fedorenko has served as an NPAFC representative for the Russian Federation since 1993. He has an extensive background in fisheries and international relations.

In 1968, Mr. Fedorenko graduated from the Far East Fisheries Institute, Vladivostok, with a university degree in commercial fisheries and navigation. In 1983, he also earned a university degree in foreign economic relations from the Academy for Foreign Trade, Moscow.

At the beginning of his fisheries career, during 1970–1978, Mr. Fedorenko had first-hand experience in conservation management of fish stocks in the Pacific Ocean, while working as an inspector and then Deputy Chief of the Okhotsk and Bering Sea Regional Department for Fisheries Conservation, Management and Enforcement in Magadan. In 1978, he was promoted to the position of Deputy Chief of General Department for Fisheries Conservation, Management and Enforcement of the Fisheries Ministry, Moscow.

In 1986, Mr. Fedorenko was assigned to Halifax, Nova Scotia, Canada, as the USSR Fisheries Representative, and served in this capacity till 1991. During this period, he also represented the USSR in NAFO.

Since 1991 and up to 1996, Mr. Fedorenko served in Moscow as a Deputy and then Chief of the Department of International Relations of the Fisheries Committee of the Russian Federation. He is currently the Fisheries Attaché at the Embassy of the Russian Federation in Washington, DC.

Mr. Fedorenko is married with two children and two grandchildren. ■

1998 CSRS Highlights

At the annual meeting of NPAFC, CSRS members discussed new evidence of climate changes and biological phenomena that may have caused the very low returns of some economically important stocks in 1998.

Climate-Ocean Conditions and Salmon Catch Trends

Mounting evidence indicates that large-scale climate changes occurred in the Pacific in 1890, 1925, 1947, 1977, and 1989. Indices of Northern Hemisphere climate changed again in 1996, indicating greater climatic variation and a general warming trend. Total North Pacific salmon catches have declined since 1996, although there is substantial variation in catch trends among species and regions.

Japanese chum salmon catches decreased from 81 million fish in 1996 to 72 million fish in 1997. But odd-year cycle pink salmon catches in Russia in 1997 totaled 137 million fish, up from 104 million fish in 1995.

The overall commercial catch in Alaska in 1997 (123 million salmon, down from 176 million in 1996) was below preseason projections, but was still high by historical standards. The Alaska Department of Fish & Game reported that the shortfall might be due to changes in ocean conditions.

The 1997 Bristol Bay sockeye run was considerably under forecast. The 1997 forecast was for a return of 35.8 million, with an in-Bay catch of 24.8 million. The actual run was 20.1 million, with an in-Bay catch of 12.3 million. The Alaska Department of Fish & Game could not provide a convincing explanation for the 1997 shortfall, and therefore did not change their procedures for the 1998 forecast, which also was considerably above the actual 1998 run and catch levels.

Depressed levels of coho and chinook salmon production in British Columbia resulted in catch restrictions in 1997 and 1998.

Because of conservation concerns, there were no directed fisheries for coho salmon in British Columbia in 1998. Harvests of coho and chinook salmon in Washington and Oregon were also restricted by conservation measures.

In contrast, chinook salmon catches in California have increased in recent years—1997 commercial catch was 487.5 thousand fish, up from 380.9 thousand fish in 1996.

CSRS scientists are developing a list of key indicator stocks for each country. Starting in 1999, the CSRS will provide the Commission with an annual, joint report that includes written summaries of the previous year's fishing season and time-series summaries of catch and escapement data for key stocks.

Ocean Stock Assessment and Marine Survival

Winter environmental data are correlated with marine growth and survival of salmon, but huge storms crossing the North Pacific in winter make salmon research difficult, if not impossible. As a result, direct information on salmon and oceanographic conditions in winter is almost nonexistent. To this end, the Fisheries Agency of Japan has provided its fisheries-oceanographic research vessel *Kaiyo maru* for occasional winter research surveys by CSRS scientists. The *Kaiyo maru* is one of the few platforms available for performing winter salmon research in relative safety.

The *Kaiyo maru* was used in February 1998 to survey salmon in the western and central North Pacific Ocean and Bering Sea. The results show that salmon were distributed in a relatively narrow band in the North Pacific, located between the Subarctic Boundary on the south and the northern extent of the transition domain



Background: Red Square, Moscow

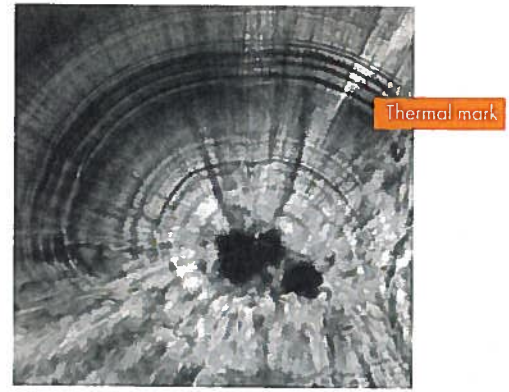
Top: Oleg Gritsenko, CSRS Chairman

Bottom: US delegates enjoy a CSRS tea break in Moscow. (left to right) Guy McMinds, Al Burch, Douglas Eggers.

Photos: Courtesy of NPAFC

Salmon otolith with thermal mark that identifies hatchery of origin.

Photo: Courtesy of Don Mortensen, US NMFS, Auke Bay Laboratory



on the north (approximately 42° to 46° North latitude). Chinook salmon was the only species caught in the Bering Sea.

The US National Marine Fisheries Service conducted an offshore survey of salmon in late April and May 1998 aboard the chartered fishing vessel *Great Pacific*. This cruise provided the first scientific information on sockeye salmon in the eastern Bering Sea-Aleutian Islands area in April.

Overall abundance of salmon in Japan's annual summer research gillnet surveys in the western and central North Pacific Ocean, Bering Sea, and Gulf of Alaska was higher in 1998 than in 1991-97. Chinook salmon abundance in the Bering Sea was very high (eight times higher than the past mean). Reductions in mean body sizes of chum and pink salmon indicated that summer growth conditions in the western North Pacific Ocean and Bering Sea in 1998 were not as good as in past years.

Archival Tag Research

In 1998, salmon and steelhead were tagged in the Bering Sea and Gulf of Alaska with archival tags that measure and store environmental data. To date, eight of 55 fish released with tags that record sea temperature have been returned to the High Seas Salmon Tag Processing Center at the University of Washington, School of Fisheries in Seattle. The tagged fish were recovered from three weeks to four months after release, as they returned to spawn in coastal and freshwater areas of Japan and Alaska. This is the first data of its kind from salmon released in offshore waters.

The preliminary results are exciting. After an initial period of adjustment to the tag, which lasts for about one week or sometimes longer, the fish exhibit

much more complex behavior with respect to water temperature than shown by short-term (less than one week) sonic-tracking studies (see figure below).

Canadian field experiments indicate that light records from archival tags can be used to estimate geographic position to an accuracy of about 1°, sufficient to give detailed information on the migration path of tagged fish. CSRS strongly supported the initiation of joint, full-scale archival tagging programs by NPAFC scientists.

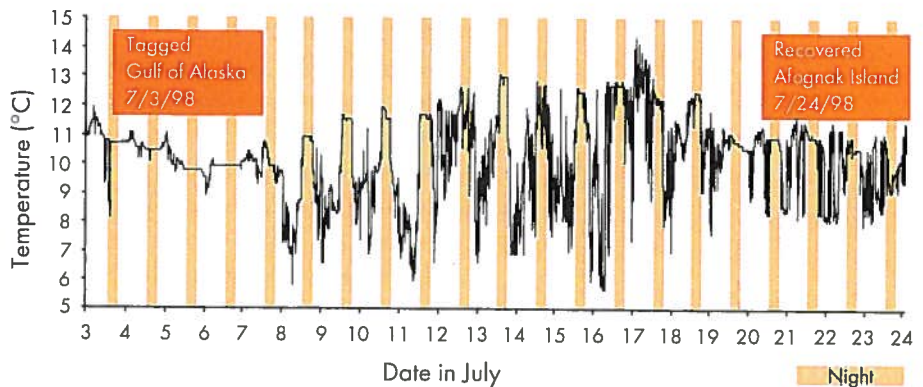
Otolith Marking

To identify stock origins of salmon caught in the ocean, scientists are mass marking the otoliths (ear bones) of hatchery salmon embryos with unique patterns similar to barcodes (see photo at above right). Alaska Department of Fish & Game scientists reported that otolith marks can be used to

estimate salmon stock composition in ocean catches within 24 hours after a fishery closure.

The otolith marks are usually induced by varying the water temperature in hatchery egg incubation trays. Russian scientists reported that they produced similar marks without changing water temperature. Their new method involves temporary removal of water from incubating salmon eggs. Recent recoveries of otolith-marked salmon during research vessel cruises are providing a wealth of new information on hatchery salmon in the northeastern Pacific and Gulf of Alaska.

CSRS is coordinating the annual reporting of releases of otolith-marked fish by Canada, Japan, Russia, and the United States. US scientists will advise CSRS on the location of a proposed central repository for all North Pacific otolith-mark release information (data and images). ■



Seawater temperature recorded on an archival tag attached to a pink salmon at sea, July 3–24, 1998. *Graph: Courtesy of University of Washington, School of Fisheries*

PICES-NPAFC Memorandum of Understanding

The NPAFC and the North Pacific Marine Science Organization signed the following Memorandum of Understanding in 1998:

Recognizing that the North Pacific Marine Science Organization (PICES), exists to: (a) promote and coordinate marine scientific research in order to advance scientific knowledge of the area concerned and of its living resources, including but not necessarily limited to research with respect to the ocean environment and its interactions with land and atmosphere, its role in and response to global weather and climate change, its flora, fauna, and ecosystems, its uses and resources, and impacts upon it from human activities; and (b) to promote the collection and exchange of information and data related to marine scientific research in the area concerned;

Recognizing that the North Pacific Anadromous Fish Commission (NPAFC) exists to: (a) promote the conservation of anadromous stocks in the Convention Area; and (b) consider matters related to the conservation of ecologically related species in the Convention Area;

Recognizing the mandatory powers, constraints and obligations under which PICES and NPAFC respectively operate;

Desiring to provide a framework for mutual cooperation;

PICES and NPAFC, hereinafter called "the Parties", have agreed to the following:

1. To maintain reciprocal consultations and regular contacts on matters of common interest in the field of marine scientific research;
 2. To regularly exchange with information, documents, and publications relating to program and project plans and to the results of activities agreed
3. To invite each other to be represented, in an observer capacity, at meetings of common interest, to the extent that this is possible within their respective working procedures;
 4. To undertake joint activities, as appropriate, including when agreed, the establishment of joint subsidiary bodies or other suitable arrangements, to study and report on matters of common interest;
 5. To consult, as appropriate, on ways in which cooperation between them can be further improved and extended. Specific joint programs and activities may be defined through addenda to this agreement;
 6. To coordinate the time and place of annual meetings to facilitate the work of both Parties;
 7. This Memorandum of Understanding (Memorandum) shall enter into force upon signature of the person duly authorized by each Party and shall remain in force unless either Party withdraws pursuant to paragraph 9 below;
 8. The terms of the Memorandum may be revised by the Parties if they both agree. The Memorandum shall continue on the basis of the existing terms until new terms have been agreed;
 9. Either Party may withdraw from the Memorandum at any time subject to giving one year's written notice to the other Party.



Top: At reception in Moscow hosted by Russia. (left to right) Peter Hutchinson (NASCO), David Welch, Malcolm Windsor (NASCO).

Second: Japanese delegates breakfast in Moscow. (left to right) Yukimasa Ishida, Shigehiko Urawa, Koji Imamura, Shuji Ishida.

Third: Near Red Square. (left to right) Denise McGrann, Wakako Morris, David Welch.

Bottom: (left to right) Katia Rostchina (Irina's daughter), Vince O'Shea, Irina Shestakova.

Photos: Courtesy of NPAFC

Salmon Researchers Return to Hokkaido

In 1996, Japan ratified the 1982 UN Convention on the Law of the Sea, stipulating that “the coastal State shall determine the allowable catch of the living resources in its exclusive economic zone.” In 1997, Japan introduced the Catch Quantity Control System, which establishes total allowable catch (TAC) for major resources such as sardine, mackerel, and pollock. These new developments were followed by reorganization of Japan’s fisheries research institutes in October 1998—based on similarity of oceanographic conditions in six major geographic regions (see figure below). This structure should enable better research and understanding of ocean productivity and its changes for particular fish stocks. More accurate assessment of TAC for the major fish stocks will be accomplished through comprehensive surveys in the designated areas.

The National Research Institute of Far Seas Fisheries in Shimizu, in charge of research of salmon, pollock, and crab resources in the North Pacific Ocean and Bering Sea for the past 30 years, was also reorganized. Its North Pacific Fisheries Resources Division was moved to the Hokkaido National Fisheries Research

Institute (HNFRI), and its division of tuna fisheries research was enlarged. In cooperation with the National Salmon Resources Center and other Japanese and foreign research institutes, the HNFRI will conduct NPAFC-related research on salmon distribution and production in relation to the environment, as well as research on interactions between salmon and other species in subarctic waters.

Dr. Yukimasa Ishida, Research Coordinator for International Ocean Resources, HNFRI, notes that in 1970 the salmon research sections were moved from Hokkaido to Shimizu, when the North Pacific Fisheries Resources Division was formed. He compared the move back to Hokkaido to a run of salmon “returning to their natal river after a long migration in the North Pacific Ocean.” Dr. Ishida stated that “a new generation of salmon research will be produced in Hokkaido again.” We are looking forward to working with HNFRI’s salmon scientists at their new home in Kushiro.

The web site address of the National Research Institute of Fisheries Science, Yokohama, is <http://ss.nrifs.affrc.go.jp/>, which links to other institutes’ web sites. ■



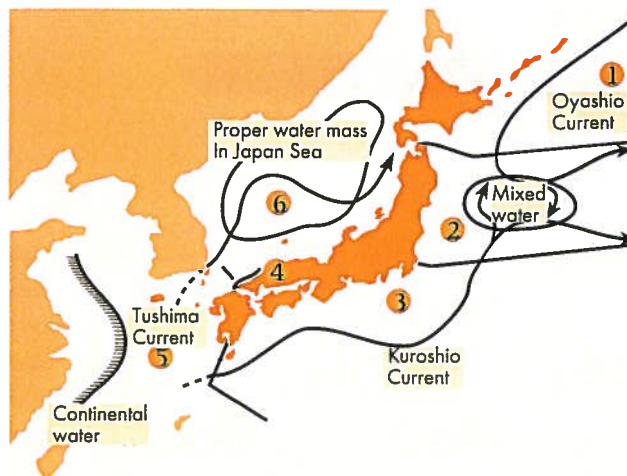
Russian Border Guard Protects Living Resources

Effective July 1998, the Federal Border Guard Service was delegated to protect Russia’s living resources in internal waters and territorial seas, marine waters along the continental shelf, the exclusive economic zone (EEZ), and beyond the EEZ for anadromous species.

Previously, the Border Guard assisted the Fishery Enforcement Agency of the State Fisheries Committee in the protection of living marine resources. The Border Guard now has a Department of Marine Protection, which coordinates the activities of protection forces along the entire Russian border and throughout the Russian EEZ.

The Federal Border Guard Service has enlisted the ships, cutterboats, and personnel, including state inspectors, ship crews, and support staff of the Fishery Enforcement Agency of the State Fisheries Committee. Regional inspection services were established as part of the Border Guard’s regional offices. The Border Guard’s military vessels and aircraft, civil marine-protection ships, and satellites are used for enforcement, surveillance, and monitoring of living marine resources.

Six major geographic regions in Japan with similar oceanographic conditions.



Enforcement of Driftnet Activities

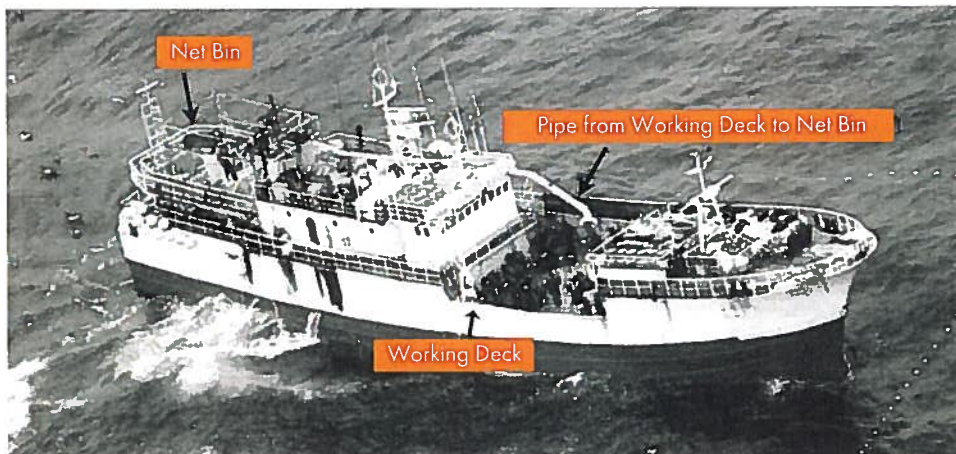
The US Coast Guard requests all mariners to report high-seas driftnet (HSDN) vessels and illegal driftnet fishing activities.

HSDN vessel characteristics:

- Similar to squid and longline vessels with a working deck forward and the super-structure amidships.
- Most distinguishing characteristic— large tube running from the working deck amidships to the net bin aft.
- Typically 30 to 40 meters (100 to 150 feet) in length.
- Typically operate seaward of the 200-mile exclusive economic zones.
- Extra bags of net piled about the decks and net marker buoys on the open side of the working deck.
- Driftnets in the water have white and yellow floats and large round buoys marking both ends. Nets in excess of 2.5 km (1.5 miles) are illegal.

A picture identifying HSDN vessel characteristics can be provided upon request. Call (510) 437-3700 or Telex 172343. When identifying HSDN vessels please note if there is a flag flying and any name or numbers on the hull.

Public information on HSDN vessels and activity will greatly assist the US Coast Guard's efforts to enforce the United Nations moratorium against HSDN fishing.



High-seas driftnet vessel characteristics. Photo: Courtesy of US Coast Guard

Published by

NPAFC Secretariat
Suite 502, 889 West Pender Street
Vancouver, BC, V6C 3B2 CANADA
Tel: (604) 775-5550
Fax: (604) 775-5577
E-mail: npafc@interchange.ubc.ca
Web: <http://www.npafc.org>

The Commission invites you to submit articles and photos or slides on NPAFC-related activities for publication in the newsletter.

Masthead photo: Fisheries Research Institute (FRI) High-Seas Archives, University of Washington

ISSN 1028-0227

♻️ Printed on recycled paper.



The Secretariat Staff (left to right): Hiroko Omori, Denise McGrann, Wakako Morris, Irina Shestakova.

Photo: Courtesy of NPAFC

NPAFC REPRESENTATIVES

CANADA

David Bevan, Department of Fisheries and Oceans
Garnet Jones, B.C. Packers
Gerry Kristianson, Sport Fishing Institute

JAPAN

Koji Imamura, Japan Sea Farming Association
Shuji Ishida, Fisheries Agency
Nobuaki Tanaka, Ministry of Foreign Affairs

RUSSIA

Vladimir Fedorenko, Fisheries Representative in the US
Vladimir Izmailov, Department of Fisheries
Vladimir Pautov, Dalryba

UNITED STATES

Guy McMinds, Quinault Indian Nation
Steven Pennoyer, NOAA/NMFS
Fran Ulmer, Lieutenant Governor State of Alaska

Visit the NPAFC website:

<http://www.npafc.org>

for more information on events, publications, scientific documents, and salmon catch statistics.