

RUSSIAN FAR EAST



FISHERIES

by Terry Johnson

ALASKA SEA GRANT COLLEGE PROGRAM
UNIVERSITY OF ALASKA FAIRBANKS

Autonomous District
= Autonomous Province

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Elmer E. Rasmuson Library Cataloging in Publication Data

Johnson, Terry Lee, 1947-

Russian Far East fisheries / by Terry Johnson. Fairbanks, Alaska : Alaska Sea Grant College Program, University of Alaska Fairbanks 2004.

p. : ill. ; cm. (Alaska Sea Grant College Program, University of Alaska Fairbanks ; MAB-55)

Includes bibliographical references.

1. Fisheries—Russia (Federation)—Russian Far East. 2. Pacific salmon fisheries—Russia (Federation)—Russian Far East. 3. Mariculture—Russia (Federation)—Russian Far East. I. Title. II. Johnson, Terry Lee, 1947. III. Series: Alaska Sea Grant College Program ; MAB-55.

SH214.2.J64 2004

ISBN 1-56612-087-X

CREDITS

Work for this book was supported by *Pacific Fishing* magazine. Publisher of the book is the Alaska Sea Grant College Program, supported by the U.S. Department of Commerce, NOAA National Sea Grant Office, grant NA16RG2321, projects A/152-20 and A/161-01; and by the University of Alaska Fairbanks with state funds. The University of Alaska is an affirmative action/equal opportunity employer and educational institution.

Cover and book design by Dixon J. Jones, UAF Rasmuson Library Graphics. Editing by Sue Keller, Alaska Sea Grant. Marine Advisory Bulletin MAB-55.

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Map showing the Russian Far East (adapted from a University of Alaska Anchorage 1993 map).

Russian Far East Fisheries

CRISIS OR CROSSROADS?

The Russian Far East (RFE) is home to the largest component of Russia's fishing industry, and an heir to the legacy of the great Soviet fleets of the past. In the late 1980s the Soviet Union was the top fishing nation in the world, with landings in excess of eleven million metric tons, or more than 10% of all the fish and shellfish caught in the world. The RFE share was estimated at 4.6 million tons. Russia, the largest republic of the former USSR, retained most of the coastline and major fishing ports when the union dissolved, but fisheries production has significantly decreased.

RFE all-species catches bottomed out in the mid-1990s at about 2.3 million metric tons and have rebounded slightly since then. RFE landings now make up about half of all Russian landings, including distant water.

Decreases in landings are mirrored by decreases in seafood consumption by Russians. Domestic consumption is about 20 pounds per person, down from 44 pounds a decade ago. The decrease is blamed on lower production and increased seafood exports. Reasons for the decrease in production are numerous, and include:

- Loss of federal subsidies to a financially inefficient industry.
- Privatization of fishing companies, resulting in numerous cash-poor enterprises.
- A shift from a centrally planned industry dedicated to "food security," to one driven by profit motive that favors low-volume, high-value products.
- An ongoing economic crisis in the country that makes acquisition of investment capital difficult.
- Federal tax and quota policies that limit opportunity and suppress incentive.



Kapitan Ligov loading crab pots at Livodya in Primoria (T. Johnson).

- Loss of access to distant-water grounds due to extended jurisdictions by foreign nations.
- Overfishing of important domestic stocks, and stock depletions due to high levels of fishery discards and to changing environmental conditions.

Decreased landings tell only part of the story, however. Figures on fishery values are not available, but it is clear that the per-unit value of the catch is increasing. Consumers have a wider choice of seafood products than ever before as imports enter the country from many parts of the world.

While the volume of landings has decreased, the number of fishing enterprises has increased. During Soviet times fewer than 200 companies and collectives produced the entire nation's seafood supply, whereas now more than 400 enterprises operate in the Far East alone, and as many as 1,500 nationwide. However, the

owner-operated fishing vessel is still virtually unknown and most fishing operations are owned by corporations (known as “joint stock companies”), or by collectives.

THE FAR EAST REGION

The Russian Far East is composed of nine regions, districts, and territories in the eastern third of the nation that are in some respects analogous to American states. Its land area is about two-thirds that of the United States. The coast extends from above the Arctic Circle to about the latitude of Coos Bay, Oregon. The two biggest fishing ports, Vladivostok and Nakhodka, are in Primoria, at the extreme southern end of the coast, facing the Sea of Japan and close to the borders of China and North Korea. Other major fishery ports include Korsakov on Sakhalin Island, and Petropavlovsk in Kamchatka. Russians refer to the Pacific Coast as the Far East (Dalnyvostok), not Siberia (Sibir).

The Far East is sparsely populated, with a total population of about six million, and is linked to the rest of the country only by air travel and the Trans Siberian Railway. It is primarily dependent on natural resources for its economic basis; forestry, farming, and mining make a contribution, but the fishing industry is by far the largest single component of the economy. An estimated 250,000 people worked in fisheries-related businesses in the Far East at the industry’s peak. That number has fallen, as has the number of workers in the region as a whole, as the fisheries have declined and people have moved away. By one count the RFE currently is home to some 1,700 fishing and processing vessels.

Far East ports were once home to Soviet distant water fleets, which roamed the globe. Fleets consisted of numerous factory trawlers that worked cooperatively, plus refrigerated transports and fueling and re-supply vessels. Voyages typically lasted nine to fifteen months.

The Far East’s distant water fleets are almost extinct. Russian distant water vessels from all coasts combined still produce more than a million tons a year but Far Eastern vessels apparently contribute a small part of that total. The central government plans to reestablish distant water fishing, with a target of tripling production, but most of the ships have gone to scrap or been converted to coastal trawling and crabbing.

For their resource base RFE fishermen have turned to their own territorial and adjacent waters, including the Sea of Okhotsk, the Kuril Islands waters, Japan Sea, and the Western Bering Sea.

Those waters contain a wealth of halibut, sole, perch, saury, mackerel, cod, squid, and various shellfish including shrimp, scallops, sea urchins, and sea cucumbers.

The salmon fishery (six species) makes up just over 10% of the RFE catch in volume but is the third most valuable sector of the industry. Salmon fishing is conducted mainly inshore, and pink salmon is the dominant species. Annual landings average more than 200,000 metric tons, or about two-thirds of Alaska’s catch in recent years. The relatively small inshore sockeye fishery is confined almost entirely to Kamchatka, which also has most of the coho and kings. A limited “research” fishery is conducted outside 25 miles from shore with large gillnet boats and takes a few thousand tons of mixed sockeye, coho, chum, and pink salmon off Sakhalin and the Kuril Islands.

Herring stocks are large in the Okhotsk Sea, where trawl landings some years total 600,000 to 800,000 tons (more than ten times the U.S. West Coast total). Very little is directed to roe markets, and most is canned or frozen for domestic consumption.

During Soviet times few RFE vessels fished for crab, and most of the catch was canned. With the arrival of capitalism the catch quickly grew, and king (“Kamchatka”) crab became the highest-value product of the region’s fisheries. Catches peaked at around 70,000 tons but soon exceeded the amount the stock could support. As much as 40% of the crab catch has been taken illegally, contributing to the overharvest.

THE POLLOCK FISHERY

Overshadowing all others is the pollock fishery, which in previous years constituted 70% of the catch by weight and totaled more than three million tons per year.

However, overfishing and changing environmental conditions have dramatically reduced pollock abundance in recent years. Recent years total allowable catches have averaged about one-third of their historical high levels, but quotas are increasing and now exceed a million metric tons.

Previously the Sea of Okhotsk produced 50-60% of the pollock catch, but years of abuse by foreign fleets in the “Peanut Hole,” a zone in the center of the sea outside Russia’s 200-mile zone, devastated Okhotsk pollock stocks. Eventually Russia prohibited foreign fishing there and severely curtailed its own fleet in an effort to rebuild the stock. The Navarin stock is down 70% and the Western Bering Sea pollock stocks have been so low that in some cases even small quotas were not being

harvested because fish were not sufficiently concentrated to allow economically viable fishing. The diminished pollock fishery, coupled with reduced quotas for lucrative king crab fisheries, is causing severe dislocation in the industry.

QUOTA WOES

Added to the industry's woes have been changes in the quota allocation system and escalating costs of operation. The industry has pinned a lot of the blame on a decree issued in December 2000 which created a quota auction system. Quota allocation has always been a contentious matter, ripe for corruption, but most in the industry considered the auction even worse. In Kamchatka alone it has been reported that more than 6,000 fishermen lost their jobs, and the quota auction was blamed for rising consumer fish prices (resulting in declining consumption), for a shortage of orders at shipyards and equipment suppliers, and for poaching and illegal export of products.

A federal decree in November 2003 ended the quota auction system for most fisheries and replaced it with a system of fixed-fee five-year quotas. The first of these became available in January 2004 and plans for a comprehensive fixed-fee quota system were to be written by the middle of the year.

POACHING

Illegal fishing takes a variety of forms, including the unreported sales of fish and crab in foreign ports. The Japanese city of Wakkanai has been considered the home port of the Russian poaching fleet, which delivers product taken in Russian waters in violation of quotas and fishing regulations and sold without reporting for purposes of tax evasion. As Japanese authorities have increasingly cooperated with the Russian government to catch poachers, much of the traffic has shifted to Korea. Some in the industry estimate that the illegal and unreported catch is at least equal to the amount taken and reported

under the quota system. Press reports say that a single poaching trawler can cost the nation \$650,000 a year in lost taxes. Estimates of lost tax revenues due to poaching and illegal sales in Japan, Korea, and China range from \$150 to \$500 million annually.

The Russian government is monitoring bank transactions to search for tax fraud. It is requiring vessels to carry position transponders. Several politicians have been prosecuted for their roles in poaching or illegal fishing activities. A new provision in the industrial allocation process rewards fishing companies in part for the amount of taxes they pay, so the government may at last have some tools for reducing the poaching problem.

ON THE HORIZON

Although the five-year plans of the socialist days are long gone, the State Committee on Fisheries still likes to announce plans for developing the industry. According to press reports, the government plans to build 209 new seine and trawl vessels by 2016. It plans to obtain 2 billion rubles (\$64.5 million) in credits from Russian banks to build 28 trawlers in Russian yards. It plans to replace half of the existing fleet. It plans to facilitate \$1 billion in financing to build 110 small and 99 medium vessels for coastal fisheries. It plans to boost fisheries production by 2007 to 3.5 million metric tons from domestic waters, and to triple distant water landings to 2.5-3 million tons from the economic zones of other nations, including Mauritania, Morocco, Angola, Japan, Peru, and Chile. It also has announced plans to refurbish port infrastructure, crack down on poaching, negotiate better fishery deals with foreign nations (including a more agreeable Bering Sea boundary with the United States), and build an expressway from Moscow to Vladivostok by 2005.

Some in the industry are skeptical that all these goals will be met. Still, big changes are evident all over Russia. If even some of the goals are met the industry is situated to capitalize on its abundant natural and human resources to play an even larger role in Pacific Rim fisheries trade. ☒

Quotas—Allocation and Enforcement

NAVIGATING RUSSIA'S CHALLENGING REGULATORY WATERS

Catches in most fisheries of the Russian Far East (RFE) are limited through a complex system of annual quotas that are issued to specific companies prior to the start of fishing.

Like its American counterpart, Russian fisheries management has three components: research and catch projection, administration and allocation, and enforcement and monitoring. The first step is determination of the total allowable catch (TAC).

RESEARCH

Fisheries and oceanographic research is conducted by regional branches of the organization known as TINRO (Pacific Research Institute in Fisheries and Oceanography), which is affiliated with the National Academy of Sciences. Each Far East region has its own unit of the now-decentralized system (for example, SakhNIRO based in Yuzhno-Sakhalinsk and KamchatNIRO in Petropavlovsk-Kamchatsky), the largest of which is TINRO-Centre in Vladivostok. Funding comes in part from the federal budget and in part from local sources, including the proceeds from the sale of fish taken by commercial vessels authorized under “research” quotas. TINRO scientists conduct stock sampling, do population dynamics modeling, and employ other modern fishery assessment techniques to project resource availability. In the RFE they recommend TACs on some 350 stocks of 100 species.

Recommendations are made to the State Committee on Fisheries in Moscow. Foreigners have accused TINRO of recommending TACs that have proven to be unsustainable, a charge that at least some TINRO officials don't deny.

ALLOCATION

The State Committee on Fisheries assigns most fishery quotas for all of Russia to the regions. The committee is

a branch of the Ministry of Agriculture, and committee members are federal employees.

In consultation with the Ministry of Natural Resources, the State Committee on Fisheries determines TACs for each species and fishing district. These totals are then divided into five categories of quota:

- **Research**—About 3 or 4% of the total is allocated as payment to vessels that carry scientists or provide data as part of structured scientific programs.
- **Government-to-government**—About 10% is set aside for allocation to fleets of other nations as part of government-to-government international fishery agreements.
- **Quotas for ethnic minorities.**
- **Inshore fisheries quotas.**
- **Industrial**—Until recently the bulk of the commercial fisheries production was on industrial quota, which was distributed free in accordance with a set of institutional and performance criteria. Now, industrial quota accounts for just over half the TAC.

A decree issued in 2000 created a quota auction system, intended to capture some of the value of the public resource for the state. For two years about 30% of the total quota was sold by auction. The program was extremely unpopular within the industry for a host of reasons. A decree in November 2003 abolished the fishery quota auction and replaced it with five-year set-fee industrial quotas that are issued on the basis of a complex set of criteria.

The set-fee quotas are expected to save the industry tens of millions of dollars per year. Auctions are still planned, however, for quotas providing access to new or underutilized stocks or areas, according to reports on the new allocation program.

When agreement is reached with the Ministry of Natural Resources, the State Committee on Fisheries



The 70 foot small fishing seiner (MRS) was the workhorse of the Soviet inshore fleet and continues to contribute to catches of bot-tomfish and crab (T. Johnson).

sends quota allocations (according to regulation, by late November) to each region for distribution

The small research quota share has been greatly reduced since the days when research institutes sold up to 40% of the TAC as research quota to raise operating funds. Now vessel owners contract to perform specific research tasks and are permitted to retain and sell a limited amount of catch in payment for their services. Some revenue above operating costs is paid to the central government, and a portion of that is returned to the research institute. The official policy is that research quota can be given only to companies that deliver at least half of their catch to domestic shore-based processors.

Recommended industrial quotas are forwarded to the Far East Scientific-Industrial Council, with representatives from industry, science, and the regional governments. The Far East Scientific-Industrial Council's job is to evaluate quota requests submitted by the fishing companies via the regional fishing industry councils. It makes recommendations on allocation of quotas, and monitors use of the quotas once they are issued.

Each region has its own fishing industry council that makes the final allocation of the industrial quotas referred from the Far East Scientific-Industrial Council. In the past the process was highly politicized and subject to financial and personal influence. The system has been reformed and allocation now is based on a calculation of mathematical coefficients. Values are given to three criteria: the number of vessels each company owns, its historical use of the resource, and a "coefficient of efficiency," which is weighted to emphasize the amount of taxes the company has paid. The theory is that the most efficient producers

make the most profits and therefore pay the most taxes. The system creates a disincentive to make unreported landings and commit tax fraud.

Quotas can be purchased with monthly payments following a 10% down payment. In addition, to qualify for industrial quotas, companies must meet conditions that include cooperation with enforcement authorities and no violation of conservation laws.

When the regional fishing industry councils have made their allocation decisions the results are forwarded to Moscow, where the State Committee on Fisheries can make "minor" adjustments before sending the final quota documents to the regional Fishery Inspection (Rybvod) offices for permit issuance.

While quotas are issued to specific companies for their exclusive use, other organizations may have a role. An example is the Kolkhoz Fishery Union, which obtains quota on behalf of its membership and then allocates to member co-ops based on criteria similar to those of the fishing industry council.

Quotas now are issued only to Russian companies for use on Russian vessels. There is substantial foreign ownership of some Russian companies, but the days of selling quota directly to foreign companies and vessels are over. Quota issued but not used can be returned to the State Committee on Fisheries for reallocation. Trade or sale is prohibited.

ENFORCEMENT

Vessels possessing quota come under scrutiny of a variety of agencies. Fishermen complain of overlapping enforcement agency authorities, and of repeated boardings and inspections by multiple agencies. Enforcement reform is in progress, but currently fishermen are subject to enforcement actions by the following:

- Rybvod (Fishery Inspection) issues permits and monitors catches in nearshore waters
- In offshore waters vessels are required to carry GPS-based vessel monitoring devices and are subject to enforcement activities of Special Sea Inspection (Gosmorinspektsya), which checks vessel registration, safety, and legality. Gosmorinspektsya is the biological resources protection branch of the Federal Border Guards, who control activities of vessels entering and inside territorial waters.
- Although most catcher vessels don't carry observers, fleets report daily catches to the Fisheries Department of the regional government.

- Dalryba, formerly the Far Eastern affiliate of the State Committee on Fisheries, now is a coordinating body for Primoria-based vessels that relays fishing effort and catch statistics to Moscow. Dalryba also has a role in Primoria fleet coordination and safety. Similar functions are performed for Kamchatka and Magadan vessels by Kamchatrybradiocentre and for Sakhalin vessels by Sakhrybradiocentre
- The Marine Protection Service of the Ministry of Natural Resources, the equivalent of the department of environment, inspects vessels for oil and fish processing waste pollution. Another branch of the same ministry protects rivers and shorelines from pollution.
- The Federal Agency of Sea and River Transportation supervises operations of all fishing ports.
- The State Committee on Nature also oversees fishing vessel operations.
- Sanitary Inspection has federal officers who ensure that processing operations meet product safety standards.

CUSTOMS AND TAXES

The Customs Service and Tax Inspection monitors vessel activities and attempts to prevent illegal export or trans-

fer of product at sea, and to assure that taxes are paid on all sales. Corporate income taxes have actually been reduced in recent years, with producers paying 24% (down from 35%) and brokers also paying 24%, following a two-stage reduction of 38% and 43% over several years. In previous years fishing companies complained that their total tax liability could have exceeded their net receipts. The chaotic and onerous tax environment was one factor that pushed some companies to make unreported overseas deliveries and to commit other forms of tax evasion.

Russian enforcement of quotas and other operational regulations remain a matter of controversy. Claims are made that the illegal, unreported catch of species like pollock and crab is equal to or greater than the legal, reported landings. TINRO in the past has not factored unreported landings into the TAC recommendations, so illegal catches could be largely responsible for stock depletions apparently caused by overfishing.

A large volume of products, including live crab and other shellfish, is transferred to foreign vessels offshore or landed in Korean and Japanese ports, effectively bypassing quota limitations and avoiding Russian taxes. Officials in Japan in recent years have entered into agreements with their Russian counterparts to track and report all product arriving from Russian waters.☒

The Future of the Fishery

DESPITE SETBACKS, HOPEFUL TRENDS EMERGE

The Russian Far East fishing industry's odyssey from planned to market economy is now more than a dozen years in process, and for many involved it has been a brutal transition.

Overall production has decreased by more than 60%. Once-mighty stocks of pollock are decimated, and valuable king crab stocks depleted. The distant water fishery has all but ceased, and the large trawl fleet has been reduced by more than half. Some state enterprises like Dalmoreprodukt are teetering on the verge of bankruptcy, while others, like Sovrybflot, have downsized and narrowed their scope of operations. Thousands of fishermen and processing workers are idle. Hundreds of vessels are lying rusty and decrepit, at quays and on beaches.

On the other hand, modern new vessels are coming on line, and new processing equipment is in place and is turning out a wide range of value-added products for a world market. Russian seafood products have gained a foothold in Japan, Europe, and the United States. An industry that looked inwardly, satisfying the unsophisticated demands of a hungry populace, is finding that it can now satisfy a discriminating world market, and can make money doing so.

Many of Russia's fishery woes were self-inflicted. Local officials sold quotas they didn't own to foreign companies. Public-owned ships and processing facilities were transferred into private hands with no compensation to the nation. Punitive tax rates and stifling bureaucracy crippled innovation and development. Political manipulation produced unsustainable quotas, and illegal fishing exceeded them.

Foreigners contributed to the problem. For a time Russia was the "Wild East" where a company could buy off an official and plunder the resource until a responsible agency caught on and put a stop to it. Russian businesses, especially small businesses, were naïve and were preyed upon by foreigners looking for the quick buck. Just as some Americans are distrustful of their Russian

counterparts, Russians likewise have reason to be skeptical about foreigners' motivations and ability to deliver on their promises.

Through it all the industry has shown its resilience and the people have displayed their adaptability. The Russian Far East has an abundance of valuable resources and many industrious people who will do whatever they need to do to make a living.

Future trends include the following:

- Continuing improvement in product quality, both for domestic consumption and for export.
- Continuing diversification of seafood finished products, with more emphasis on refinements that will appeal to East Asia and Europe markets.
- Gradual replacement of obsolete vessels with modestly priced but technologically superior Russian and foreign-built ships.
- Reform of quota and tax policies to improve profitability while providing a return to the treasury.
- Improvements in law and insurance that will lower the risks associated with business.
- Improved enforcement of fishery regulations to squeeze out poachers and improve resource accounting.
- Gradual rebuilding of key stocks, as permitted by changing environmental conditions.
- Greater participation in international trade agreements and programs, such as HACCP (hazard analysis critical control point) certification for seafood processing and shipping.
- More development of the region's mariculture potential. Finfish, including salmon, trout, and char, may be added to the growing shellfish and sea vegetable farming industries.

- Some further consolidation of fishing enterprises as financially weaker entities sell out to those with greatest efficiency and access to capital.
- More capital investment in facilities and infrastructure as it becomes available.
- More available capital as the banking system continues to stabilize and interest rates moderate.

A highway linking the Far East with Central Russia will change the economics of product distribution and strengthen the domestic market. Far East ports could become transshipment points for seafood products from other East Asian nations destined for European markets.

A new class of young administrators and managers will replace retiring senior people who achieved professional maturity during Soviet times. The new generation is producing innovative and aggressive managers who will change the dynamic between the Russian industry and those of other countries.

This last cannot be overstated. The new generation of Russians includes businessmen and managers who are highly educated, multilingual, well-traveled, well-

informed, and sophisticated in matters of culture and business. They have tasted the fruits of success but don't take them for granted. They are achieving not through party affiliation but by producing results. They are not hampered by ideologies and are less hampered by bureaucratic constraints than their predecessors.

What does this mean for American fishermen, seafood companies, and support industries? For one thing it means increased competition. While Russian crab, halibut, and salmon roe have made some inroads in Alaska's domestic and overseas markets, most RFE fishery products have gone into basically non-competitive markets inside Russia and in eastern Europe. But as the country becomes less a supplier of cheap raw materials and more of a processor and trader of value-added products, it will increasingly compete with Americans to sell high value products. It has a particular advantage in Korea and China due to geographic proximity, familiar products, and a long history of business relationships.

It also means legitimate business opportunities. Russian fisheries businessmen often remark that when Japanese, Korean, German, Finnish, and Norwegian equipment manufacturers were in the RFE selling their wares,

MARICULTURE IN THE RUSSIAN FAR EAST

The Russian Far East has not yet jumped on the finfish mariculture bandwagon, unlike its close neighbors Japan and China. Companies in Sakhalin have done feasibility studies but the results apparently were not promising, despite low labor costs, lack of prohibitive environmental restrictions, and a large trawl fishery that could supply cheap feed.

There is some confusion regarding the existence of salmon farming because the same Russian language word can translate into English as "fish farm" or "fish hatchery," and fisheries literature sometimes refers to "salmon farms." The RFE has an extensive salmon hatchery system that is responsible for part of the salmon abundance, particularly on Sakhalin Island and the Kamchatka Peninsula. However, the fish are released into the wild and are harvested in the commercial fisheries, rather than being pen-reared to maturity.

A small sturgeon aquaculture project reportedly is being conducted in Primoria which is supplying meat to local restaurants and possibly some caviar.

Non-fish farming is more developed in the RFE. *Laminaria* kelp is farmed in Primoria for a processed food item called sea cabbage (*morskaya kapusta*), and *Fucus* kelp also is farmed. Mussels, scallops, and snails or whelks are raised in lantern nets. Russian biologists have developed a bait which lures deep water sea urchins into traps, from which they are relocated to shallow water bays to be reared for market. The Fisheries Technical University in Vladivostok has a trepang (sea cucumber) breeding program at Slavanka, which raises trepang that reproduce in mariculture facilities much more rapidly than wild sea cukes. The trepang are exported to Korea and China.

More than 100 sea farms are operating in Primoria, and the government is promoting development of more through financing and allocation of coastal sites. According to the chief of Primoria's fisheries committee, the regional government has allocated the equivalent of millions of dollars in recent years for mariculture development. ☒

Americans were nowhere to be seen. This absence was attributed to American conservatism and risk aversion, or to be less kind, insistence on making a quick profit. Some American companies have come and stayed, to be sure, and others came and went due to circumstances beyond their control. But American firms and American people are still conspicuous by their absence in most RFE fisheries venues. Improvements in business and contract law, currency convertibility (the ruble now is fully convert-

ible to what used to be called “hard currencies” at least inside Russia), and simply more experience on all sides will make business opportunities more attractive.

Most of these changes will not come quickly or without new stresses. Many people inside the industry there are pessimistic, at least about the near future, and with good reason. But change is coming steadily and inevitably and American fisheries businesses would do well to stay informed.☒

Tools of the Trade

FROM AGING FLEETS TO NEW TECHNOLOGIES

Far East fishermen use a variety of vessels, from open skiffs to 300 foot factory trawlers, as well as tenders and small bunkering and cargo vessels. An estimated 1,700 vessels are currently in service, including processing and transport ships, but not including skiffs.

There is a fundamental difference between Russian and American fisheries: the Russian fleets have descended directly from the old Soviet production system, which means that virtually all are corporate, or collective, owned. The individual operator, the “mom-and-pop” family fishing business, is virtually unknown.

Furthermore, the Soviet imperative was to secure food for the populace rather than to make a profit, so fleets of large vessels were developed to exploit concentrations of target species across the world’s oceans, even if the cost was greater than market value of the catch. Inshore waters were somewhat ignored, so a big part of the Russian fleet consists of large vessels designed for sustained distant waters operations.

By some estimates, as much as 90% total Russian Far East (RFE) landings volume is delivered by trawlers, only about 200 of which are still in operation.

Virtually all vessels are steel; fiberglass is scarce and aluminum practically unknown, except for a few small seiner/longliners sent over from Seattle in the mid-1990s.

SMALL SEINERS

Workhorse of the inshore fleet remains the 70 foot MRS, or small fishing seiner, a multipurpose vessel that can trawl, purse seine, or fish crab pots. The small seiner is specially adapted to working a gear that is similar to the Danish seine—a small trawl-type net that is lowered to the bottom and then hauled up to the nearly stationary boat with a big set of deck winches. The long warps that are paid out during the setting process herd fish into the



Historic small seiner, now on display in a Vladivostok park (T. Johnson).

path of the net as the winches apply tension. The seine works well for halibut, sole, perch, and a variety of other bottomfish on patchy rock and sand bottoms. It uses no doors, and scoops up modest amounts of fish per set so the product suffers little damage from crushing.

LONGLINERS

In the early 1990s a number of foreign vessels entered RFE waters, the owners intent on “teaching” longlining to the Russians. In addition, some Russian firms purchased or leased longliners from Norway. Longline gear previously had not been a major fishing technology in the RFE due to factors that include species mix, bottom habitat, economics, and political imperative. After a flurry of interest, longline effort diminished, although a few larger vessels remained in operation.

Demand for small longliners has returned and a few local shipyards are producing them. For example, Gaidamasky Ship Repair Facility, which is owned by the fishing company Poseidon, builds steel longliners 45-110 feet long.

CRABBERS

Few if any vessels have been built in Russia exclusively for crabbing. Crabbers are converted from ships built for trawling or other purposes. Some house-aft crabbers known as “schooners” were built in Japan or China and converted after being purchased or seized for fishing violations. Initially many crabbers had dry holds and experienced high levels of dead-loss; now most crabbers process on board.

Some crabbers or crab catcher-processors were brought in from the United States during the 1990s, and some Russian vessels underwent conversion to crab catching in Seattle and in South Korea.

INSHORE SALMON FISHERIES

Salmon fisheries are conducted along shoreline proximal to or inside spawning rivers. Heavy steel cables are bolted to bedrock or concrete on shore and stretched hundreds of yards out into the sea, where they connect to floating pens anchored to the seafloor. The cables support dense mesh fences that serve as leads which intercept the migrating salmon and direct them out to the pens, where they become entrapped. Fishermen work the traps from oar- or outboard-powered skiffs. These salmon traps sometimes are called “setnets.”

Some salmon operations use tenders that consist of semi-submersible steel barges that are maneuvered into place by small tugs. The barges are settled down in the water, a gate is opened, and the salmon swim from the pen into the flooded hold of the barge. The tug then pushes the barge into the river and up to the processing plant, where a wet pump shoots the catch, still flopping, to the processing line.

Salmon fishing is also done in the rivers with beach seines deployed from outboard skiffs, and in a few locations with gillnets.

TRAWLERS

On the other end of the scale is the BMRT (large freezing fishing trawler), the workhorse of the offshore and distant water fleet. At 308 feet and 2,000 hp, with a hold capacity of up to 900 tons, the BMRT is technologically unsophisticated by today’s standards but still produces the bulk of the fish consumed in Russia. The venerable BMRTs are a major source of the headed and gutted pollock, sole, mackerel, cod, smelt, and herring, all block-

frozen on board, which compose a large part of working-class Russians’ seafood diet.

About two-thirds of the BMRT fleet has been scrapped since 1990, and many of the remaining ships are either converted to other uses or rusting away at the docks. Private fishing companies and kolkhozi are operating some BMRTs and plans are on the drawing board to produce new versions of the vessel.

Meanwhile, RFE companies have purchased large trawlers designed and/or built in Spain, Norway, and Germany. A major scandal had erupted in the Far East over the fate of 14 Spanish-built Sterkoder-type trawlers that allegedly were transferred to different owners illegally. RFE companies also have purchased large trawlers from other parts of Russia, and leased vessels from Germany and Norway.

Not all new trawlers are super-size factory ships. For example, a shipyard near Vladivostok builds small trawlers, some as small as 52 feet length overall and 250 hp for inshore fisheries.

EXPANSION, REPLACEMENT, AND MODERNIZATION

While the central government states that the fisheries are overcapitalized, it has a 15-year plan to increase the number of vessels by 50%. Most existing vessels are more than 20 years old, which is considered the normal working life of a Russian fishing vessel. The government of Primoria has established a ship building and leasing company with the intent of producing eight new small



New 52 foot trawler ready for delivery at the Gaidamasky Ship Repair Facility (T. Johnson).

combination vessels. While many in the industry support fleet replacement, there is much doubt about the availability of financing.

Meanwhile, companies are doing what they can to modernize their existing vessels. A big emphasis is on value-added processing equipment, or what the Russians call “deep processing.”

For example, during an eight-year period in the 1990s Baader Vladivostok installed 150 processing lines on ships to allow them to produce skinless pollock fillets. It has installed 20 machines on longliners to make

round-cut headed and gutted cod. It has also sold herring and salmon fillet machines and is working on a pinbone-removal machine for use on pink salmon.

In addition to adding processing lines, vessel owners are using local shipyards or taking their boats to Victoria (British Columbia), Seattle, Korea, or China for repair and upgrading. One Primoria shipyard manager states that his prices are 20-30% lower than Chinese or Korean yards. What’s more, the yard makes most of the machinery it installs, saving vessel owners substantially from the cost of imported machinery.☒

Seafood Products— A New Sophistication

MODERNIZATION AND COMPETITION LEAD TO GREATER QUALITY AND CHOICE

On my first trip to Vladivostok in 1991 I visited a fish store. I wanted to compare the handling of seafood products in the Soviet Far East with that in Japan, only a few hundred miles to the east, where I had also observed the industry. In Japan seafood merchandizing is practically an art form.

The stark, half empty Soviet shop was laid out so that the long queue of customers was separated from the goods by glass cases. Some of the offerings were salted or dried; most were pan frozen and were lying, frosty and contorted, on their shelves, so no one really wanted to examine them very closely anyway.

I watched as a woman made a request, and a white smocked employee went back to a frozen storage room. He returned with a 20 kg block of frozen atka mackerel and unceremoniously dropped it on the concrete floor to break the block into smaller chunks. He weighed a piece of about a kilo, wrapped it in paper, and handed it to the customer.

Everything has changed since then in Russia. I returned to Vladivostok, and also visited Moscow, in 2002 and I observed that the cataclysmic shift from a planned to a market economy has touched virtually every aspect of Russian culture.

Fish stores haven't disappeared entirely but there are fewer now than during Soviet times. The one I visited in 1991 is now a gun shop called "Sniper." In the remaining fish stores the range of products has increased dramatically. Frozen atka mackerel, pollock, and wachna cod compete for shelf space with king crab sections, fresh halibut filets, individually quick frozen (IQF) scallops, IQF shrimp, fresh crawfish tails, sturgeon steaks, and imported Atlantic salmon and rainbow trout.

Urban Russians have largely adopted the supermarket and the convenience store. Gone are long rows of



Value-added "delicatessen" products from kolkhoz Tikhi Okean (T. Johnson).

shelving in the gastronom (food store), half empty or filled with repetitive stacks of just a few different items. Now shops are packed with every imaginable product, and refrigerated fresh food cases hold attractive meats, chicken, and seafoods. Deli sections have eye-appealing packages of smoked salmon, eel, sturgeon, halibut, and cod, as well as real and artificial crab, mussels, octopus, squid, whelks, and sea cucumbers, mainly from the region's waters but also from abroad.

Between 60 and 80% of Russian Far East (RFE) fishery production is exported. Most of the product destined for the domestic market even now is frozen pollock. But a wide range of products is available to the urban consumer, and this diversity is mirrored in the region's processing industry. Through the financial chaos of the last decade the surviving fishing companies have learned a crucial lesson: in the face of diminishing resources and rising costs the keys to success are product diversification, value added processing, and improved quality.

Take for example the kolkhoz Tikhi Okean (fishing collective farm Pacific Ocean), located at Livodiya, about 30 kilometers west of Nakhodka. In the early 1990s the kolkhoz produced five products, mostly block frozen pollock and bottomfish. A decade later their product line includes 107 different packaged offerings made from 48 separate products. The list features smoked salmon and cod; herring in cans and in deli sauces; various packs of salmon and pollock roe; filets of salmon, pollock, cod, squid, and rasp; canned salads made of *Laminaria* kelp; pâtés of pollock, salmon, rasp, cod, herring, and flounder; sea urchin uni (internal “roe”); and canned crab meat.

The collective has a large freezer and cold storage facility, a modern automated smoking facility, all the normal processing equipment, and two biological laboratories for product development and sanitation testing. Most of the machinery comes from Germany, Japan, and Korea.

Innovative producers like Tikhi Okean team with aggressive exporters and distributors, like Soniko International, to make the products pay. Soniko started out in the 1980s importing electronics into Russia, and soon diversified into the seafood business. In the early 1990s, when it still had a virtual monopoly on some lines of electronics and also held one of the few seafood exporting licenses, Soniko had 26 branch offices in the RFE and hundreds of employees. Liberalization of import and export rules decimated the company’s sales as dozens of competitors entered the market, but Soniko remains an important player in seafood distribution. Its label is on scores of high-value products like deli-sliced smoked salmon and cod, squid slices, scallops, shrimp, salmon roe, and specialty items made of sea vegetables. Markets for these products are moving targets, with new opportunities opening at the same time that obstacles like increased transportation costs or national trade

protectionism are closing others. For example, Soniko’s once-lucrative market for salmon caviar in Japan abruptly ceased to exist when the Japanese government banned finished roe products from Russia to protect domestic roe processors.

Big, formerly state-owned seafood enterprises like Sovrybflot are reorganized as joint stock companies and serve as brokers or agents for many smaller Russian firms for selling marine products. They have sophisticated, multilingual sales staffs who use the Internet and all available technology to remain current in seafood markets worldwide on a daily basis, and to reach their potential customers around the globe.

During the 1990s I made several trips to the RFE, where I toured antique Soviet canning lines, and watched

salmon being salted down in concrete bunkers and roe processed on wooden tables. The perception of the Russian seafood industry was cheap, primitive, high volume, and low quality. Some of those plants may still be operating but I didn’t see any on my most recent trip.

Whenever cash is available companies are investing in the latest and best technology. German-made Baader processing lines have been installed on more than 150 large trawlers to fillet pollock, extract roe, and skin fillets under computer control. About

80% of RFE-produced pollock fillets are shipped to Germany where they are made into some 300 different products. Dozens of Baader units aboard longliners are doing round-cut heading, and others are filleting salmon and herring. Modern smoking, packaging, and freezing units are in use in processing plants up and down the coast.

While most of the vessels are old, a big part of their production is going into modern processing facilities with high quality standards, and is coming out in attractive packages and in forms designed to suit the tastes of increasingly demanding consumers. ❁



Seafood engineers at Tikhi Okean displaying some of their value-added products (T. Johnson).

Kolkhozi—Russia’s Fishing Collectives

OLD INSTITUTIONS FACE NEW OBSTACLES

The Russian fishing industry’s venerable kolkhoz system is facing the most severe challenges of its 80-year history.

The kolkhoz (kollektivnoye rybolovetskoye khozyaistvo) or “fishing collective farm,” is the basic organizational unit for most of the fisheries in Russia’s internal and nearshore waters. Kolkhozi were first established in the 1920s and 1930s in remote coastal villages to implement the government’s collectivist policies, while providing residents of isolated communities the means of providing for themselves. Like collective farmers, the fishing kolkhoz members work cooperatively, rather than competitively, to operate, maintain, and even build their boats and equipment.

The fishing collective is a common feature in countries around the world. In Japan, pillar of fisheries capitalism, community cooperatives with features of the kolkhoz still conduct many inshore fisheries.

At first the Soviet collectives primarily fished internal and coastal waters. In the Far East they operated the “setnets” or traps for salmon and herring, and trawled, seined, and potted nearshore waters for flatfish and crab. After 1945 they began building larger vessels and ranging farther from home, and participated on even terms with the large Soviet industrial fleets that roamed the world’s oceans.

The greatest number of kolkhozi sprang up in the more populous Baltic states, and at one time there were more than 500 in all of the Soviet Union. After dissolution of the USSR, only 160 kolkhozi remained in the country, of which 92 are in the Russian Far East (RFE). Today they continue to produce about 25% of Russia’s fisheries landings, even though the private sector has the largest and most modern vessels.

In the Far East kolkhoz fishermen operate everything from skiffs to factory trawlers. They supply, maintain, and repair their own vessels, and make their own gear

and in some cases even their own machinery. Some conduct mariculture operations for shellfish and kelp.

They process at sea and operate onshore processing plants that do freezing, salting, vacuum packing, smoking, and crab processing.

Some do small-scale harvesting and packing of wild berries and mushrooms. They may operate sport hunting guide operations, and do some trapping. In the early days of restructuring, Far Eastern kolkhoz members hunted bears and sold hides and gallbladders, although the growing environmental consciousness in the country probably has put an end to that.

Collectives also supply housing and medical care for their members, run grocery and general stores and kindergartens, supply electricity and fuel, and may even raise vegetables and livestock to feed their people.

Despite the diversified nature of the kolkhoz system, the immediate future does not look bright, says Boris Lavrentevich Blazhko, chairman of the board of the National Association of Fishing Collective Farms (Rosrybkolkhozsoyuz). He says that reductions in total allowable catch, and catch quotas, combined with increased operating costs, are hurting the collectives.

A few years ago kolkhoz fishermen alone were landing 700,000 to 800,000 metric tons of pollock a year, but now the total allowable catch for the entire RFE waters is only slightly more than that. Crab quotas are but a fraction of what they were. Collective fishermen’s opportunities to fish are drastically reduced.

At the same time, their operating costs, like everyone else’s, are going up. The government no longer provides cheap fuel, equipment, parts, and transportation as it did during Soviet times. Still, kolkhozi have hung on because of abundant resources and good prices. But that’s changing as costs surge ahead of product value.

These changes have put the pinch on most of the Far East’s fishing collectives, and have killed off a few, or

caused them to reorganize as joint stock corporations to survive.

According to Gennady Ivanovich Yakovenko, vice president of the Kolkhoz Fishery Union of the Primorskye Region, the number of kolkhoz members of that union remains at eight, the same as there were at the beginning of the economic restructuring 12 years ago, although three of them have become joint stock companies. In addition, two kolkhozi have left the union, while remaining operational. One of them almost went under, but was rescued by a receiver. An additional nine private or joint stock companies have joined the union.

“Now is a difficult time, due to the changes in the economy,” says Mr. Yakovenko. “All the old relationships were destroyed by those changes. And this coincides with the volume of fish resources being reduced.”

Despite all the gloom and doom, the fishing collective farms see some reason for optimism. Demand for their modestly priced products remains strong, and the national government has announced it is developing a fleet modernization program. If it should materialize, kolkhozi and private firms will get credits for purchase

of new vessels, to be built in shipyards at several locations around Russia. New vessels would combine some tried-and-true concepts with new technology to take the fishing collective farms into the new century.

In addition, kolkhoz fishermen are diversifying, and are vertically integrating.

“Previously they delivered to other processing vessels, but now they process themselves,” says Mr. Yakovenko. “Previously they delivered 80% of their catch to other processors, and now they process 80% and deliver 20%.”

Wherever possible they are developing previously overlooked resources, he says. For example, his member collectives increased their saury landings by a factor of nearly ten during the 1990s.

It might seem ironic to Alaska fishermen, but salmon remains a bright spot in the RFE. Because most of the inshore harvest is pinks and chums for domestic markets, salmon prices have remained relatively stable. Individual stocks go up and down, but overall RFE salmon runs are also pretty consistent and kolkhoz catches have remained in the range of 200,000 to 220,000 metric tons. ☒

Fisheries Technical University

EXPERTISE AND INNOVATION FOR A CHANGING INDUSTRY

The technicians, engineers, and managers who will steer the Russian Far East's fishing and seafood industries through the early decades of the new century are currently getting their education at the Far Eastern State Fisheries Technical University, or Dalrybvtuz.

Statistics on this 50-year-old institution are impressive: nine faculties, 26 specialties, 17 master's degree level programs, three Ph.D. level programs, and 12,000 students.

Equally impressive is the way the institute works with industry to supply skilled professionals to meet the needs of the hundreds of companies engaged in fisheries and related businesses, rather than just serve as a diploma mill.

Each autumn companies place requests, for skilled workers and managers, they project that they will need three, four, and even six years in the future. The regional administration and the institute's admissions department use these projections to determine the number of applicants to be admitted, and the companies set up internships with students while they are completing their studies. The projections have turned out to be about 70% accurate, and a continuing survey of graduates shows that 80-85% who took their degrees there in the preceding three years were working in fishing or related industries.

Programs include navigation, ship power plant, ship electrical systems, food engineering, accounting, financing, marketing, transportation management, environmental biological engineering, meat products technology, dairy products technology, bread and pasta food technology, sociology, enterprise economics and management, and others. Dalrybvtuz also runs a lyceum

for high school age kids who want to prepare for fisheries technical training.

Some 15-20% of graduates work for foreign companies, mostly on ships. Women constitute half of the technical students, 20% in mariculture, 15% in mechanical courses, and 80% in the engineering and economics departments. Students come from around the Russian Far East, and a few come from Korea and China, part of an exchange program that sends some Russian students abroad. Dalrybvtuz is partner in a joint Russia-Japan training center, and is developing exchange programs with Vietnam and China.

The institute has full-time day classes, evening classes, distance delivery by Internet, a satellite campus in the port city of Nakhodka, and a mariculture center at Slavanka. It has more than 500 computers online and its own Internet server. It owns and operates two catcher-processors and a 390 foot sail training vessel. It is scheduled to install a \$450,000 bridge simulator for navigation training.

The institute has extensive seafood processing facilities and research labs and has developed 55 types of local food products. It produces for sale various frozen, canned, smoked, and dried foods, and Japanese-style kamaboko foods. Its engineers are developing food processing machinery that can be used in place of more expensive Japanese equipment.

Many of the students come from fishing industry families, says vice rector Dr. Vitaly V. Oleynik. His own grandfather and father were fishermen (and in fact his father was president of Dalrybvtuz), and his two daughters and two sons work as technologists and engineers in the industry. ☒

Changing Rules, Changing Relationships

TWO TRADING COMPANIES STRUGGLE TO SURVIVE IN THE NEW ECONOMY

When the Soviet Union ceased to exist at the end of 1991, the nation's entire economy had to reinvent itself. Some private firms already existed, and some state enterprises had formed joint ventures with foreign firms. But since most executives and managers came from the Soviet administrative bureaucracy, many newly created private corporations evolved from their state enterprise predecessors.

This report compares two seafood trading companies and their responses to the challenging economic conditions that gripped the country starting in 1992.

One of Russia's biggest seafood traders and distributors, RybMarket, is 51% owned by the State Committee on Fisheries, the federal agency responsible for setting quotas and establishing fishery policy. The other, Korsov, is a Korean-Russian joint venture that has diversified holdings in seafood products, materials supply, and ship repair.

It might seem that as a company that is mainly owned by the regulators, RybMarket would have an easy go in the business world, but that's not the case, according to general director Nicolai Vacilevich Glushuk. He says that the various branches of government sometimes work against the interests of one another, and the seafood business can be the victim. This is a viewpoint with which officials of Korsov and other firms likely would agree.

RybMarket specializes in low price products for the Russian domestic market. Wealth is unevenly distributed in Russia and most people still live in what Americans would call poverty. Seafood consumption has decreased in recent years, and cost is believed to be the main factor.

RybMarket deals in block-frozen headed and gutted pollock, sole, pink salmon, herring, mackerel, Pacific cod, wachna cod, Atka mackerel, halibut, and smelt, nearly all produced by Russian Far East (RFE) fishing companies. It markets fillets of pollock and cod, though Mr. Glushuk says they are hard to sell due to their relatively high price.

It deals in some canned salmon and saury. It doesn't sell crab or roe products like salmon caviar.

In RybMarket's case, a big part of the problem is the national railway ministry. Rail transport charges now make up 40% of the value of seafood products delivered in Central Russia. (Russians use the expression "Central Russia" to mean the populous heartland of ethnic Russia west of the Urals, especially around the great cities of Moscow and St. Petersburg.)

The cheapest refrigerated whole freight car rail rate from Vladivostok to Moscow, according to another seafood shipper, is about ten cents a pound, too much for low-value products. Air freight is about 33 cents per pound, which is prohibitive for even many "delicatesen" seafood products.

RybMarket's main business is buying fish products in the RFE and selling them in Central Russia. That means a nearly 5,000 mile trip, and rail currently is the only viable means of transport. The Soviet cargo fleet, once the biggest in the world, has been sold off for scrap or to companies of other nations. (This massive transfer of state assets, largely by individuals who had no legal ownership of them but who received immense sums of money or equity in the transactions, is called "wild privatization" and has deprived the nation of much of its capital assets.)

The highway system is not developed east of the Urals; interconnecting roads are not well maintained and lack basic infrastructure such as fuel stations and repair facilities, so transcontinental truck transport is not currently an option. If a planned expressway from Vladivostok to Moscow is completed, trucking could become viable for some products. Competition could drive down rail tariffs, but it remains to be seen whether the road will be completed in the near future. Work is under way to close a gap of 400 km in the highway system between the Siberian city Chita and Khabarovsk in the Far East.

Cost isn't the only problem with the famous Trans-Siberian rail route. Cars and whole strings of cars occasionally disappear, never to be seen again, to be found minus their contents, or to reappear after months along with charges to the shipper for "storage" of the missing contents.

Despite these problems, Mr. Glushuk says, "We have to believe in the railway."

Korsov (from "Korean-Soviet") is a joint venture incorporated in Pusan, whose principal owners are Daerim Corporation in Korea, and Sovrybflot and Soniko International in Russia. Sovrybflot formerly was one of the major Soviet fishing companies but hard financial times have caused the company to divest itself of most of its vessels, and its activities currently center on seafood marketing. Soniko started out in the 1980s as an importer of electronics from Japan and has diversified into seafood marketing and other kinds of trading.

Korsov manages large fishing vessels; has ship repair facilities in Korea; and sells marine and fisheries related supplies like packaging materials, processing equipment, fuel, and engine parts. It sells pollock, ocean perch, turbot, pollock roe, salmon roe, crab, shrimp, salmon, and various processed fish and meat products. Markets

are mainly in Japan and Europe via Korea and China. It also sells cod, sole, and halibut to the United States.

So far RybMarket has confined its purchases to Russian suppliers and its sales to the Russian domestic market. That may have to change, however.

Norway is trying to take advantage of the situation brought about by increasing domestic fish prices to control the Central Russia seafood market, says Mr. Glushuk. Companies from Iceland, Denmark, Spain, Morocco, Mauritania, and the U.K. also are competing for customers in Middle Russia. Atlantic salmon, herring, and mackerel trucked from Scandinavia are competitive with Russian-caught products shipped from the Far East.

International competition for supply also squeezes the company. Korea and China need cheap fish, and 60-80% of RFE production is exported, so RybMarket has to offer prices high enough to compete successfully for the fish.

Part of the company's strategy for future survival, says Mr. Glushuk, may include diversifying those sources of supply. RybMarket may have to stop rejecting offers of product from foreign fishing companies.

A possible starting point for imports is Alaska pink salmon. There are plenty of Russian pinks available, he says, but the quality doesn't compare with the Alaska fish. ☒

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Photo by Kurt Bjers

RUSSIAN FAR EAST



FISHERIES

The Russian Far East is home to the largest component of Russia's fishing industry, and an heir to the legacy of the great Soviet fleets of the past. This set of articles on the Russian Far East fisheries, based on twelve visits to the region by author Terry Johnson, and other resources, tells the story of fisheries management, allocation, fishing boats and gear, seafood products, and marketing and trading. Johnson also reveals insights into Russian Far East mariculture, fishing collectives, Fisheries Technical University, the future of the fishery, and the challenges the industry faces under major economic and bureaucratic changes.



University of Alaska Fairbanks
School of Fisheries and Ocean Sciences

A.D. = Autonomous District
A.P. = Autonomous Province