# 4

# Koryak Salmon Fishery

## *Remembrances of the Past, Perspectives for the Future*

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### INTRODUCTION

In this chapter I will reflect on and analyze views of Koryak elders, how they remembered changes in their salmon fishery over the past decades, and how these affected attitudes toward salmon and its role as the most prominent economic resource and as an important element of the sociocultural fabric of these peoples. Besides the political dimension of securing environmental protection and a sufficient quota for local consumption, my particular focus will be on the behavioral dimension, on shifting ethics toward sustainable use, and how corresponding traditional values may be preserved or revitalized. The regional focus will be on coastal Koryaks (Nymylans) living in or near the village of Lesnaya on the west coast of northern Kamchatka, and I will also draw upon supplemental data from coastal Koryaks living in or near Ossora and Tymlat in the Karaginski District on the opposite side of the peninsula on the Pacific coast.

### THE ROLE OF SALMON IN THE NATURAL SYSTEM OF NORTHERN KAMCHATKA

First, I will give some general characteristics of salmon and other fish species that are encountered in the rivers of western Kamchatka (Bazarkin 1996:71ff., 140ff.) and to which local informants will refer later. *Chinook salmon* (*Oncorhynchus tshawytscha*, Russian: *чавыча*) is the biggest of the various

salmon species of Kamchatka, and its weight can reach 50 kg or more. It begins to enter the rivers in mid-May, but its main run is in June and the first half of July. *Pink salmon* (*Oncorhynchus gorbuscha*, Russian: *горбуша*) is the most numerous salmon species on the west coast of Kamchatka where this salmon species is of greatest importance for the human diet. It begins to enter the rivers in August, and its main run is in mid-August. *Chum salmon* (*Oncorhynchus keta*, Russian: *кета*) is almost as numerous as pink salmon and can in some years even exceed its numbers. It begins to enter the rivers at the end of June; the main run is in the second half of July and in the beginning of August. The migration of *sockeye* (*Oncorhynchus nerka*, Russian: *нерка/красная*) begins as soon the water is warmer than 4 degrees and continues over a longer period of time, from May to August. It spawns in rivers or lakes where juveniles spend one or two years in freshwater conditions. After migration to the sea, most sockeye live two to three years in the ocean. The first *coho salmon* (*Oncorhynchus kisutch*, Russian: *кижуч*) enter the rivers at the end of June. Their time of spawning might continue until November. *Cherry salmon* (*Oncorhynchus masou*, Russian: *сима*) are a species that prefers warm waters. It is not encountered in large quantities on the west coast of Kamchatka.

The spawning places of the *redspotted trout* (*Salvelinus malma*, Russian: *голец*) are located at the upper reaches of the rivers. After living two to three months in the sea, it comes back to the rivers to stay there over the winter. Similar to the redspotted trout, in its life cycle and form, is the *whitespotted char* (*Salvelinus leucomaenis*, Russian: *кунджа*). *Rainbow trout* (*Parasalmo mykiss*, Russian: *микижа*) is like the *Kamchatka steelhead* (*Parasalmo penshinensis*, Russian: *камчатская семга*). The latter lives in the Tigil' River and farther south and is on the Russian List of Endangered Species, whereas rainbow trout is allowed to be fished all year. *Pacific capelin* (*Mallotus villosus catervarious*, Russian: *уёк*, *мойва*) is a small fish with a length of about 12–15 cm, sometimes up to 19 cm. It is sporadically plentiful close to the coast in June, where it is fished with special nets from the shore. In most places it is seldom or no longer fished that way. This tradition has been preserved, however, among the Nymylans of Lesnaya. For them this fishing time is still important in their annual life cycle, apparently not only for economic but also for social and emotional reasons, as was often expressed by them in personal communications.

The aforementioned salmon and other fish species hold a central position in the ecosystem in Kamchatka. They are of great importance not only for human subsistence, but are also a most significant element of the food chain for other animal species, especially in coastal regions where they

provide large amounts of food for seals, bears, birds, and other animals. Furthermore, changes in the salmon population or its quality related to human consumption would have tremendous effects on local, and particularly Indigenous, people, as for many of them salmon is still their traditional food.

Monitoring the quality of the water of the spawning rivers is therefore very important, especially as relates to possible pollution from nearby mining industries. In the Khailino area, in northern Kamchatka, Indigenous fishermen—who usually watch the outer appearance of fish very closely (see what follows)—have noticed some new strange features and expressed their concern that some fish look very different from how they did before (anonymous, personal communication 2002). More in-depth geochemical research on this issue has been conducted by Elena Dul'chenko (2007) in the Bystrinski area in central Kamchatka where mining also takes place and where she could trace unusually high amounts of various hazardous microelements in dried fish. I should add that according to Indigenous food traditions, fish is often consumed raw. Thus the quality of the water and the natural environment from which fish feed themselves can have even more immediate effects on the health of local people who prefer to consume these fish in their raw, dried, or salted—in contrast to fried or cooked—state. However, the substantial distance from population centers and the absence of industrial activities in most other salmon-spawning basins in Kamchatka minimize, at least for the time being, anthropogenic impacts (Bugaev and Kirichenko 2008:266).

Harvest statistics beginning in 1992 and continuing to the present day indicate that localized pressure on almost all commercial species in the Kamchatka River (the main river in Kamchatka) has increased significantly and, in certain instances, exceeds allowable limits. The exploitation of the more valuable fish species, the Pacific salmon, now comes in three forms: at-sea drift-net fisheries, coastal and in-river fisheries, and unsanctioned poaching within the watershed itself (Bugaev 2007:180).

However, the year 2009 brought such an abundance of fish, especially on the east coast of Kamchatka, as had not been witnessed for many years. Thus we are facing the paradoxical situation that even in times of abundance, fish becomes less available to local—and especially Indigenous—people as the fishing quotas imposed on them are probably too small. Consequently, the information that we receive from Indigenous people, though relevant, can sometimes be misleading when they complain about having less access to fish than before. Most likely we are dealing not with the problem of decreasing salmon resources alone, but of how their

distribution is managed by state authorities. That issue is discussed more thoroughly in its proper political context by Victoria Sharakhmatova (chapter 5, this volume), whereas this chapter will concentrate on other themes.

## THE PARTICULAR ROLE OF SALMON AS THE MOST PROMINENT ECONOMIC RESOURCE BASE FOR LOCAL COMMUNITIES AND FOR THE CULTURES AND IDENTITIES OF INDIGENOUS KORYAK PEOPLE

From early accounts of scientists who traveled to Kamchatka starting in the eighteenth century (Steller 2012[1774] and others)[1] and from later comprehensive ethnographies from the beginning of the twentieth century (Jochelson 1908), we know about the importance of salmon for coastal dwellers not only as the main staple for their own subsistence, but even as a significant trade good for obtaining materials and goods from others. Thus salmon became for them the central element in creating and maintaining necessary trade networks and cultural exchanges with reindeer-herding Koryaks and for weaving a corresponding sociocultural fabric between coastal and inland groups. Indigenous peoples at different places all over the northern Arctic had developed a model of "dual or paired economies" over the last several centuries, which turned out to be a most appropriate means for successful human adaptation to the particular natural environments of these regions (Krupnik 1993:213). As Vladimir Jochelson described:

> The food of Reindeer Koryak does not exist of reindeer-meat alone. To a considerable degree they resort to the fish and sea-food of the Maritime Koryak.… As soon the snow is in good condition for driving, the Reindeer Koryak begin to appear on sledges in the villages of the Maritime Koryaks to obtain "sea-food," and barter entire carcasses of frozen seal, oil, dog-salmon, and skin of the white wale. Each Reindeer Koryak has among the Maritime people a friend who supplies him with sea-food, and who, in his turn, later on visits the nomad camp of the Reindeer Koryak to get reindeer-meat. [Jochelson 1908:575–576]

Those trade networks were based either on intermarriages, as will be illustrated in the example of the Urkachan family from Lesnaya, or on the (aforementioned) *priyateli* institution of long-lasting transgenerational partnerships that continued even through Soviet times and sometimes up to the present. They are still well remembered by elder people today, as by

reindeer herder Ivan Kavavovich Leginov: "In summer, my father went to the coast where the Kakhtanincy [Koryaks] lived. There he received his fish supply for the winter and other sea mammal products. When winter set in, his *priyatel* Poman came to us, and immediately a reindeer was slaughtered and everybody was in a good mood."[2] For the Itelmens, living farther south, Georgi Zaporotski remembers a similar encounter with reindeer herders from his childhood (Dürr, Kasten, and Khaloimova 2001).

The frequent mention in later interviews (see following) of previously existing and obviously well-functioning local exchange systems might make us rethink if or how these could be taken up again in resource management plans that have to take into account the viability and future persistence of Indigenous communities (see Sharakhmatova, chapter 5, this volume). To this end, information on how Indigenous people experienced their past should not be ignored, including information on periods when traditional exchange systems had become apparently well integrated with newly introduced farming and livestock breeding techniques (Kasten 2011:315). However, the memories of "golden" *kolkhoz* times described in recorded life histories can be somewhat biased as speakers contrast these times with the presently felt shortcomings of supplying more distant communities with necessary products and services.

Besides its significance within the translocal socioeconomic system, salmon played a prominent role in maintaining the Koryaks' local subsistence system that also relied strongly on sea mammal resources such as seals. Seal populations in turn depended on sufficient salmon stocks. As was reported to Jochelson (1908:586), a great famine occurred in the late 1870s along the coasts of Penzhina Bay, when both main food resources failed at the same time because they were closely related to each other. Unfortunately, almost no salmon entered the rivers in that particular region at that time, though the reasons why remain unclear. However this example shows the fragility of the entire ecosystem and of the human food chain that relied strongly on salmon.

For coastal Koryaks, sufficient stocks of salmon and Pacific capelin have been indispensable to feeding the dog teams that almost every family needed for winter transport between hunting sites and to trading or bartering for provisions from other settlements. In some villages, especially those with few opportunities for wage labor and where people cannot afford snowmobiles, such as in Lesnaya, dog teams are still the major means of winter transport between nearby hunting sites and the village, although they are now seldom used for long distance travel, as still recalled by elder people today.

## INDIGENOUS SALMON HARVESTING AND PROCUREMENT STRATEGIES WITH REGARD TO SUSTAINABLE RESOURCE USE

To answer the main question of this chapter, we shall first look into relevant earlier accounts on western Kamchatka by scientists and travelers from the past three centuries and then listen to what elder people today remember about salmon harvesting and procurement strategies with regard to sustainable resource use.[3]

During his travels and observations among Itelmen people who live farther south from the coastal Koryaks on the western coast of Kamchatka, Georg Wilhelm Steller (2012[1774]:141–176) noted in the mid-eighteenth century their particular salmon-harvesting and procurement strategies and gave detailed descriptions of the various salmon and other fish species and their behaviors.

Although Itelmen fishermen would have been in a position to close a river entirely with their fish weirs (plate 1), they did not do so, as they were obviously concerned about letting a considerable number of fish pass upstream to where relatives and others had set up their settlements over time. From Steller's observations we can conclude that various families who lived in small settlements along a particular river system formed a local group that expressed its close ties during the feasting cycle in fall and early winter when members visited each other to conduct the reconciliation ceremonies toward nature, which are still held in Lesnaya today (see following). Presumably, the families were concerned about leaving sufficient fish resources for upstream settlements in order to keep them prosperous both because these settlements could provide additional resources from their territories and so that those families would not have to turn to downstream relatives in case of need. Such systemic—in contrast to now more prevalent individualistic—views are still reflected in accounts of elder people today. These views also correspond to a more "symbiotic" relationship with regard to ecological reciprocity (see Smith, chapter 1, this volume).

According to Semion Trifonov Urkachan, a Nymylan-Even hunter and fisherman from Lesnaya (now living in Palana), Indigenous people have well aligned their activities with the seasonal cycle of nature, which they monitored very closely. They followed its specific rhythm in their daily and seasonal tasks—which meant that they might have worked at times day and night, "as fish do not wait, but then relax for longer periods of time" (figure 4.1). Everybody knew what he or she had to do, so that they did not need orders from others; consequently, they were annoyed and frustrated by the strict time rules set up by newcomers in Soviet times.

**Figure 4.1**

*Fishing during the peak season at the upper Lesnaya River, 2002. Source: Erich Kasten.*

Indigenous people have learned from experience how to understand and to follow the signs of nature that provide them the most reliable schedule for planning their activities. Semion T. Urkachan remembers: "As soon the trees dropped their leaves in autumn which then began to float on the surface of the river, people knew that they had to get ready for setting up their particular devices, because soon rainbow trout would show up" to start its migration down to the mouth of the river. In a similar way Vladimir Sergeevich Yaganov from Lesnaya reports: "When we move to the coast in June to fish the Pacific capelin, we initially rest at the shore and set up nets. From the whitespotted char, that we usually get first, we open the stomach and look if we can find some capelins in there. If this is the case, we know that the capelin stocks are not far anymore, and everybody gets up and begins to prepare his fishing gear."

Aleksandra Trifonovna Urkachan, the sister of Semion Urkachan and the daughter of a Nymylan mother and a Even reindeer herder, told us: "When we hear the cuckoo singing in a particular way (tut-tut-tut) around mid-June, we know that soon the first fish will come to us." Sergei Antonovich Popov from Lesnaya agreed: "We will have many fish and capelins, when the cuckoo sings that way [*мунулг'атыӈ*], which sounds like beating a drum." And he continued: "When we earlier cut the fish, we watched very carefully

the condition of the scales and the entrails. For example, if the inner hide formed a kind of a pocket, we knew that there would many fish that year." Daria Upit and Khristofor Tanvilin from Tymlat on the northern east coast of Kamchatka remembered similar predictions, such as one could expect many fish when there was some reddish shine on the snow in spring.

S. T. Urkachan informs us about the seasonal fishing cycle of the people of Lesnaya: "After winter, in May, the first fish we take are redspotted trout that are on their way down to the coast. Those fishes are immediately consumed and not stored, and from some we make fermented fish to be used as bait in the specific weirs that we set up." In June, families are moving to the coast to fish the Pacific capelin there. After that, as soon the various salmon runs set in and bring waves of fish upstream (chinook, chum, and pink—see "The Role of Salmon in the Natural System of Northern Kamchatka"), they move up the river to their particular family fishing sites that their ancestors have used from time immemorial. During the following two months, in July and August, they prepare—especially by means of drying—the main fish supply for themselves and for the dogs for the rest of the year and until the next spring. Fishing slows down in September and October and ends with the run of rainbow trout, whereupon the main hunting season on sea mammals, snow sheep (until October), and fur-bearing animals (from November until February) begins. From June until September, women and children collect sprouts, wild onions, berries, and roots that are used as important ingredients for particular traditional dishes, often in combination with fish. S. A. Popov informs us about the important role that capelins once played (and still play), especially as dog food. He was told by elders "that in earlier times reindeer herders procured their fish supply around Тайӈыгытг'ын [Sacred Lake], far upstream at the Lesnaya River where the sockeye went up to spawn, while at that time of the year, in June, we were still occupied with getting our capelin stocks at the coast; consequently we did not pay much attention to sockeye."

Fish is prepared in various ways from which people make—often in combination with wild plant and animal products—nutritious dishes. From experience they have found out that these dishes are the most appropriate use for their main resource under the particular natural conditions of the north, as was acknowledged already by Steller (2012[1774]:302) with keen appreciation in the eighteenth century. Today such useful Indigenous food traditions are becoming less common, although they still exist in some places and mostly among the elder generation.

S. T. Urkachan became really enthusiastic about explaining to us in detail how earlier people were masters of preparing fermented fish in pits:

"The pit was accurately laid out with willow branches and fish, and fish heads were placed between the layers, whereupon the pit was closed" to let the fish ferment for a while. "When they later opened the pit, the smell had such an aroma that it would dissolve on the tongue," he expressed. "It was very different from the aroma of the fermented fish that we prepared in a more simple way for dog food." Another method was applied in fall, when whole chum salmon were hung up to first let them ferment for a while and then to freeze for later consumption in winter. "Then, after cooking, the fish was cut and served with seal oil, and especially the fish roe, eaten with spoons, was considered a real delicacy." Tatiana Kotovinina from Tymlat describes special storage pits in the permafrost "like small houses, even with doors and stairs," where they stored slightly fermented fish to keep its particular delicious taste.

The heads of the spring's first redspotted trout were eaten raw after these had been cut into small pieces. Salmon heads were also, and are still, eaten raw during summer, especially the front piece that is considered to be particularly delicious and which contains, they might have learned from experience, almost no hazardous parasites (Russian: *глисти*, *гилминти*; plate 4).

People also made fish meal from salmon as part of their diet for the winter. S. A. Popov reports: "We went up the river, about 15 to 20 km to the spawning creeks of the chum salmon. There we collected the female fish [*шиголг'о*], which had become already weak and were about to die after spawning; we roasted them over the fire and made fish meal from the meat. But the hides we ate, so we did not throw away anything." T. V. Kotovinina points out that after a similar process of producing fish meal the hide was kept for the winter when it was eaten together with fat. For K. P. Tanvilin fish meal was an important staple for the winter, and he compares it with some humor with instant soups from China (or Korea) that have become quite popular recently in Kamchatka: "Within five minutes you can prepare it, and you may add dried wild onion or seal fat to it."

The main food staple, however, was dried salmon, called *yukola*. The fish were cut into halves in an accurate and even way so that flies could not place their eggs into holes, as maggots might later destroy a whole supply. K. P. Tanvilin acknowledges that even this careful cutting might not help when flies are swarming, so that one then has to clean maggots from the inner side of the cut fish every day. Therefore, he prefers late August and September for making yukola, when the flies' peak season has come to an end. According to S. A. Popov, however, the best time for drying salmon in Kamchatka is July and August, when there is little moisture in the air so

**Figure 4.2**
*Drying salmon on stacks, Lesnaya River, 2002. Source: Erich Kasten.*

that the fish can dry quickly and maggots have no time to develop.

After the cut fish are dried on stacks they are hung up under the platform of a *balagan*, a kind of storage hut on poles, where the fish is well dried by the wind while being sheltered from rain and from birds by nets (figure 4.2, plates 5 and 7). Later, the dried fish is stored in the hut above. Yukola is broken up into pieces and preferably dipped into seal oil before it is eaten. Yukola also serves as dog food in winter, and it was occasionally traded for by reindeer herders as emergency food for reindeer in late winter. A. T. Urkachan reports that yukola was prepared by some family members in March as a nutritious supplement for reindeer in order to give them additional strength when they are about to give birth, around the beginning of April.

Fish oil rendering is not practiced today in Kamchatka and has never been widespread there among Indigenous people (in contrast to Kosaks and Russians), as it is among some First Nations in the Canadian Pacific Northwest (coastal Koryaks and Itelmens always get sufficient amounts of oil from the great abundance of seals and from other sea mammals as well). Steller (2012[1774]:175), however, noticed that fermented fish was still occasionally boiled in dugout canoes that were filled with water and

into which heated stones had been thrown, whereupon the oil was eventually scooped off the surface—in a very similar way to how it is collected among the Dzawada'enuxw of the Kwakwaka'wakw or Kwakiutl First Nation (Kasten 1990:54–68).

Around the middle of the eighteenth century, Steller (2012[1774]:168) observed among Itelmens their dislike of salted fish, while for Kosaks and Russians salting had been their preferred method of preservation. In 1843 J. K. E. Kegel noticed that at Koryak villages in the Karaga region salt was not used for conservation (Gülden 2011:192). And T. V. Kotovinina from the nearby village of Tymlat remembers even today "that we didn't know of salted fish, and in general salt was unknown to us."

Even smoking salmon had never been a strong tradition among Itelmens and Koryaks, like it was among other Indigenous people along the North Pacific rim. Steller (2012[1774]:174) noted that the fish sometimes got a bitter taste that he attributed to the use of not sufficiently dried wood. Evdokiya Lukinishna Nesterova from Lesnaya, however, explained to us how salmon is smoked in a traditional way by using pits. Only in the 1920s, when salt became available in larger amounts, did Koryaks start to salt and smoke salmon (*balyk*). Salting was promoted in Soviet times as more "rational" (as less labor was required) and is mostly applied today. However, the consumption of dried salmon, conserved in the traditional way, turns out to be healthier than the consumption of large amounts of salted fish. Consequently, the elder people say that an unusually high number of Indigenous people from that region now suffer from circulatory disorders that were not as common in earlier times.

According to A. T. Urkachan, dried fish roe was a particular delicacy and was consumed in various ways: "After we had peeled off the skin it was eaten together with cedar nuts. It was especially tasty that way, almost like milk, and it did not stick so much in between the teeth. We ate it usually for breakfast, or women brought it with them when they went into the tundra to gather sprouts, and where we ate it together with the pulp of cow parsnip [*Heracleum lanatum*], during our rests, when we had tea." K. P. Tanvilin explains with great enthusiasm how dried fish roe was eaten with the inner layer of birch bark and mixed with seal fat, "in the real Koryak way." Steller (2012[1774]:171–172) also described how dried fish roe was prepared together with certain plants as provisions for traveling. E. L. Nesterova points out that drying the fish roe in the right way by placing it on a mat made from woven grasses is important so that it does not get bitter.

Dried salmon roe was also used as an ingredient for the traditional dish

*tylktyl* (Koryak: *тылӈтыл*, Russian: *tolkusha*). It consists of various kinds of dried and smashed plants, roots, and fish roe and was served foremost during feasts and as a ritual dish during the Ololo festival. This dish was prepared in different ways. S. A. Popov remembers: "When we went to the festivals of reindeer herders, they served us 'white' tylktyl [*эчг'ы тылӈтыл*] to which they added the inner fat of reindeer. Another kind of tylktyl that contains dried and smashed inner pulp of fireweed [*Chamerion angustifolium*] is called 'black' tylktyl [*йг'йрг'а тылӈтыл*]."

Another prominent dish made from fish is *kylykyl*. It consists of smashed pieces of cooked salmon from which the bones are separated carefully and to which crowberries—which are not really tasty but are especially rich in vitamins—and seal oil are added. Or one can add any other kind of berry that is in season, such as cloudberry (*Rubus chamaemorus* L.) and blueberry (*Vaccinium uligonosum* L.), as E. L. Nesterova demonstrated to us. This dish is not only considered healthy, but it is particularly appreciated because it is also filling.

Last but not least, fish soup (Russian: *ukha*) has to be mentioned as a popular dish. It is especially popular during the summer when its taste is best if it is made with fresh salmon, long-rooted onion (*Allium ochotense* Prokh.), and—as in former times—Siberian springbeauty (*Claytonia tuberosa* Pall. ex Schult).

In general, the loss of Indigenous food traditions is certainly one of the main causes of numerous health problems among Native people today. Unfortunately, relevant Indigenous knowledge is no longer transmitted to the youth as before, and some traditional food resources have become less available or are no longer available to many Indigenous people. This unavailability includes, above all, reindeer food, as apparently many people suffer now from a lack of hemoglobin and calcium; many Indigenous people are increasingly missing the particularly rich supply of vitamins that are found in fish oil, as they have to consume less fish than they did before.

Another problem is the loss of traditional knowledge about how to prepare and consume salmon properly. For example, certain fish, such as sockeye, need to sit for about forty days after having been salted and before they are consumed so that their parasites will have lost their pathogenic effects (Elena Dul'chenko, personal communication 2010).

Therefore, the preservation of fish resources in combination with traditional Indigenous knowledge about how to prepare these resources for consumption in a most appropriate and healthy way stand out as an important challenge for the future. Beyond preserving the knowledge of how to prepare appetizing Indigenous dishes, researchers and activists should

work to make such nutritious traditional food popular again, which will not be an easy task as "Western" food, promoted in the media, is seen by many younger people as more "prestigious" today.

As I have mentioned, fish served not only as the most important human food supply. According to the Indigenous worldview, people were obligated to use all parts of an animal and leave nothing, or at least as few remains as possible. Thus, the inner parts of salmon were used for dog food and were put into pits where they fermented together with other fish. A. T. Urkachan informs us that "close to the pits a pole was put into the ground that these could be found in winter, when they were covered by snow, and when the food was needed for the dog teams." Also for dog food the fish backbone (*ниэлъев'*) together with its head was dried and hung up with the yukola under the balagan.

A. T. Urkachan remembers that in former times even the skin of late-running chum salmon was used as material for certain clothes such as coats, caps, and gloves, especially for maritime hunters, as these were light and provided good protection against wind and rain. T. V. Kotovinina reports the same and describes how fish skin was used for making glue, for example, to attach reindeer hide to the frame of a drum. D. Upit mentions that "from fish skin we made baskets for our gathering trips into the tundra." Zakhar Stepanovich Yaganov from Lesnaya tells us that when he was young, windows were occasionally still made from the skin of chum salmon: "They took the skin from an old chum salmon who was about to die after spawning, as these had almost no fat anymore. After having taken away the scales and having well watered and dried it, it turned already into a light and beautiful skin that they then stretched over the window opening. In the middle, they made a little hole through which they could look. In winter, however, when dogs were starving, they sometimes tried to eat the skin."

Indigenous groups on the east and west coasts of northern Kamchatka most often used a particular wooden fish weir called a *tkapp* for salmon fishing in the rivers (figure 4.3, plate 6). T. V. Kotovinina remembers how she helped her parents when she was still a child "to collect round stones into piles in order to close openings so that fish could not escape through them. This way we closed well [parts of] the river [near the trap]" (see Menzies, chapter 8, this volume, for a description of similar Gitxaała stone structures). The structure and function of the tkapp is explained and shown in detail by Aleksei Pavlovich Appolon (2010:79 ff.): "With a special fish weir the river was closed, but in such a way that fish could pass through to their spawning grounds." Friedrich Heinrich von Kittlitz (2011[1858]: 272–273) noticed around the mid-nineteenth century that such weirs were

**Figure 4.3**
*Tkapp (wooden fish weir), near Anavgai, 2001. Source: Erich Kasten.*

intentionally "built so low that fish could jump over it,…because otherwise too many of them would have been caught.… The wooden sticks of the container keep only the bigger fishes, whereas the younger ones are not obstructed."

According to Appolon (2010:79), "The tkapp had been constructed like this so that one didn't take everything on one day, as people were aware of the need to think about the next day." He remembers that these weirs had been widely used on the west coast of northern Kamchatka until the mid-1960s, whereas more recently fishing with nets and fish traps had become the more common practice.

Varvara Kondrate'vna Belousova from Kinkil (a small settlement near Lesnaya) remembers: "When using the tkapp we could see in the wooden container the exact amount of fish that we needed or that we were able to prepare. Then we lifted up the container, emptied it, and carried the fish home, leaving the weir open then for other fish to pass through." According to her, every family had a clear estimate of the amount of fish that was needed for the year for its own food supply and for the dog team.

S. T. Urkachan confirmed the same: "People took only as many fish as needed, and they knew very well their ration for the year. From early

childhood we were exhorted to never catch too many at one time, but to leave enough fish to swim upstream to the places of their origin, where they would give life to new ones, whereupon the old ones would die. So we could be sure that there would be enough fish next year." And K. P. Tanvilin emphasizes that "we fish only so many as we need, then we stop, it's enough, we leave [other fish] for the next year. So we lived our life, until the radical change occurred."

From her childhood in the 1950s, A. T. Urkachan remembers similar situations, when they were told by the elders to never take too many fish.

> When I was young, I occasionally came with my father, who was a reindeer herder, to a fishing site close to the sacred place Stony Man [В'ывкаляк] near Palana. There we fished for a while together with our relatives who lived there and eventually we took fish in our baskets [*lepkhe*] back to the reindeer camp. There, at the fishing site, I noticed and first wondered why they threw certain fish back into the river, and they told me that these [female] fish will give birth to even more, so that later you and your children will always have enough.

Similar comments from others give evidence and are particularly striking, compared to today's attitudes toward natural resource use, in relation to how Indigenous people once perceived long-term sustainable resource use and how they embodied and taught particular responsibility to future generations.

People knew that they had to leave a sufficient number of fish to pass upstream "so that there would be many fish in the future," and V. K. Belousova added that to this end, they singled out female fish and threw them back into the river. She complained that today just these fish are taken in great numbers because of their special value for caviar production. S. A. Popov witnessed the same—that too many female fish are taken now in order to fulfill the orders of traders or businessmen (*komersianti*) who are in charge of the lucrative, but disastrous from an ecological point of view, caviar trade. "Once I was hired myself to work for them. But when I noticed that they were about to dump the remains of the fish, those from which they had taken the roe, in the tundra to let them rot there, I quit. You must never fish more fish than you are later able to prepare. You must think about how these fish are given to us."

V. K. Belousova informed us that earlier, when she was young, Indigenous people did not take much salmon caviar. They dried and used

it, among other things, in smashed form as an ingredient for the traditional tolkusha dish that was served during the annual Ololo festival in early winter. Only in kolkhoz times, when salt became available in larger quantities and was used for conservation, did fish roe or caviar began to be stored in greater amounts in barrels and shipped to towns. Later, during the subsequent *sovkhoz* period, salmon caviar became an increasingly desired trade good and was collected in even greater quantities from individual fishermen and fishing brigades. Eventually, especially during and after perestroika, the caviar trade got more or less out of control, with its well-known consequences for the salmon populations in some rivers of Kamchatka.

From the remembrances of V. S. Yaganov we learn how the people of Lesnaya became gradually drawn into the new—increasingly "globalized"—economic system that began to focus, even more than the earlier fur trade, on salmon and other food resources. This system was appreciated by Indigenous people in the beginning because of its immediately felt advantages for them:

> After most families had moved in June to the coast to fish and prepare the Pacific capelin stocks there for dog food for the winter, they dispersed to their individual family fishing sites along the Lesnaya River, where they fished all summer. When we had prepared our own supply of dried fish and other wild plants and berries for the winter, we gave to the sovkhoz what we did not need for ourselves. For that we received, in return, supplies so that we could build warm cabins at our winter hunting sites, where we earlier lived in tents.

Although the shift to a new economic system had already become apparent, traditional worldviews and value systems of Indigenous people were still in place to control the overuse and abuse of salmon resources. After perestroika, however, the supposed blessings of a free market economy and Western lifestyles became increasingly attractive to Indigenous youths, and conflicts arose even within families over the use of salmon roe. While elder people such as Nadezhda Grigor'evna Barkavtova (AKD 1998) still insisted on drying salmon roe in small quantities in the traditional way, young people complained that this was a "waste," since salmon caviar had become their "money," as they called it.

In a similar way, more individualistic orientations toward the new market economy are coming increasingly into conflict with other traditional values of sharing that can still be witnessed among fishermen and hunters

in more remote villages such as Lesnaya. S. T. Urkachan remembers "a certain number of fish of a good catch were brought immediately by boat or on horses to those who had become too old or weak to fish by themselves. It was deeply rooted in our way of life to help each other out." V. K. Belousova tells us the same: "I was taught by my father that, after a successful hunt or when we got plenty of fish, we had to share them with others, first of all with those who are in need, such as orphans or families with many children and with handicapped people. It was a strict rule, although I myself in the beginning did not really understand it." Originally, occasional surplus had been used to balance out inequalities within the local group, whereas during kolkhoz times the production of (unlimited) surplus—with its consequent pressure upon relevant natural resources—was directed toward feeding "the stream of national Soviet production" (Koester, chapter 3, this volume).

## SALMON IN INDIGENOUS RITUAL AND WORLDVIEW

Indigenous people in Kamchatka expressed their particular respect for salmon by means of their "ritual of the first salmon." Especially when the expected fish run did not arrive in time, people went to the shore of the river and conducted there a certain ritual. According to Ekaterina Grigorev'na Yaganova, they called the fish using the phrase "Chchnu, chchnu, chchnu [*ччнуу*], fish come here and swim by." And as A. T. Urkachan adds: "From giant meadowsweet [*Filipendula camtschatica*] they wove a figure that looked like a fish head. First they waved it in the water, and sang: 'Oh, how many are coming, come quickly,' and then they let it go with the current. And usually, after two to three days, the first fish showed up." People believed that the fish would be attracted by the strong smell of the plant and be guided up the river that way, as they were thought to have lost their orientation.

Another way to call the fish is reported to us by E. L. Nesterova as she remembers her early childhood: "At that time, when we fished for the *gospromkhoz*, there once was little fish, and my sister told me: 'Now listen how I will call the fishes!' She said: 'Take a flower of the Arctic bramble [*Rubus arcticus* L.],' and we went to the sea. With the flower we called the fish so that they would gather at the mouth of the river. We stayed there for a few days, and then the chum salmon came" (figure 4.4).

Natalya Ionovna Grigor'eva, a woman of Even and Koryak descent from Esso, informs us:

> When the fish come, [the people] go to the river and start a fire near the shore. Then they throw small offerings into the fire and say that we have come here to honor you. We had earlier

**Figure 4.4**
*The wooden hammer for pounding fish trap stakes into the river can take the shape of a salmon, as even preparing the fish weir often requires ritual precautions, near Kovran, 1993. Source: Erich Kasten.*

> conducted offerings to the souls of our dead ancestors here; therefore, we made this procession to the river. Near the river we set up three poles, and then we throw small pieces of food into the water. During the ceremony we say: 'River, give us fish. We gave you food, and you will give us fish.' That way we ask the soul of the river, when the fish run sets in, that there be many of them. [AEK 2003]

Accordingly, rivers had to be treated with respect and almost as sacred

places (see Koester, chapter 3, this volume). People were forbidden to relieve themselves near them, as the smell might irritate the fish, V. K. Belousova told us, and A. T. Urkachan added: "At times of the fish run it was forbidden to use [red] alder bark for tanning, as this would close the eyes of the fish, which then would not be able to orientate themselves anymore."

Those accounts show that Indigenous people knew about the sensitivity of salmon in their fateful search for their spawning grounds and that people were aware that they had to keep undisturbed the ecosystem in which fishes lived and reproduced.

In addition to the first fish rituals I have mentioned, the ritual dialogue with the supernatural is still conducted today by coastal Koryaks in Lesnaya during their Ololo festival, which is held each year in October by individual families. Through singing and dancing the souls of the animals killed during the past season, symbolized by wooden and woven figures that are hung up in a sacred tree inside the house, are honored and eventually sent off through the fire after they have been fed with a particular ritual dish (tolkusha). In the world beyond they would report that they had been treated well by the hunters and by the entire community, so that many of them would return next year (Kasten 2009; Urkachan 2002). In earlier times, each animal species that was hunted was honored through a special ceremony of its own, whereas the Nymylans of Lesnaya (one of the few places where those festivals are still conducted in the traditional way) now celebrate the Ololo for snow sheep and seals together.

Although this festival does not relate directly to salmon, it demonstrates the persistence of particular worldviews and attitudes toward nature, especially among the elder generation, that also affect the use of fish resources. People felt that as part of nature, they had to maintain a ritual dialogue in order to find out what humans might have done wrong and to show respect, even in their daily lives. In contrast to Soviet or Western ideology, Indigenous people were aware that they would never be able to "conquer" (Russian: *pobed*) or to control nature, but that they could only please the "owners of the game" through appropriate behavior. Such understanding is based on the idea that animals *give* themselves to humans, in contrast to "modern" thought in which people *take* more or less freely from nature (cf. Tanner 1979).

However, what is interesting in this case and might remain so for further discussion is the surprisingly minor role that salmon played in the mythology and ritual of the Koryaks, as with the Itelmens. David Koester (chapter 3, this volume) has found out and emphasized that for the Itelmens, fish—in contrast to other animals—was less represented in expressive culture.

However, this underrepresentation stands in sharp contrast to what we know from the other side of the North Pacific rim, where salmon is often a central element in creation myths (see Colombi, chapter 9, and Diver, chapter 10, this volume) and a frequent motif in the arts, such as with the First Nations in British Columbia.[4]

Not only at festivals, but also in their daily activities Indigenous people enter into some kind of dialogue with nature. Each territory contains a number of sacred places. According to K. P. Tanvilin, someone passing by these places is supposed to leave some small item, such as *lauten* (a particular marsh grass), beads, or ammunition, as an offering. Whenever a fire is started during a tea break in the tundra, small pieces of food are thrown into it. The fire is considered to be the main passage or route to the worlds beyond, where the spirits of ancestors and animals reside, and the gift giving is meant to show respect and to please them. Throwing fish and seal bones into the fire was strictly forbidden, however, as ritual behaviors toward those remaining parts of an animal are connected to another process, that is, their resurrection. T. V. Kotovinina told us that "the fish bones had to the thrown to the shore of the sea so that fishes would enter the river and come to us again. Some people do not understand this: you must not throw the bones into the fire, but into the water."

At the coast near Lesnaya some food was given to the sea when the first Pacific capelins arrived in 2005, while A. T. Urkachan said quietly: "This is for you, sea, you feed the people, and we are grateful to you that the capelins came and that you help us, that the [sea] hunters and fishermen will have luck." Even healing powers are believed to reside in the sea, as she later explained to us: "At times, we wove a little boat and laid the flower of the Arctic bramble [*Rubus arcticus* L.] plant with some food on top of it, and we pushed it into the sea, as this should protect us from illness."[5]

People asked the powers of nature for assistance in times of need, and they were concerned about maintaining the indispensable "exchange" with animals and the keepers of the game by means of a ritual dialogue. They knew that this assistance and bounty would be denied to them if they did not behave properly toward nature even in their daily activities (cf. Feit 2004; Sirina 2011:312–329).

Elder people today still consider leaving the remains of killed game or fish unused to be extremely sacrilegious, as already mentioned in previous examples. Consequently, almost all the elders whom we consulted and who are still bearers of traditional knowledge and values are upset and expressed their deep concern about the way in which salmon resources are treated by many people today, like those who take only the roe for caviar

production and leave the rest of the fish to rot on the shore. They care not so much that a practice is illegal or a violation of environmental codes, but, as they all said, that "nature will take revenge"—which is for them still the highest and most powerful authority.

Although many now think such beliefs and rituals are obsolete from a rational-scientific point of view, these beliefs and rituals nevertheless reflect distinct perceptions of and attitudes toward nature that gave Indigenous people the guidance they needed to use their natural resources in a sustainable way. In addition, the particular set of values that includes sharing and a deeply felt responsibility for future generations, as I have shown, ensured a specific use of natural—and especially salmon—resources that is obviously in sharp contrast to what we see today.

## CONCLUSION

Many Indigenous people, such as S. T. Urkachan, complain about the increasing pressure on salmon stocks from the outside: "They come with their large high-tech fishing vessels and are able to fish huge amounts from the sea, so that not enough fish are able to get into the rivers and to their spawning grounds. Nobody does really control the amount that foreign people fish, but for Indigenous people they fix limits that are by far too little for them to be able to feed themselves in the traditional way."

One the other hand, Indigenous people are also getting involved in poaching and in less sustainable ways of using salmon resources, although often as the last link in the chain of the caviar business that is largely controlled by well-organized syndicates from outside Kamchatka and, as often reported, not seldom associated with state authorities in one or the other way. Sergei Sinyakov (2006:52) puts it, although correctly, in a more sympathetic way: "In no way can poaching be condoned, especially as a large-scale, organized form of activity. But it should be noted that poaching, by its very nature, is a grassroots social response to the inequitable distribution of natural resource rent."

The examples that I have given in this chapter illustrate the dilemma—which is more than just a generational conflict—that many Indigenous fishermen face these days and that they cannot easily resolve simply by falling back on their traditional value system (see section "Indigenous Salmon Harvesting and Procurement Strategies with Regard to Sustainable Resource Use"). Others, even though I saw them participating actively at the aforementioned traditional reconciliation ceremonies, could not resist the temptation to join a poacher's crew, at least temporarily. While expressing feelings of guilt about it, they tried to justify it to themselves in reference

to unfair state regulations that impede their access to the resources they had used before.

Under such circumstances, environmental organizations and state fishing guards have to accomplish a desperate task, as S. A. Popov has noticed: "I remember when they once went up to the upper reaches of the Lesnaya River, where they caught some [poachers] and fined them. But as soon the fishing guards had left, the poachers returned and continued their illegal work, as the komersianti for whom they worked were just after caviar."

In fact, in the wide and sparsely populated wilderness of Kamchatka it is, of course, almost impossible to post a fishing guard at every curve of the numerous rivers in order to get salmon poaching under control. Therefore, although legal measures against salmon poaching are certainly needed, they are extremely difficult to enforce under the given conditions. Consequently, laws alone are hardly enough to stop the destructive trend. From comments of elder Indigenous people we might conclude, however, that beyond environmental laws and codes, a renewed emphasis on traditional values and worldviews in relation to nature, and their transmission to younger generations, could be a more effective tool to ensure Indigenous sustainable resource use, in the way that it had been practiced before.

Therefore, the important question and challenge will be how to integrate traditional knowledge and wisdom with conventional science in future community and Indigenous resource management plans. Strengthened emphasis on social and environmental values (Dietz, Fitzgerald, and Shwom 2005) could give guidance to Indigenous decision makers and harvesters in order to halt the dangerous trend of moral degradation that Victoria Sharakhmatova addresses in chapter 5 (this volume). Admittedly, the discussion about the need for knowledge integration and natural resource comanagement is not new and has been ongoing in the decades since Garett Hardin (1968) wrote about it. But despite a number of success stories in the American Pacific Northwest (see Colombi, chapter 9, and Diver, chapter 10, this volume) and in other parts of the world, the debate is relatively new on the Russian side (see Wilson, chapter 2, this volume) and therefore commands our renewed attention.

Sometimes a certain reserve can still be detected on the part of both sides to accept each other's authority and useful contribution to this dialogue. As a coordinator of a multidisciplinary research team in the mid-1990s, I myself witnessed occasional clashes between Indigenous activists and natural scientists, especially when Indigenous knowledge became connected to ethnicity and political empowerment and was attributed more

truth than conventional knowledge. This kind of clash only evokes opposition on the other side and impedes the process that should pursue, in the first place, solutions for successful sustainable resource co-management. On the other side, for some natural scientists ritual behavior might appear—quite understandably given their professional background and training—as "irrational" and the social values and environmental ethics of Indigenous people seem a relatively new field to explore, which is often done now in collaboration with cultural anthropologists. Therefore, and not only in the Russian Far East, natural resource co-management often reflects more of a political compromise than a sincere mutual understanding and full acknowledgment of the particular kind of knowledge of the other side (cf. Nadasdy 1999).

To contribute to the important goal of knowledge integration, we have, over the years, developed in the Kamchatka case strong collaborations between scientists and Indigenous experts. One of the latest results is a database that will bring together observations regarding natural resource use in historical accounts over the last 250 years, academic information from natural scientists of the Kamchatka Branch of Pacific Institute of Geography, Far-Eastern Department of Russian Academy of Sciences (KBPIG, FED RAS), as well as videos and commentaries on relevant activities and worldviews by Indigenous practitioners in their own languages that have been recorded during field projects and are edited with Indigenous experts. From such a pool of integrated historical, conventional, and Traditional Ecological Knowledge, we have produced relevant learning tools and designed specific community programs and are continuing to do so (see Kasten, ed. 2011).[6] In addition to necessary legislation to secure Indigenous people a reliable base to continue their traditional economic activities, a particular focus should be on preserving and revitalizing Indigenous value systems and environmental ethics as a foundation for continuous or renewed implementation of traditional knowledge as part of sustainable resource use—before this knowledge is lost forever as it very soon may be.

**Notes**

1. Georg Heinrich Freiherr von Langsdorff, Adelbert von Chamisso, Friedrich Heinrich von Kittlitz, Georg Adolf Erman, Johann Karl Ehrenfried Kegel, and Karl von Ditmar were early German explorers who carried out scientific projects in Kamchatka for the Russian government during the nineteenth century. Their extensive and keen observations, particularly on Indigenous traditional resource use, cannot be referred

to or quoted here in detail, although their accounts of salmon fishing can be found at www.kulturstiftung-sibirien.de, where electronic editions of their books, published as hardcover editions in 2011 at the Kulturstiftung Sibirien, can also be accessed.

2. If not otherwise indicated, these personal recordings are from Kasten, ed. 2011, where they may be found in their entirety. (Translations into English are my own and are based on the work of Aleksandra Urkachan, who transcribed the spoken Koryak text and translated it into Russian.)

3. My focus will be on the accounts of Georg Wilhelm Steller as these provide the earliest and most detailed information (see note 1).

4. Similar issues will be discussed comparatively across time and space (around the North Pacific rim) in planned future studies on the role of the raven figure in the mythology of these peoples. The Kutkiniaku story "Big Raven and Fish Woman" in a forthcoming issue of the periodical *Echgan*, for example, features an informative combination of raven and fish characters and behaviors that further illustrate Koester's argument in chapter 3 (this volume). See www.siberian-studies.org/publications/echgan_E.html.

5. Such perceptions among Indigenous people might be understood in the context of the assumption (and real experience) that most infectious diseases came to them with foreigners and, specifically, sailors "from the sea." See *Forschungsreise nach Kamtschatka. Reisen und Erlebnisse des Johann Karl Ehrenfried Kegel von 1841 bis 1847* in Gülden 2011:272.

6. The three-DVD series *Itelmen, Even and Koryak Language and Culture* was primarily made for the school curriculum and cultural programs in Kamchatka, although it can be used as well in international research and in university courses. The DVDs have English and Russian subtitles. Booklets contain both the transcribed original texts and translations (www.kulturstiftung-sibirien.de/materialien_E.html). *Echgan* is a quarterly periodical that serves as a teaching tool in schools and other institutions of culture in Kamchatka. It is aimed at assisting the teaching of Indigenous themes, such as Traditional Ecological Knowledge and arts and crafts, in conjunction with Koryak language (www.siberian-studies.org/publications/echgan_E.html). The database "Local Knowledge and Sustainable Natural Resource Use in Kamchatka" brings together historical accounts, recent ethnographic recordings, and information from natural science. Thus traditional local knowledge is further enhanced by science and presented in modern ways (www.siberian-studies.org/publications/tek_E.html).