



WHAT'S TEK?

Traditional **E**cological **K**nowledge is a concept that comprises the indigenous knowledge in the field of Ecology and Environment.

TEK is a set of cumulative knowledge belonging to members of society thanks to their long-standing relationship with specific landscapes and intergenerational transfer of knowledge. The term “knowledge” refers to countless interlinked components, such as experience, rituals, mindset, social and family institutions, languages, traditional land and natural resources.

Latvia is one of Europe’s richest countries in the context of traditional knowledge. Fishing traditions here are centuries old and in many cases they relate to Baltic trade routes, spawning grounds, family traditions and catching areas. TEK is significant not only for museums, it can also be useful for fishermen and communities, it can be integrated into the management plans of fisheries and coastal nature protection. The aggregated knowledge can be used to boost the economic activity of the region, while the recognition of its value promotes the self-esteem and pride among the local population.



Photo by: Žans Graubics.

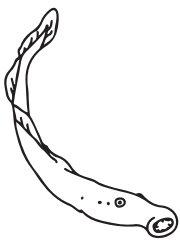
Courtesy of: Latvian State Archive of Audiovisual Documents (LVKFFDA)



Fishermen in boats.
With a lamprey weir in the background. 1963



THE RIVER LAMPREY



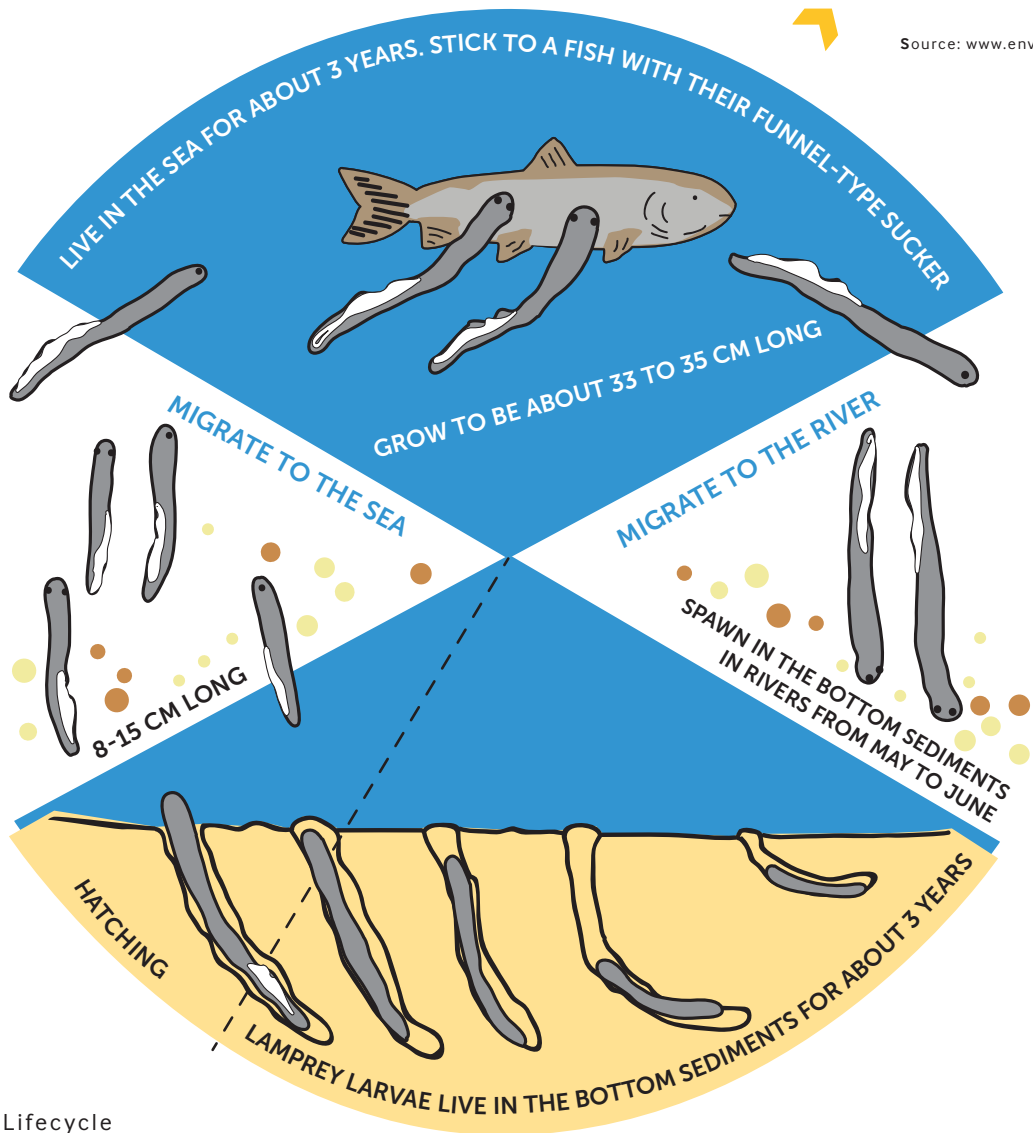
The river lamprey (*Lampetra fluviatilis*) is a species of anadromous cyclostomata. It is about 33 to 35 cm long (though might occasionally reach 50 cm) and typically resides in the sea for more than three years, after which it leaves to spawn in rivers. Lamprey larvae, which are commonly called *ņurņiki* in Latvian, are dug in bottom sediments of rivers, and spend an average of three years in the river. When the larvae reach 8–15 cm length, they migrate to sea.

The lamprey has a bare body and mouth resembling a suction cup. The lamprey has no abdominal or breast fins and can reach up to 250 grams in weight.

The lamprey is dark blue-green, blue-gray or green-brown at its back and top of the flanks, its lower flanks and belly, however, are grey, golden or white. Instead of the spine, this round-mouth has a cartilage formation, a notochord, covered by connective tissue.



The lamprey can move for up to 13 km a day, and researchers have seen up to 250 km of migration of this round-mouth species.



Source: www.environmentdata.org



Lamprey Lifecycle

Lamprey spawn in rivers between May and June at a depth of about 0.2 m to 1.5 m. The lamprey male creates a hole, a nest that the female deepens and lays eggs there. One to six males mate with one female which dies within approximately two weeks after spawning.

To feed, the lamprey sticks to a fish with a funnel-like sucker, splits its skin with the corneous teeth it has in its sucker mouth, and injects a special substance into the wound that has been secreted by venom glands resembling those of a snake. The substance prevents the blood of the prey from clotting, thereby facilitating its suction into the mouth. The lamprey sucks everything it can from the victim: its blood, internal organs, muscles. Mainly, it sticks to sprats, herrings and smelts, first of all, the slowly floating and exhausted ones.

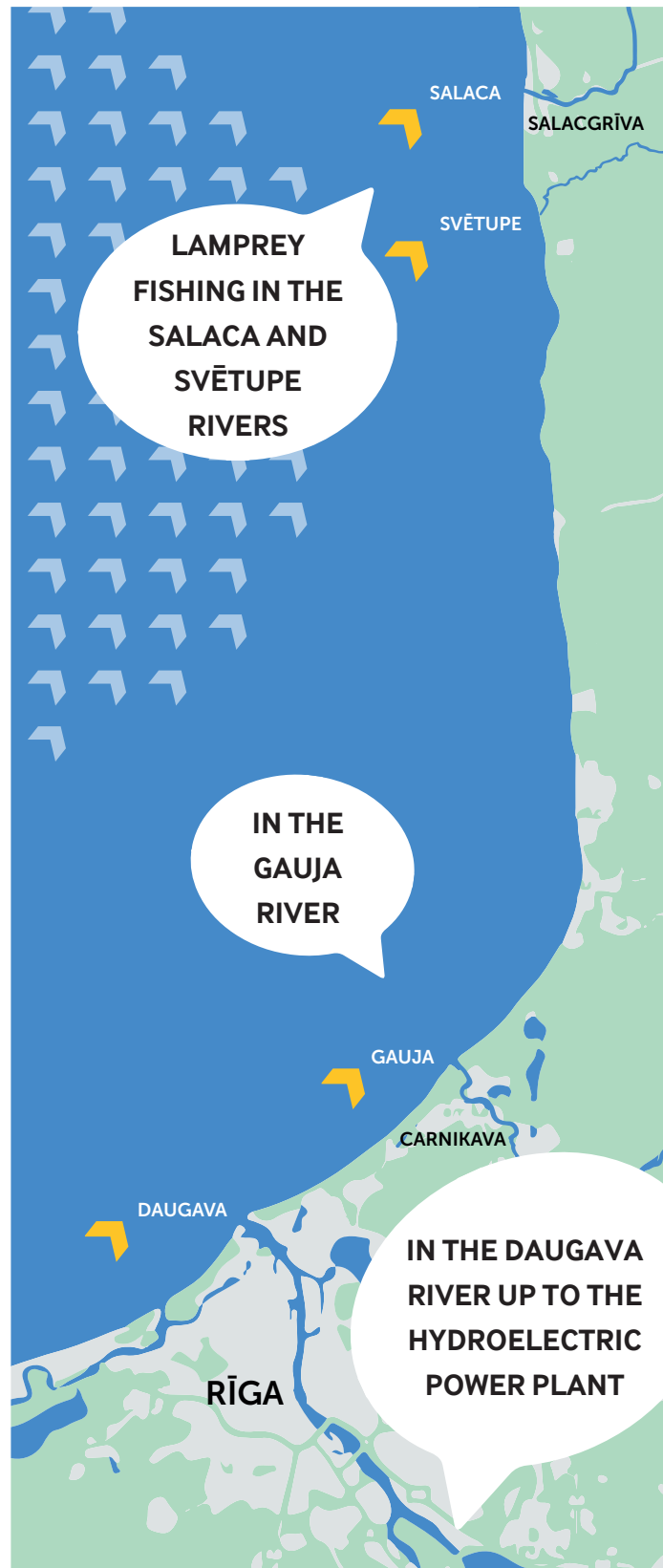




LAMPREY CATCHING SITES

Author: Āris Adlers

Adult individuals (lamprey) reside in the Gulf of Riga and the Baltic Sea coast. From autumn to spring, mainly in October and November, they *en masse* enter rivers to spawn. Adult individuals can be found in rivers throughout the year. In the territory of Latvia, lamprey can be found in all major rivers falling into the Baltic Sea and the Gulf of Riga. The main spawning rivers of the lamprey are the Salaca (in Salacgrīva), Gauja (in Carnikava), Daugava, Irbe and Venta as well as their tributaries.



Lamprey catching sites in Riga region

LAMPREY CATCHING PROCESS

Historically, weirs were built in lower reaches of rivers as traps for catching lamprey when they drifted up the river to spawn.

On the Gauja, the weirs were rebuilt every year and it required a lot of workforce. A free part, known as the “king’s passage”, was left in each weir so that the fish could pass through there. Immediately after the first works of spring were over, men drove poles in the river – the stakes to which they lashed (they used ropes instead of nails!) slanting supports and attached two other wooden parts – horizontal punts and crossbars (*nagars* and *matars*) as well as reinforced the bottom of the river with spruce twigs called *vigas*. Carnikava residents used the word *vigas* to describe sheaves of coniferous twigs with turf in the middle, tied with wicker or wire. *Vigas* held the sand of the stream and formed the groundwork on which fish baskets (*murdi*) were later placed. The baskets made in Carnikava were wedged very dense from wicker twigs, which were fastened together with pine roots. The fish-basket had two parts: a casing, or ‘a mother’, and a funnel-like passage, or *poiga*, with a wooden plug at its tail. The words *murds* and *poiga*, and possibly also *vīga*, *nagars* and *matars* come from the times when the banks of the Gauja were still populated by the Livs. These days, in the Gauja, they still use fish-baskets – *murdi* for fishing lamprey.

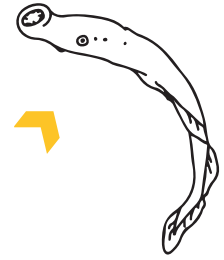


Photo by: Inese Koluškina



Svētupe River lamprey weir

One of the rare places in the world where the lamprey is still fished on an industrial scale using a 200-year-old method of weirs is the Salaca and Svētupe. On the Salaca there are three weirs. The only difference since the time of painter and ethnographer Johann Christoph Brotze (1742–1823) is that the wicker fish-basket has been replaced by the ones made of mesh. The actual catching takes place as follows: the fish-basket has another inside basket where the lamprey enters and is trapped as it cannot find the exit. The inside basket has a bottle shape. The caught lamprey is raided in a container called *kēne* (a portable box of planks for carrying the lamprey off the weir).

At the beginning of the lamprey season, in the evenings the men assemble on the weir, put the fish-baskets in the water and stay in the fishing huts overnight. At night, the baskets have to be browsed several times. In the morning, around the sun-rise, they are inspected for the last time and lifted out of the water and left to dry again until the evening. In winter, the baskets are kept in water for the day as well to prevent them from icing as the lamprey would not enter icy fish-baskets.



It was not easy to catch the lamprey, they didn't like the light nights, especially the ones with the full moon. The best moment is a dark and moonless night when the "wind is up" (there is the sea wind).



For example, in the 19th century, within the borders of Carnikava Manor, there were five weir sites on the Gauja, about 300 metres away from each other. The first two of them, from the mouth of the river, were the most prolific. Shortly before the ice went, the lamprey weirs were taken off. All things had their own time and order of affairs.

/ Historian Elita Pētersone

In Carnikava, the weirs were used until mid-1960s, afterwards the lamprey was fished with fishing baskets.

Photo by: Inese Koluškina



Lamprey fishing basket

"The lamprey is sneaky, you have to learn to catch it. Even if you have access to a fishing basket, you won't catch the lamprey at once by just dipping the basket in the Gauja. You must understand their drift upward in order to know the right place where and how to place a trap, whether it should be fixed in the upper part of the river or dumped on the bottom of the Gauja during a specific period of time. Lamprey likes darkness and cool weather".

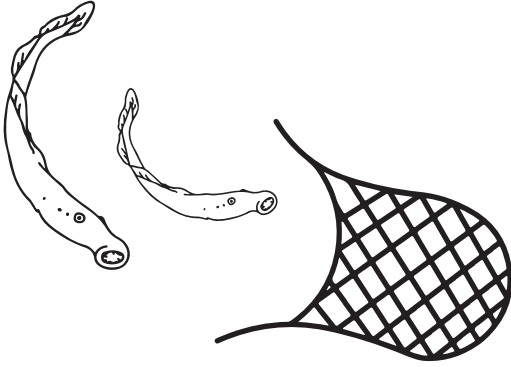
/ Aldonis Lūkins, fisherman

"The lamprey are very lively, and for them the whole movement takes place at night. Lamprey come from the sea into the Gauja after there has been a west wind and the water has been blown high in the river. Then the lamprey feel freshwater coming into the sea, and massively "fall into" the Gauja. The lamprey do not like light, so if they are fished, for example, in the late autumn, when the moon is full, the catch usually significantly decreases."

"We also fish in the Gauja in winter when there is ice. If the ice turns frazil, we run out to lift the fishing baskets even if it is at night before they fill with the frazil ice and can no longer be lifted out."

/ Viesturs Rinkevics, retired fisherman

HARVESTING VOLUMES AND REPRODUCTION OF RESOURCES

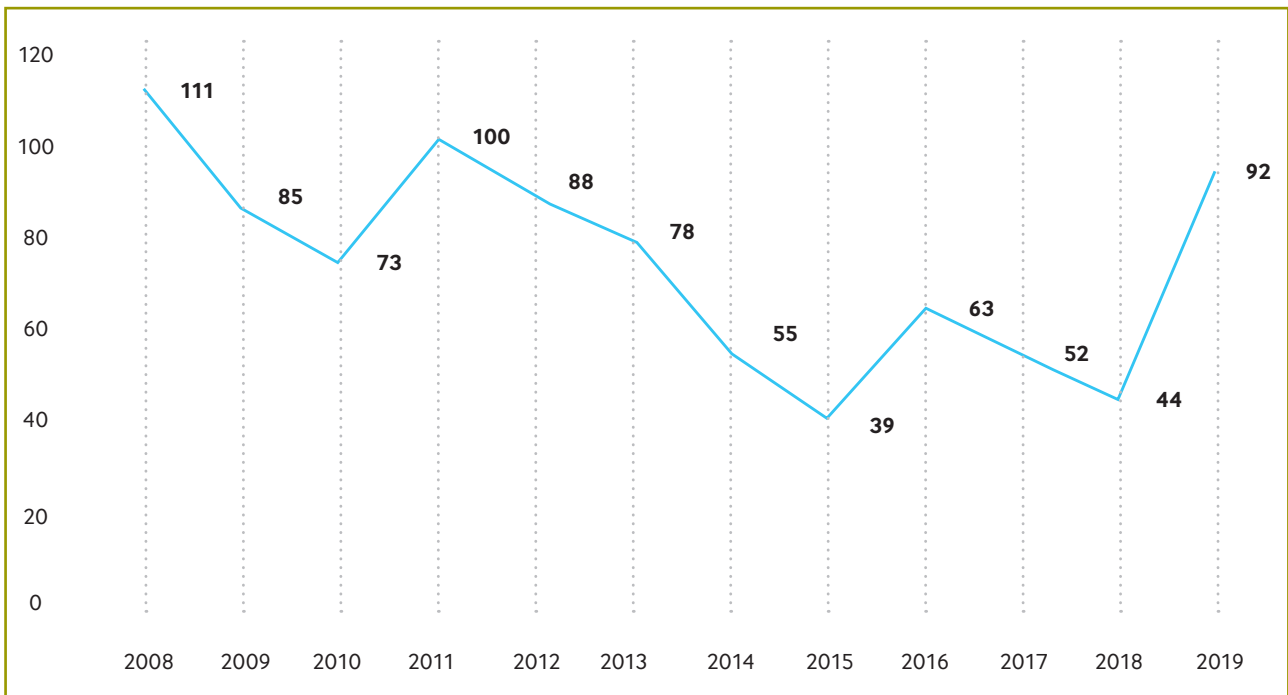


The annual harvest of lamprey in Latvia currently accounts for 39 to 111 tonnes.

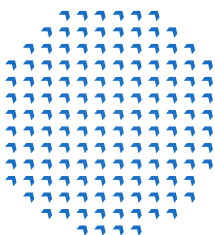
In the pre-war years, the total catch of lamprey reached 400 tonnes a year and was extensively exported abroad, mainly to Germany.

During the Soviet era, the largest harvests were in the late 1960s and early 1970s, when around 410 tonnes were fished in Latvia, yet in the 1980s the volumes fell to 8 tonnes. Since then, the harvest has been gradually increasing, the total figures of today can be seen in the figure below.

Source: new.lkkc.lv/sites/default/files/baskik_p/pielikumi/zivsaimniecibas_gada_gramata_2020.pdf



Harvest of Lamprey (by year, tonnes)



Accurate data on lamprey volumes cannot be obtained (one of the reasons being that not all catches are registered), however, the comparison of different regions in Latvia suggests that the catches of Kurzeme fishermen are only within 14-30 tonnes, while the total harvests of lamprey in Latvia are 91.9 tonnes per year (data from 2019), which means that the largest amounts in Latvia are caught on Vidzeme coast.

Source: www.la.lv/negus-vairojam-vairak-neka-apedam

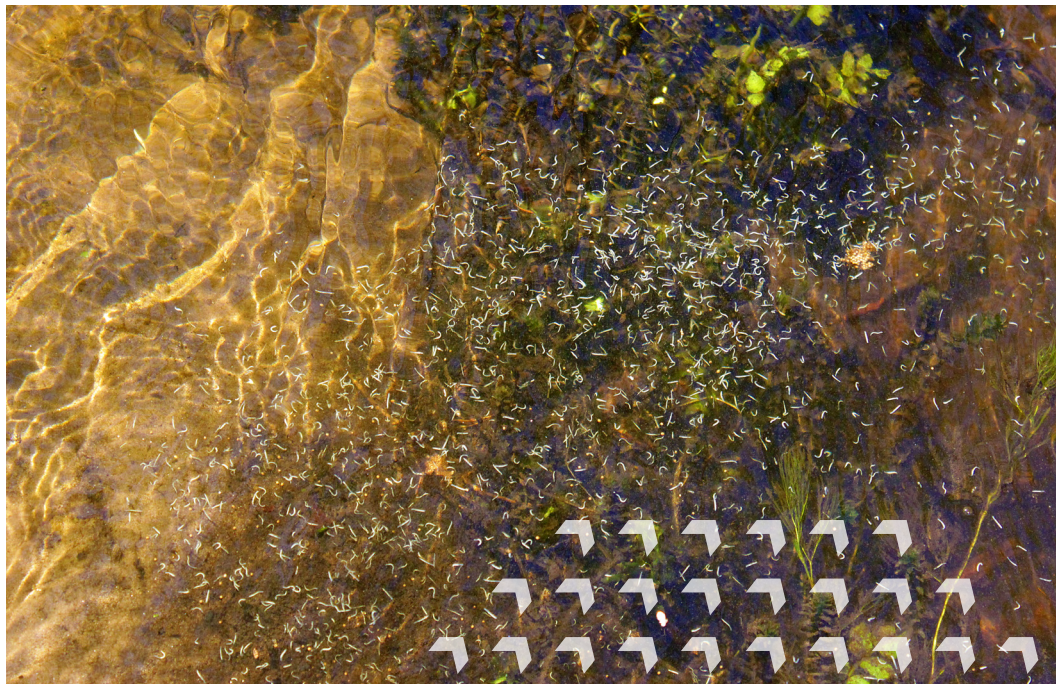


The biggest catch has been registered in the fisherman's collective farm "Carnikava" in 1969, then 25 tonnes of lamprey were caught in overnight fishing. In 1992, five tonnes of lamprey per night also had been worth a mention. It is interesting that one very large lamprey was caught in the 1980s, its length reached one metre and its weight was almost one kilogram.

The quantity of lamprey in the Gauja has decreased for a variety of reasons. In order to renew the resource, the municipality of Carnikava has been funding the replenishment of lamprey stocks in the Gauja River. Since 2013, around 12 million lamprey larvae have been introduced in the upper reaches of the river.

Every year, the municipality of Carnikava releases approximately three million artificially reproduced lamprey larvae into the Gauja stretch between Sigulda and Murjāņi.

Photo by: Santa Purviņa. BIOR Institute of Food Safety, Animal Health and Environment.



Releasing of lamprey larvae in the Gauja River



The artificial reproduction of lamprey larvae conducted in cooperation with specialists of the Brasla fishing farm, is funded from the money the local government has collected from the municipality fishermen by leasing fishing rights. Accordingly, the municipality will ensure that the lamprey fishing typical of Carnikava can be maintained and developed in the future.

After milking, lamprey eggs are incubated until they mature and reach the stage when the hatched larvae are able to dig into the sand.



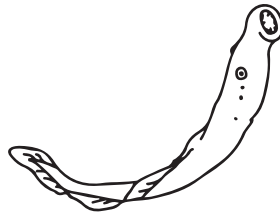
After the artificial reproduction, the lamprey larvae are launched into the Gauja River. At this stage, each of the larvae is approximately one millimeter in width and less than a centimetre in length. They spend about three years in the river, then migrate to the sea, where they feed for a couple of years, then return to the Gauja for spawning. One lamprey grows up in about 6-7 years.

LAMPREY CATCHER FAMILIES

Author: Āris Adlers

In Carnikava, two fishing teams of fishermen continue to operate the lamprey fishing industry, using the knowledge and skills inherited in generations: SIA "Leste" and SIA "Grif 93". In Carnikava, the companies frying lamprey are SIA "Gaujas krasti", IU "Gundegas IP", SIA "Zibs", SIA "Krupis", IK "Dietlavi" and SIA "Gaujas Nēģi".

In Salacgrīva, there is Salacgrīva lamprey weir, where they fish lamprey and organize tours as well as cook the lamprey soup. It is "Kurķis" run by Aleksandrs Rozenšteins, who has inherited the trade from his ancestors in many generations. The weir on the Svētupe River, in its turn, is run by Inese Koluškina and her family.



Weirs in Salacgrīva

PREPARATION OF LAMPREY

According to the ancient method, lamprey had to be grilled in the oven on white alder coal. Two rows were stacked on bars and grilled from one side and the other for four or five minutes until brown-fried, they yielded a pleasant golden colour. The grilled lamprey was put in dishes, poured with boiling water, added salt and braised until soft. Afterwards, the water was drained, and lamprey was left to cool off, put by number in wooden buckets, poured over with the same lamprey braising liquid that had started to clot, and, with a special press, pressure was applied on the lid of the bucket to blend the lamprey fat with the brown liquid.

In the 1920s and 1930s, Carnikava fishermen used wooden buckets containing one, two, seven or fifteen *kāls* (1 *kāls* is 30 fish) to transport the favorite delicacy not only to Riga, but also to the tables of the well-off European townspeople. The lamprey has always been a source of prosperity, a symbol and a matter of honour for the people of Carnikava.

Modern scientists say the lamprey is an excellent source of natural essential fatty acids for a human body. A bite of lamprey is enough to ensure the daily dose.

The specificity and taste of the lamprey in Carnikava relate to the skills of the people of Carnikava in the production and cooking of lamprey inherited in generations back from the 17th century, based on manual work and experience.






SALE OF LAMPREY



Carnikava lamprey was exported in large quantities to Russia in the east and to France and Germany in the west, which also allowed it to gain international visibility.

At the beginning of the 1930s, in Salacgrīva, the fishermen themselves caught and grilled the lamprey and put them in tins and sent to other places of Latvia as well as to Germany and France. The Salaca lamprey were packed in a container and transported by train to Valmiera via Ainaži and to Riga, possibly by ship.

The label “Carnikavas nēģi” (Carnikava lamprey) is used in Carnikava municipality only in the period between 1 August and 1 February to the fresh and processed lamprey fished with fishing baskets in the lower reaches of the Gauja River at its estuary if they have been produced in Carnikava municipality in compliance with the specification. This not only protects the brand name “Carnikavas nēģi”, but also helps consumers recognize the quality of the product.



USE OF THE LAMPREY CATCHING AND COOKING TRADITION TO PROMOTE THE RECOGNITION OF THE MUNICIPALITIES



Since 2015, Carnikava lamprey has been included in the Protected Geographical Indication Register of the European Union (EU).

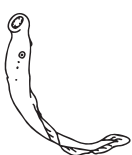
In Riga planning region, the tradition of catching and preparing lamprey is used for promoting the recognition of Carnikava and Salacgrīva. The towns, respectively, exploit the tradition during the annual Lamprey Festival and the annual Day of the Lamprey.

The Lamprey Festival is the most popular festival in Carnikava. It is annually held in August, marking the opening of the lamprey fishing season, which starts on 1 August and runs until 1 February. During the day, there is a market for artisans, a festive procession, sports activities, a boat parade, a concert as well as a lamprey speed-eating competition. One of the most important events of the festival is the cooking of Carnikava lamprey soup in a 400-litre cauldron. In Salacgrīva, it is a special day with a specially organised programme in October, when various cultural events take place and Salacgrīva weirs are open both for inspection and for the purchase of lamprey and various entertaining activities.





ORGANIZATIONS PRESERVING TEK AND TRANSFERRING KNOWLEDGE ACROSS GENERATIONS

Carnikava Research Centre, opened in autumn 2012, has been investing a lot of effort in preserving and promoting the tradition of catching and preparing lamprey. Since opening, they have exhibited various artefacts related to catching lamprey, have recorded memories and used the collected materials for providing tours to visitors both from Latvia and abroad. The employees of the Centre actively participate in various projects that facilitate raising awareness about the details of the old tradition.

Source: kultura.carnikava.lv/lv/novadpetniecibas-centrs

Carnikava Tourism Information Centre maintains up-to-date information about the entrepreneurs who practice the trade and offer lamprey for sale. They use the lamprey catching and grilling tradition to promote and create the identity of Carnikava.

The identity of Carnikava is closely linked to the lamprey. This is why every year in August the traditional Lamprey Festival takes place in Carnikava, which is linked to the opening of the lamprey season. During the day, there is a market for artisans, a festive procession, sports activities, a boat parade, a concert, a lamprey speed-eating competition. One of the Festival's most notable events is the cooking of Carnikava lamprey soup in a 400-liter cauldron.

Source: tourism.carnikava.lv/carnikavas-negi

The history of **Salacgrīva** is closely linked to the catching of lamprey. The trade-related artifacts and photos are stored and exhibited in Salacgrīva Museum. In the museum, it is possible to learn the tradition of catching lamprey as it was practiced namely in this area..

Source: www.salacgriva.lv/lat/salacgriva/muzejs

Salacgrīva Tourism Information Centre is an institution that collects and presents information on the tradition of catching lamprey in its information materials, and promotes visits to the weirs by publishing information on its home page and by participating in the organization of Salacgrīva Lamprey Day. The Tourism Information Centre shall also include significant sites associated with the catching of lamprey in the proposed tourist routes.




Source: www.visitsalacgriva.lv/lv/pasakumi/negu-diena-2019

The information on the tradition of catching lamprey is regularly published in the Internet media dedicated to tourism, mass media as well as scientific publications. More information on lamprey can be found online by searching for "Carnikava lamprey" or "Salacgrīva lamprey".



THE ACTIONS AND MEASURES NEEDED FOR TEK PROTECTION AND KNOWLEDGE TRANSFER



-  There are many sources of information dealing with the tradition of catching lamprey. The next step would be documenting and systematising this knowledge by involving researchers and historians, including the integration of the TEK approach.
-  The next step in documenting the tradition of catching lamprey is preparing an audiovisual material on the catching process as well as the related environmental knowledge and skills.
-  Increased involvement of the new generation in the knowledge acquisition on the traditions of catching lamprey and related environmental education is important to ensure that this knowledge is transferred and maintained for future generations.

The informational leaflet has been prepared by Āris Adlers in cooperation with Inga Brieze and Sanita Paegle (Riga Planning Region).

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