If you can't beat them, eat them

Round goby in the Baltic Sea - from invasive species to valuable resource

Practical solutions for selective fishing, processing, markets and management



RoundGoby findings, recommendations and roadmap

Interreg Baltic Sea Region

Co-funded by the European Union

BLUE ECONOMY RoundGoby

Round goby - a new Baltic food resource

From Baltic newcomer to a valued food fish.

Introduction: discovering the potential of round goby

Round goby has become a familiar sight in the Baltic Sea since its arrival in the region in the early 1990s. Today it is widespread in many coastal areas and, as the RoundGoby project has shown, it is also a promising food resource. Round goby is a lean, protein-rich fish with a mild flavour, suitable for everything from restaurant dishes and public kitchen meals to processed foods and pet-food products. In parts of the eastern Baltic, particularly Latvia, targeted fisheries and commercial value chains already demonstrate that the species can generate economic value.

The opportunity is therefore larger than simply finding a use for an abundant species. By developing attractive products and viable fisheries, round goby can contribute to local food production, new business opportunities and stronger coastal value chains while also supporting ecological management where population reduction is desirable. This combination of good food, commercial potential and responsible management gives the species a distinctive place in the future Baltic seafood landscape.

The RoundGoby project brought together partners around the Baltic Sea to turn that potential into practical knowledge. The project examined distribution and population structure, tested selective fishing methods, analysed food safety and nutritional quality, developed food and pet-food products and scaled up their production, carried out consumer tests, and explored business opportunities and transfer between countries. In other words, it followed the fish all the way from the sea to the plate. Together, these results provide a practical foundation for the next step: connecting fishing, processing and markets into locally viable value chains.

The project has opened a new phase in the fishing and utilisation of round goby. The question is no longer whether it can become a valued resource, but how the successful pieces can be connected and expanded. Conditions differ around the Baltic Sea, so the opportunity will take different forms in different places. Local abundance, fish size, fishing rules, infrastructure and markets will determine the best model, but the project now provides tested approaches that others can build on.

This report tells that story from the plate back to the sea. It presents what consumers, chefs, processors, fishers, researchers and public kitchens have learned, and turns those findings into recommendations and a practical roadmap. The direction is clear: we should develop round goby as an attractive Baltic food resource while using fishing and utilisation in ways that support responsible, locally adapted management.



Round goby was first discovered in the Baltic Sea in the early 1990s. Today it is common along the Baltic coasts.

RoundGoby at a glance

Key findings and solutions for turning an invasive species into a resource.

7 countries

Partners worked across the Baltic Sea region.

9.3/10

Fried round goby received a 9.3/10 consumer rating.

~ 300

Around 300 samples comprising multiple fish from the Baltic Sea, with only few exceeding contaminant limits.

Up to 95%

Up to 95% less labour in mechanised production.

Fishing methods

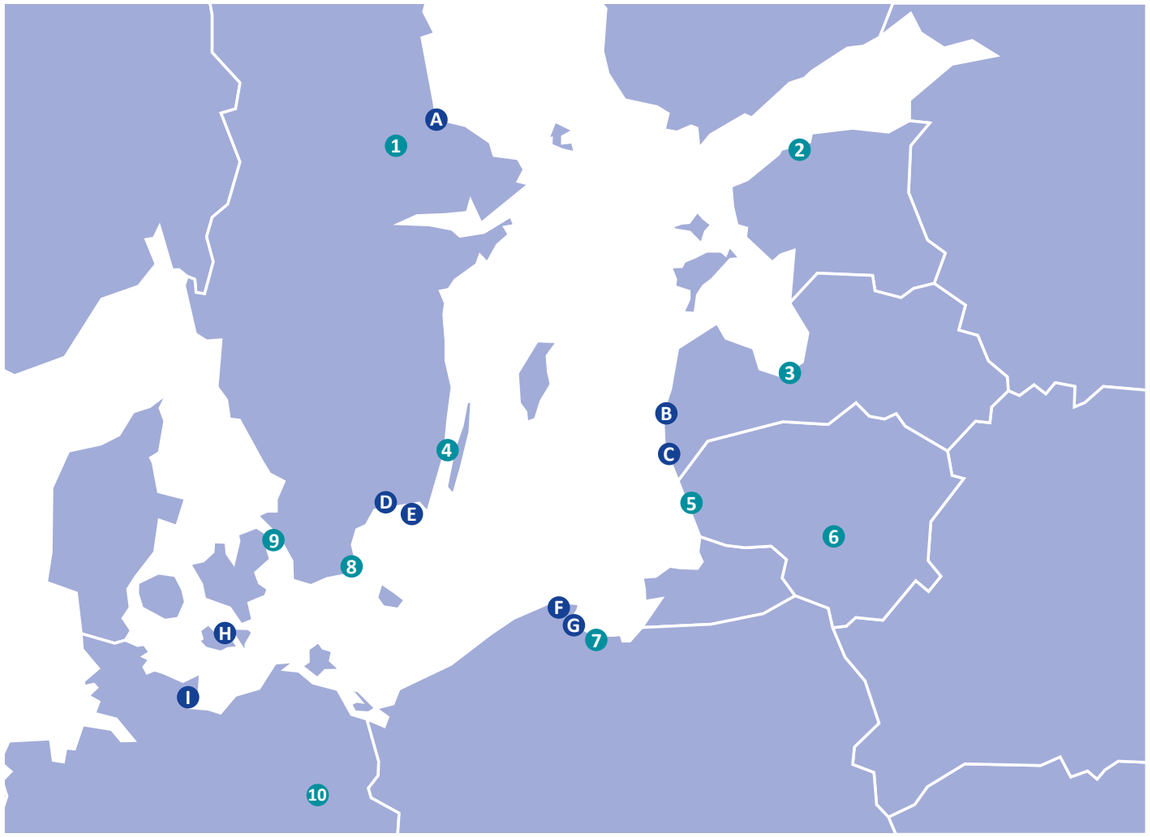
Selective fishing gear with low bycatch.

Up to €13/kg

Selected restaurants accepted up to €13/kg for whole round goby.

Products and uses

From fillets and mince to ready meals, canned products and pet food.



Project Partners

1. Swedish University of Agricultural Sciences (SLU Aqua)
2. Center of Food and Fermentation Technologies (TFTAK)
3. Institute of Food Safety, Animal Health and Environment (BIOR)
4. Kalmar municipality
5. Baltijos konservai LTD
6. Kaunas University of Technology (KTU)
7. Port of Władysławowo „Szkuner“ Sp. z o.o.
   Gdynia Maritime University (GMU)
8. Rosbergs Fisk på Österlen AB
   Skillinge Fisk-Impex AB
   Marint centrum - Simrishamn municipality
9. Danish Small-Scale Fishermen's Producer Organisation
   Technical University of Denmark (DTU Aqua)
   Low Impact Fishers of Europe (LIFE)
10. SUBMARINER Network for Blue Growth EEIG

Locations for test fishing

- A Gävle
- B Pāvilosta
- C Jūrmalciems
- D Ronneby
- E Karlskrona
- F Port WŁA
- G Puck Bay WŁA
- H Guldborgsund
- I Lübecker Bucht

Reader's guide: find your theme

The guide follows the round goby story backwards from plate to sea, with six recurring themes highlighting the results most relevant to each theme. Each theme has its own colour and is clearly marked throughout the guide. As many of the project's results connect several parts of the value chain, some sections are marked with more than one theme. The QR-code provides access to the project's detailed results and reports.

Theme	What you will find
Products & Consumers	Taste, nutrition, product formats, public kitchens, restaurants, pet food and consumer acceptance.
Infrastructure & Processing	Landing, logistics, freezing, storage, processing, canning opportunities and use of different fish sizes.
Fisheries & Management	Selective gear, bycatch, regulations, areas with potential for targeted fisheries and enabling funding.
Science & Monitoring	Stocks, distribution, contaminants, species interactions, ecological effects and monitoring.
Market & Business	Prices, labour costs, supply and demand, seasonality, profitability and market channels.
Building the Value Chain	Coordination from catch to customer, aggregation, cooperation, investment and scaling.

EXPLORE THE FULL RESULTS

This guide presents the main findings. Detailed reports, methods and project outputs are available on the RoundGoby project website.

Throughout this guide, references to specific reports and deliverables show where you can find the detailed evidence behind each section.

Scan the QR code to access the full collection of project results.

Findings - a food fish with proven potential

This story starts with one of the project's clearest results - people enjoy eating round goby. Across restaurants, public kitchens, schools, industry events and stakeholder demonstrations, very different products achieved high consumer acceptance. The results show that an unfamiliar fish can become an attractive food experience when the product and preparation are right.

That shift in perception captures what the RoundGoby project has achieved. The species entered the project mainly as an ecological and fisheries management question. As this project comes to an end, round goby has turned into a business opportunity as a versatile food fish that can create value in restaurants, public kitchens, processing industries and coastal communities.

The project has demonstrated the essential parts of that opportunity, with positive consumer responses, tested processing solutions and selective fishing methods, and encouraging food safety results. The next phase is about connecting these successful demonstrations into locally viable value chains.

A fish with a culinary tradition - and a new Baltic opportunity

Round goby is already a well-known food fish elsewhere. In its native Black Sea region, it has long been part of local fisheries and cuisine, sold fresh, dried and canned. The Baltic Sea Region has the opportunity to develop its own uses and markets, adapted to local tastes, fisheries and management needs.

Yet the basic ingredients for development are present: substantial populations occur in parts of the Baltic Sea, targeted fisheries already operate in the eastern Baltic, and the species can be used in an unusually broad range of products - fresh, fried, smoked, pickled, canned, minced and as pet food.

The project's global review showed why this is timely. Much is already known about the ecology of round goby, while its practical use and market potential have received far less attention.





Round goby, suitable for a wide range of dishes.

READ MORE IN THE PROJECT RESULTS
D1.1 – Study on round goby Worldwide Aspects and Markets





Round goby - a lean, versatile fish with potential.

Taste opens the door

Consumer response is one of the clearest strengths to emerge from the project. Once people taste round goby, the fish performs remarkably well.

Several thousand people were reached through tasting activities at restaurants, public kitchens, industry events and stakeholder demonstrations and more than 300 product ratings were collected through consumer evaluations. Across a wide range of products and settings, the results consistently showed high consumer acceptance. On a 10-point scale, panko-breaded round goby scored 9.3, ceviche 9.0 and pickled round goby 8.9 in different tasting trials, while Land and Sea patties scored between 7.8 and 8.7 depending on the setting and consumer group. The final international test at the Tallinn Food Fair reinforced this picture: 85 respondents provided 215 product ratings, with 83% scoring 8/10 or higher. All four products with sufficient structured ratings also achieved average scores above 8/10. These results should not be read as a ranking between products, since settings and sample sizes differed, but they demonstrate that high acceptance can be achieved in several very different formats and countries. Consumers frequently described the fish as mild and pleasant, and many expressed an interest in buying the products.

The results also show the value of making an unfamiliar fish easy to approach. Familiar formats such as patties, burgers, gratins and mince can reduce concerns about preparation, while chef-developed dishes demonstrate opportunities for restaurant markets. Trials with public kitchens showed that public meals can introduce the species to larger and more diverse consumer groups. Continued communication should therefore combine tasting and appealing product presentation with messages about quality, local production and responsible use of Baltic resources.



Very different products but consistently high acceptance

Product naming and presentation may also influence consumer acceptance. In several Baltic countries, the commonly used names for round goby are relatively long or unfamiliar to consumers. Developing attractive commercial product names, while respecting national requirements for official commercial designations and consumer information, could help make the species more approachable. This should be considered alongside product development, packaging and marketing.

READ MORE IN THE PROJECT RESULTS
D2.3 – Consumer perception and tasting trials

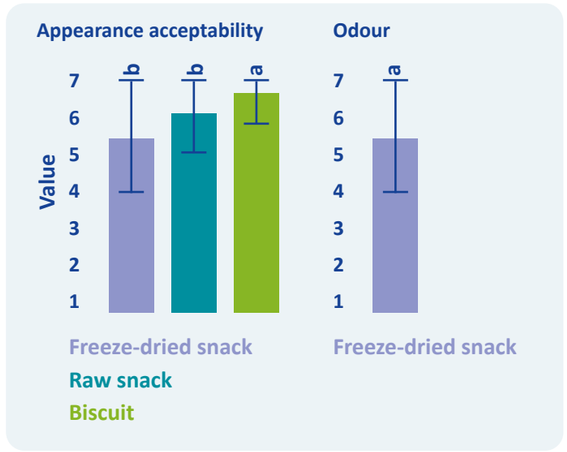
Another promising market - pet food

Changing people's food habits takes time, so the project also tested an alternative route. Three products were developed from whole round goby: low-temperature air-dried raw treats, freeze-dried treats and high-temperature baked cookies, with round goby content between 50 and 82%.

Products were initially tested on both cats and dogs, but dogs were selected as the main target group after the first tests. The refined products were then tested on 49 dogs. Around 80% of the dogs finished the portion, and the majority showed willingness to eat more. Owners rated appearance, odour and texture above 5 on a 7-point scale for all three products and identified the snacks as suitable training treats, which is the category owners buy most often.

The nutritional analyses were also encouraging. The products were high in protein, contained all essential amino acids and showed good protein digestibility. Because whole-fish products also contain relatively high levels of minerals such as sodium, potassium and phosphorus, they are best suited as complementary treats rather than complete pet food. The trials also demonstrated a shelf life of at least one year when suitable production and packaging methods were used. Economic analysis indicated commercial potential at prices comparable to similar premium pet-food products, although the assumptions should be validated with producers before scale-up.

Pet food broadens the value chain and creates an additional outlet for smaller fish and raw material that is less suitable for higher value human food products. Whole fish processing requires suitable cutting equipment, and producers need predictable supply and quality, but these are practical production questions. The trials show that round goby can become a high-protein ingredient for complementary pet food and provide an additional market within a diversified value chain.





Cat trying out dried round goby during the initial tests.



A dog with a round goby treat. Around 80% of the trial dogs finished the portion and asked for more.

READ MORE IN THE PROJECT RESULTS
D2.4 – Prototypes of pet snacks

A safe and nutritious food fish

Around 300 samples from across the Baltic Sea region were analysed for contaminants. Heavy metal concentrations were well below limits, while dioxin and PCB levels were below 10% of the EU limit. PFAS4 levels were below the applicable limit in over 98% of samples.

The overall results are encouraging. Heavy metals were well below legal limits, dioxins and PCBs remained below one tenth of the EU limit, and PBDEs occurred only in traces. These findings support round goby as a food resource across the region.

PFAS results also provide useful guidance for future sourcing. More than 98% of the samples were below the strict limit applied to fish. Concentrations varied significantly between sampling sites, and elevated levels were not evenly distributed across the Baltic Sea but were concentrated in specific locations. This means that targeted monitoring and careful sourcing can be built into future value chains, particularly around ports, river mouths and known pollution hotspots.

Two further findings are relevant for commercial use. In the analysed samples, larger fish generally contained lower concentrations of PFAS and PCBs. This contrasts with the general tendency for certain contaminants to accumulate as fish grow and age.

Processing can further reduce exposure to several contaminants. Analyses showed lower concentrations in fillets than in whole fish. Cadmium and lead concentrations were around 60–65% lower, while PFAS-compounds, PCBs and PBDEs were approximately 30-45% lower.

Alongside these findings, round goby also offers nutritional benefits. It is a lean, protein-rich fish, containing around 1% fat and approximately 18% protein, giving it a nutritional profile comparable to many familiar lean white fish species.

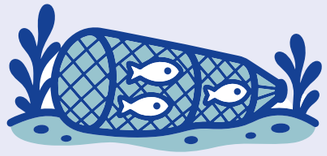


Samples were collected from a wide range of locations in the Baltic Sea and analysed for substances related to food safety. The results are encouraging!

Round goby's potential as a food resource

Overall, the findings support the use of round goby as a nutritious seafood resource.

300
samples comprising multiple fish from the Baltic Sea.



Dioxins and PCBs
Well below EU-limits.

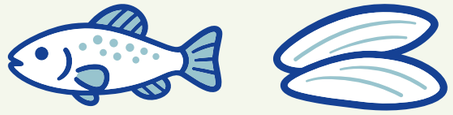


PFAS
Over 98% of the samples were below limits for PFAS4.



98%
below limits

Whole fish vs. fillets
Comparable analysis of whole fish and fillets showed lower levels in fillets.



Whole fish | Fillets

Cadmium and Lead

60-65%
lower in fillets

PFAS-compounds, PCBs & PBDEs

30-45%
less in fillets than in whole fish

Heavy metals
Well below EU-limits.

Hg **Cd** **Pb**

READ MORE IN THE PROJECT RESULTS
D2.5 – Contaminants and dietary quality

Creating more value from every kilogram

With strong consumer response, encouraging food safety results and several product concepts, the commercial focus turns to efficiency and how each kilogram of landed fish can create the most value.

The Baltic market for round goby products is still young, creating opportunities for producers to establish new products and supply relationships around a locally available raw material.

The key is to select processing methods that match the characteristics of the fish and the needs of the target market. Trimmed fillets yield around 22% of whole fish weight and manual filleting is labour intensive, making fillets best suited to selected higher value uses. Headed-and-gutted fish, mince and other products offer opportunities for more efficient utilisation. Industrial equipment tested in the project demonstrated substantial reductions in processing time.

The most suitable level of processing depends on the intended use and price. More processed products can save work in restaurants and public kitchens, but they must remain competitive. Several smart solutions to reduce cost and make the most of the fish were identified. Round goby mince proved versatile in public kitchens and was combined with plant ingredients in hybrid products to reduce costs. Selected high-end restaurants showed willingness to pay up to approximately €13/kg for whole round goby.

To support commercial development, the project compiled measured processing times and yields into the RoundGoby Processing & Cost Calculator, allowing users to explore how labour costs, fish prices, processing methods and selling prices affect production costs and potential margins.

Round goby was prepared and served at scales ranging from small tastings to activities serving up to 5,000 portions. Products included fillets, roe, smoked fish, mince and restaurant dishes, demonstrating the versatility of the raw material. Traditional taste and seasoning preferences varied between countries, showing the importance of adapting products to local markets. However, international tests also showed that the same recipes could be well received across the Baltic Sea region.

Further scaling will require investment and coordination, particularly in freezing, logistics, selective gear, sorting equipment or sorting panels fitted to fishing gear and industrial processing. In areas with seasonal catches spread across smaller landing sites, decentralised or mobile processing could offer an alternative to permanent infrastructure, depending on local economic conditions.

Good raw material quality remains essential throughout the value chain. Careful handling, rapid chilling, hygienic storage and suitable transport help preserve quality. As a lean fish with a low-fat content, round goby is also less susceptible to fat oxidation than fatty fish, making it well suited for frozen storage.

Alongside freezing, canning offers another way to extend product availability beyond the fishing season. The project developed a canned, spreadable round goby product using headed-and-gutted fish, with positive consumer responses. Using a bowl cutter to process the fish can reduce problems with perceptible bones, increase calcium content and improve raw material utilisation.






Products from the manual processing trials.

READ MORE IN THE PROJECT RESULTS
D1.2 - BSR Overview of round goby products and processing methods
D2.2 - Prototyping and upscaling of new, higher value round goby food products
RoundGoby Processing & Cost Calculator

Industrial processing makes the difference

Processing efficiency is one of the project's strongest examples of a challenge becoming a solution. Project trials and capacity-based calculations showed how industrial equipment could reduce processing time and direct labour costs.

- SEAC FPM200 heading and gutting equipment was estimated to have a processing capacity of approximately 1,200 kg of whole round goby per hour.
- LISNA or SEAC filleting machines improved fillet production efficiency.
- A BAADER 600 meat separator dramatically cut the time needed to produce mince.
- Combining SEAC heading and gutting equipment with a BAADER 600 meat separator or with any of the filleting machines could potentially reduce direct labour requirements by approximately 90% for fillet production and 95% for mince production compared with manual processing, based on the processing times and machine capacities used in the project's cost calculations.







Different types of processing equipment were tested to produce round goby products.

Project trials and capacity-based calculations demonstrated how industrial equipment could substantially reduce the labour required to process round goby. As equipment for heading, gutting, filleting and meat separation has already been tested, processors have a practical starting point for further scale-up.

Selective fishing for a valuable resource

Latvia's experience shows what becomes possible when fish abundance, suitable gear, market demand and cooperation are connected. The project's fishing trials explored how that experience can inspire locally adapted fisheries elsewhere in the Baltic Sea.

Round goby is a bottom-dwelling fish, making bottom-set passive gears a natural choice for a targeted fishery. The initial review identified fish traps as the most promising gear family. The subsequent project trials further developed that conclusion. Multipots performed as well as, and in most cases better than, the tested fyke nets across project locations, while Latvia's specialised trap net achieved the highest catches under Latvian conditions.

Fyke-type gears also highlight the importance of designing fisheries around local ecosystems. To minimise eel bycatch, the project tested modified fyke nets with escape openings designed to allow eels to leave the gear while retaining round goby. The trials showed that catch efficiency could be substantially improved without compromising the selectivity of these openings. Combined with appropriate seasonal regulations, such solutions can help balance eel protection with commercially viable round goby fishing.

One of the most useful findings is that there does not need to be one Baltic-wide gear solution. Fish size and abundance vary between locations, and national regulations differ. This makes locally adapted passive gears a strength whereby multipots, fyke nets and trap nets can be selected and modified to fit local conditions, bycatch requirements and fishing traditions. Fish size depended more strongly on location than on gear type at most test sites, further underlining the need for locally adapted fisheries.

The trials also clarified how to move forward. Fishing periods should follow local seasonal movements, and regulations should allow controlled testing of selective gears. Round goby is not subject to EU quotas or species-specific restrictions under the Common Fisheries Policy, providing room to develop fisheries that combine commercial use with management objectives while fully respecting technical, bycatch and food-safety rules.

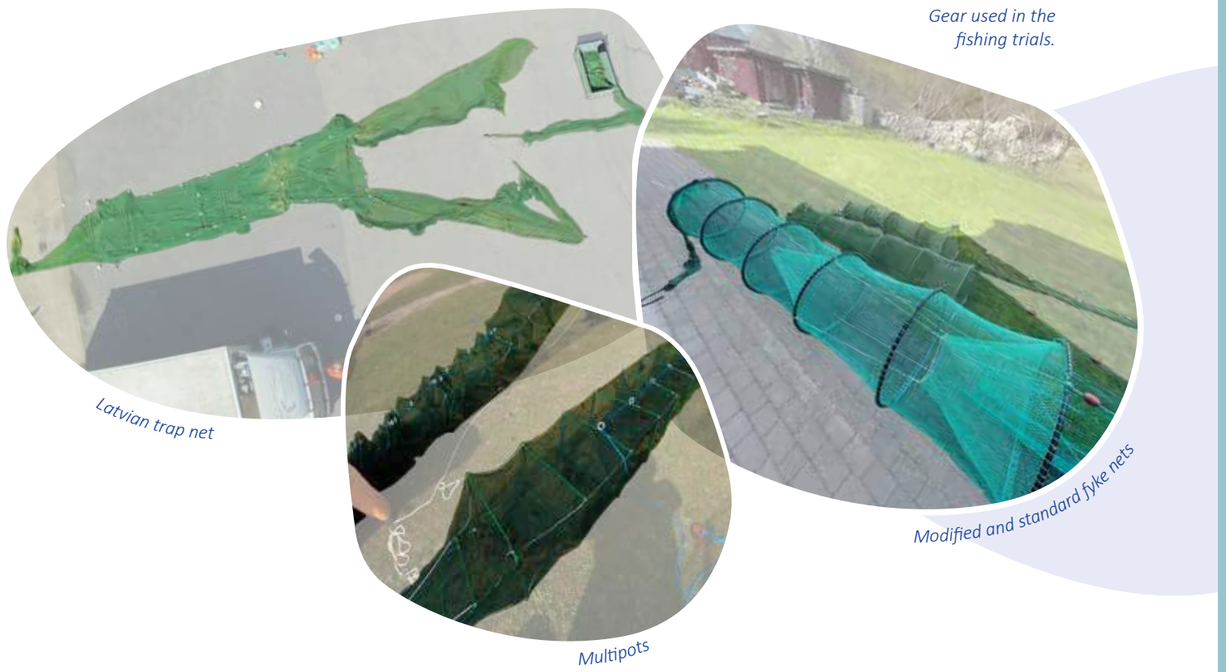
In Baltic coastal areas, seal interactions can create additional challenges for passive fisheries. Seal-resistant gear solutions, including trap designs already used in other coastal fisheries, should therefore be considered when developing locally adapted round goby fishing methods.



Fisheries & Management
Science & Monitoring

The project trials identified several promising gear solutions and practical lessons for locally adapted round goby fisheries.

- Increasing the height of fyke nets substantially improved catch efficiency without compromising the selectivity of the escape openings. Adding wings to guide fish towards the entrance further increased round goby catches.
- Multipots, a new gear for round goby, matched and in most cases beat fyke nets across the Baltic Sea.
- The trial multipots were 20 m long, 60 by 40 cm, with 36 entrances and a 10 mm mesh. They are inexpensive, easy to handle and collapsible, which suits small boats.
- Latvia's specialised round goby trap net achieved higher catches than multipots under Latvian trial conditions.
- Larger trap systems and multipots tended to catch the commercially relevant sizes above 140 mm. Fish size nevertheless depended more strongly on location than on gear type at most test sites.
- Denmark is so far the only participating country to have written multipots into national fisheries regulations, which shows regulatory adoption is achievable.



Gear used in the fishing trials.

Latvian trap net

Modified and standard fyke nets

Multipots

READ MORE IN THE PROJECT RESULTS

D1.3 - Report on efficiency and regulations on methods in round goby fishing
D2.1 - Testing most appropriate fishing gear to minimise bycatch and increase cost-efficiency of round goby fishery
D3.2 - Recommendations for round goby fisheries in the Baltic Sea

Knowing where to find opportunities

Gear is only efficient as long as there is enough round goby to catch to be worth a morning's work. Currently, the round goby can be found in nearly all parts of the Baltic Sea, apart from in the coldest northernmost areas.

Across the four countries with usable catch data – Denmark, Sweden, Poland and Latvia – reported catches increased and subsequently declined between 2015 and 2019. However, differences in monitoring, fishing effort and data availability mean that these trends cannot be interpreted as direct measures of changes in regional abundance.

Latvia records the highest amounts caught, the highest catch per unit effort and the largest fish, though Latvian biomass has declined since 2016, most likely from increased fishing pressure and potentially also a decline in coastal blue mussels.

In Sweden, another pattern can be observed. Catch per unit effort is highest in the Western and Eastern Gotland basins, the Arkona basin holds the largest individuals, and both abundance and body size are trending upwards, from a baseline still far below Latvia's. Denmark peaked early at Bornholm and eastern Lolland but has declined since, with average fish length falling over time. Polish national statistics cover all gobiidae together and therefore cannot be interpreted specifically for round goby. The project's own test fishing, however, found high densities in the Gulf of Gdańsk, particularly around ports, marinas and breakwaters at Puck, Jastarnia, Hel and Władysławowo.

Areas with potential for targeted fisheries

The project identified several areas with potential for targeted round goby fisheries. These include the open Baltic coast of southern Latvia and the north-eastern Gulf of Riga, the Gulf of Gdańsk in Poland, the Western and Eastern Gotland basins in Sweden, and Bornholm, south-eastern Zealand and the islands south of Zealand in Denmark. High catches recorded during project trials near Gävle also indicate that parts of the Swedish Bothnian Sea coast deserve further investigation along with coastal areas in Finland and around Åland. Conditions differ between these areas, and abundance can vary substantially between years, so local monitoring remains important when assessing commercial potential.





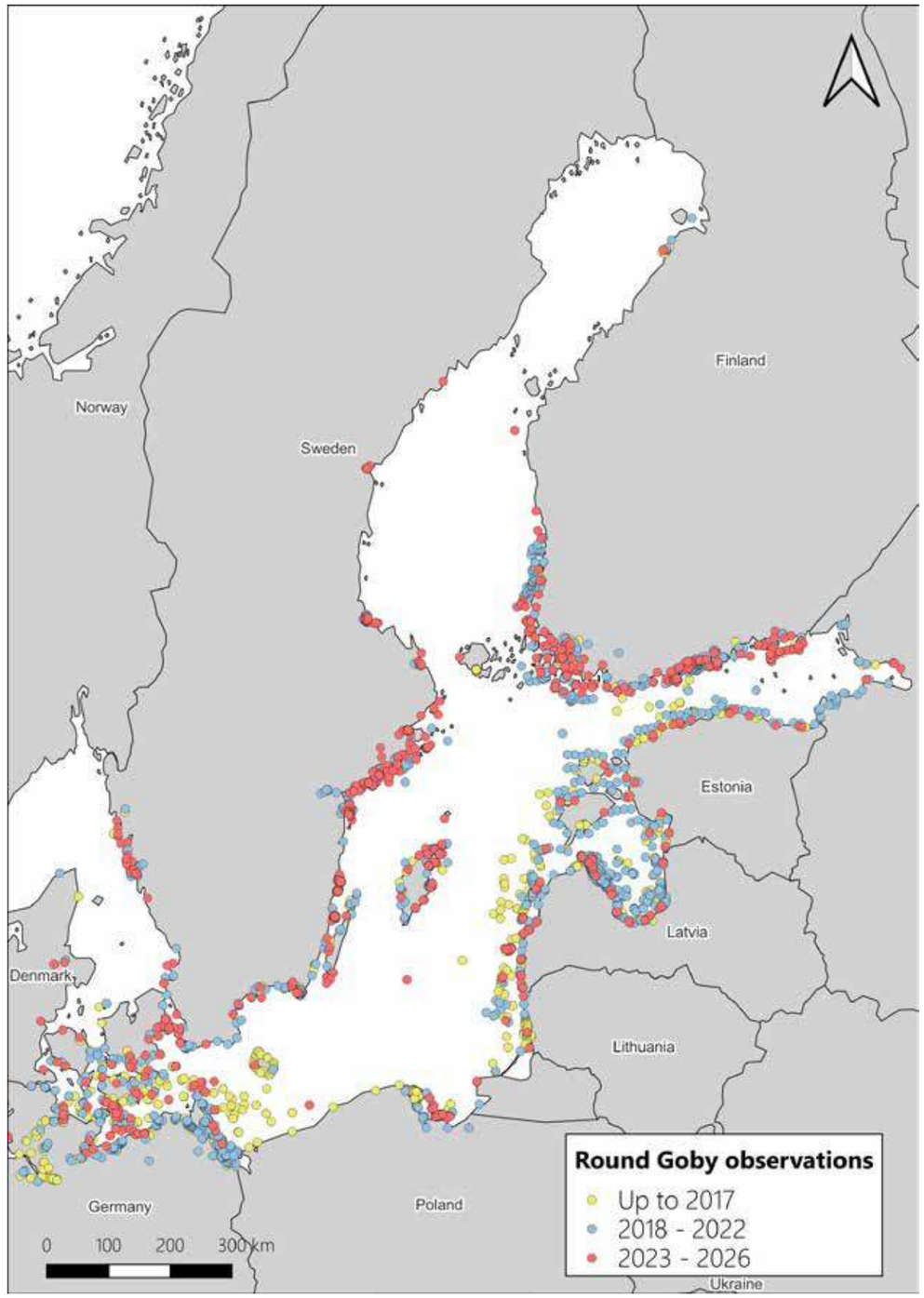
Species interactions and ecological context

Understanding where round goby can support viable fisheries is only part of the picture. Equally important is understanding its role in the coastal ecosystem, including predation on blue mussels and other bottom-dwelling invertebrates, competition with native fish and potential benefits for predatory species. Continued work is needed to understand the local effects in sensitive habitats, including river and spawning environments, and potential implications for commercially and ecologically important species.

Round goby was first recorded in the Baltic Sea in the Gulf of Gdańsk in the early 1990s, most likely introduced through ships' ballast water. Genetic analyses of samples from across the region showed similar diversity and generally weak geographical population structure, with samples clustering into three broad genetic groups that may reflect separate invasion events. The results indicate recurring exchange and mixing between areas and provide limited support for separate genetic management units across most of the Baltic Sea. Preventing further introductions and spread through shipping remains an important consideration for managing invasive aquatic species.

The regional picture provides a basis for the next step. A shared monitoring framework would make it easier to identify where abundance, fish size and coastal fishing capacity create the best conditions for utilisation. Combining scientific surveys with fishers' knowledge can turn changing distribution into actionable information for both management and business development.

Fisheries & Management
Science & Monitoring



Occurrence of round goby in the Baltic Sea region until 2026.

READ MORE IN THE PROJECT RESULTS

D1.4 - Analysis of existing catch data and investigation of stock structure in the Baltic Sea

Targeted round goby fishery - a Latvian success story

Latvia has the most developed targeted commercial round goby fishery in the Baltic Sea Region, supported not only by favourable stocks but also by a government-supported coastal fish monitoring programme and continuous collaboration with local fishers.

The programme provides consistent data for following changes in the stock while bringing fishers' practical knowledge into research and management. This cooperation has supported gear development and spatial targeting and gives authorities a stronger evidence base for management decisions.

This is an opportunity for regional cooperation. Comparable monitoring would allow countries to follow changes in abundance, identify emerging fishing opportunities and connect ecological knowledge more directly to commercial planning.

Latvia also benefits from favourable conditions, including relatively high abundance and larger individual fish, so its commercial fishery cannot simply be replicated elsewhere. However, the close cooperation between fishers, researchers and authorities provides a useful model for monitoring and knowledge exchange that can be adapted to other Baltic regions.

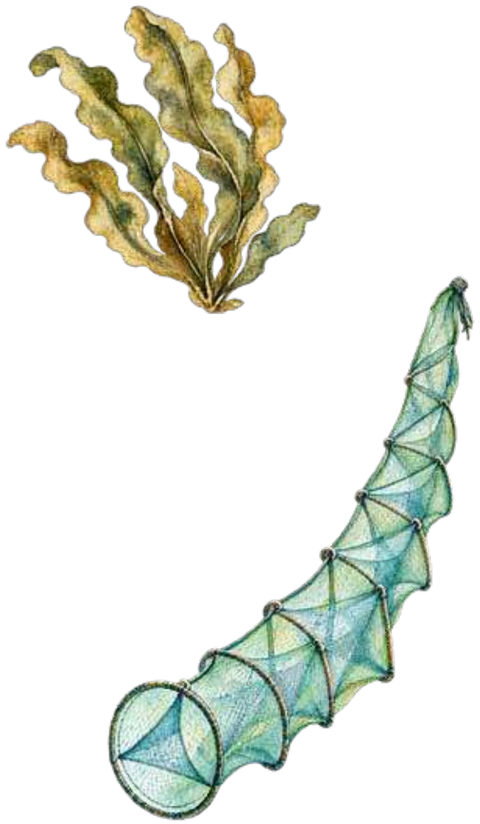
A concentrated season that creates storage opportunities

Round goby catches are strongly seasonal, with the highest catch rates generally occurring in late spring and early summer. The project's test fishing also showed the highest catch rates mainly in May and June, although the timing and magnitude of the peak varied between locations. Peak catches reached roughly 1,000 fish per gear unit per night in Gävle, 320 in Guldborgsund and 150 in Ronneby.

Seasonality is one of the fishery's defining characteristics and can be planned for. The concentrated spring catch creates a clear role for flexible fishing, freezing and storage, allowing the raw material harvested during the peak season to supply processors and markets over a much longer period or to process during less intensive periods.

- The peak coincides with other coastal fisheries, making flexible multi-species gear and planning valuable for fishers.
- Freezing and storage can transform a short catching season into a longer selling and processing season.
- Coordinated landing, storage and sales can help processors and buyers access more predictable volumes.

The pathway is therefore practical. Fishers should use flexible gear that fits coastal fishing operations and build sufficient freezing and storage capacity to extend the availability of the spring catch. This turns seasonality into a logistics and investment opportunity rather than a limit on market development.



Connecting a Baltic value chain

The next commercial step is to connect the results already demonstrated at each end of the chain, fishers who can catch round goby, processors who can turn it into attractive products, and consumers who responded positively to the products and expressed interest in buying them. A coordinating function between these actors can unlock much of the remaining potential.

Test your own business case

There is no single Baltic business case for round goby. Labour costs, fish prices, processing methods and market prices differ between countries and businesses. Based on measured processing times and yields from the project's trials, the RoundGoby Processing & Cost Calculator allows users to explore how these factors affect production costs and potential margins under their own conditions.

Adjust labour cost, round goby purchase price, processing method and product selling price to explore different scenarios.

The business analysis identified several promising approaches, depending on local abundance, existing fishing activity, processing capacity, market access and regulation. Opportunities range from fishers adding round goby as a complementary seasonal catch, through processing-based models, to integrated businesses combining catch, processing and direct sales. Pet food provides an additional model where human-food markets or fish size make other routes less suitable.

The project's expert survey reinforces this picture. Low market demand was the most frequently identified barrier to developing round goby fisheries, followed by gear restrictions and legal or regulatory constraints, while insufficient data and monitoring were also highlighted. Perspectives differed between stakeholder groups where fishers tended to emphasise practical constraints such as gear availability and licensing systems, while authorities and researchers placed greater emphasis on regulatory and monitoring issues.

Latvia and Estonia could also serve as regional processing hubs, allowing fishers and wholesalers in other Baltic countries to supply raw or semi-processed catches to established processors rather than investing in new facilities. This approach could reduce investment needs and support cross-border value chains, provided that sufficient volumes and coordinated logistics make transport economically viable.

Latvia provides a useful example of the economic conditions required for a commercial round goby fishery. In 2026, first-sale prices ranged from approximately €0.70/kg for smaller fish to €1.20/kg for larger individuals. Fishers indicated that an average price of around €1/kg, combined with sufficient seasonal catches, was needed to maintain profitability. Reported annual landings in Latvia have ranged between approximately 510 and 960 tonnes in recent years, demonstrating that commercial fisheries can operate at a substantial scale when stocks, infrastructure and markets are favourable.

A viable price paid to the fishers is central to that development, and industrial processing, efficient logistics and higher-value product formats can help create room for it. Regulations will also need to evolve with the opportunity, allowing selective fishing methods to be tested and adopted while maintaining conservation requirements.

The project has demonstrated the essential building blocks of a round goby value chain, from selective fishing and efficient processing to attractive products and positive consumer responses. The next step is to connect these results into resilient coastal businesses and functioning local and regional markets.

Building round goby value chains

Creating value from round goby while supporting its management requires a connected value chain from selective fishing and reliable storage and logistics to efficient processing, attractive products and viable markets. Each step must be adapted to local conditions, with cooperation between actors linking the chain together.

1 Fishing

- Selective, low-impact fishing (fyke nets, trap nets, multipots)
- Seasonal, complementary fishery
- Local fishers and knowledge

2 Storage & Logistics

- Transport from landing sites to processors
- Chilled or frozen storage adapted to seasonality
- Infrastructure at local and regional level

3 Processing

- Sorting and size grading (large, medium, small)
- Whole fish, fillets, mince or canned products
- Use of all sizes

4 Products

- Fresh, frozen and canned products
- Ready meals and food ingredients (e.g. patties, spreads)
- Ingredients for pet food
- Cascading use of all sizes and side-streams

5 Markets

- Restaurants and chefs
- Public kitchens and institutions
- Retail and fish markets
- Pet food market
- Consumers in the Baltic region and beyond

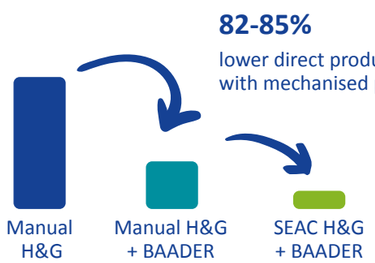
How do labour costs, fish prices and processing methods affect the business case?

The RoundGoby Processing & Cost Calculator allows anyone considering round goby processing to explore how fish prices, labour costs and processing methods affect production costs and potential margins. Users can adjust the inputs to reflect their own conditions and compare scenarios. The example below illustrates estimated costs of producing 1 kg of round goby mince in Sweden, Estonia and Latvia.

Example: Estimated cost of producing 1 kg of round goby mince

	Sweden	Estonia	Latvia
Raw fish price (€/kg)	2.50 €	1 €	1 €
Labour cost (€/hour)	22.19 €	11.86 €	11.90 €
Manual Heading & Gutting	35.24 €	17.33 €	17.37 €
Manual Heading & Gutting + BAADER 600 meat separator	11.82 €	5.50 €	5.51 €
SEAC Heading & Gutting + BAADER 600 meat separator	6.38 €	2.59 €	2.59 €

Costs include raw fish and direct labour. Equipment investment costs, energy, packaging, transport and overheads are excluded. Results are indicative and based on the project's processing trials and capacity calculations.



82-85%
lower direct production costs with mechanised processing

Raw fish price
Lower fish prices reduce production costs.

Labour costs
Labour costs vary between countries and have a big impact on the final cost.

Processing method
Mechanised processing (SEAC H&G + BAADER) significantly reduces labour time and lowers production costs.

READ MORE IN THE PROJECT RESULTS
D3.3 – Business models and financing
RoundGoby Processing & Cost Calculator

All themes

Recommendations: from potential to established resource

The RoundGoby project has demonstrated that round goby is more than a species to manage: it is a usable, attractive and versatile Baltic resource. The next step is to build on the project's pilots and create locally adapted value chains that connect responsible fishing, efficient processing and markets that value the fish.

The recommendations draw on dialogue with fishers, authorities, researchers, processors and other stakeholders throughout the project, helping to connect the project's technical results with practical needs and challenges across the Baltic Sea Region.

Commercial utilisation of invasive species presents an ecological paradox: while creating economic value can encourage fishing and help control populations, it may also create incentives to maintain the species as a commercial resource. Experiences with invasive red king crab in Norway illustrate this challenge. For round goby, ecological management and commercial utilisation should therefore be developed together, recognising their mutual dependence. Monitoring programmes and management plans are essential to balance ecological objectives with viable fishing opportunities. Commercial development should support management objectives and must not create incentives for the deliberate introduction or further spread of round goby.
By aligning these interests, commercial utilisation can contribute to managing the species while creating food, income and opportunities for coastal communities.

1. Build knowledge that supports ecosystems, fisheries and markets

- **Establish comparable, long-term monitoring programmes** and develop adaptive management plans across the Baltic Sea Region, combining scientific data with fishers' knowledge to support both ecological objectives and viable fisheries.
- **Continue research on distribution, stock development and ecological impacts,** and integrate contaminant monitoring where commercial utilisation is developed, particularly around potential pollution hotspots.
- **Strengthen fisher–science cooperation** so that changes in stocks, catches and ecological conditions can be detected early and management adapted accordingly.

2. Expand sustainable, selective and locally adapted fisheries

- **Target fishing efforts where ecological management needs,** fish abundance and commercial opportunities overlap, adapting activities to local conditions and management objectives.
- **Prioritise live-catching passive gears such as multipots,** fyke nets and trap nets, adapted to local abundance, fish size, habitat, bycatch risk and national regulation.
- **Review national rules that unnecessarily prevent testing** or adoption of selective round goby fishing methods. Regulatory pathways should allow controlled experimentation and adaptation while maintaining conservation requirements.
- **In many areas, the strongest business case is round goby** as a seasonal complementary species that diversifies coastal fishing income.



All themes

3. Invest in the infrastructure that unlocks the market

- **Increase freezing and storage capacity** in areas where seasonal catches cannot immediately be absorbed by the market. Catches are strongly concentrated in late spring and early summer, making storage a key enabling investment where seasonal landings exceed immediate demand.
- **Support access to and investments in processing equipment** for heading, gutting, filleting, separation and sorting. Project trials show that industrial equipment can substantially reduce processing time and address one of the main barriers to profitability.
- **Explore cross-border processing opportunities** by connecting fishers and wholesalers with processors in Latvia and Estonia. Using existing capacity could reduce the need for new investments, provided that sufficient catch volumes and efficient logistics can be secured.
- **Create coordinating functions** that can aggregate catches from several fishers, organise storage and transport, connect supply with processors and buyers, and reduce the risk carried by individual small-scale operators.
- **Use national and EU funding mechanisms,** including relevant future National and Regional Partnership Fund opportunities, to reduce first-mover risk for infrastructure, processing technology, monitoring and selective gear.



Cooperation between fishers and scientists should be strengthened to detect changes in fish stocks, catches and ecological conditions at an early stage.

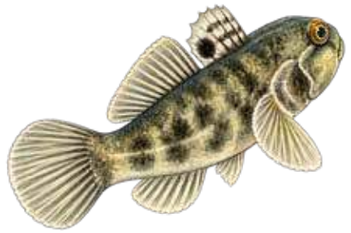
4. Build diversified, high-value routes to market

- **Match fish size and quality to the most suitable** product. Larger fish are suitable for fillets, whole, headed and gutted products and higher-value culinary uses, while mince, canned products and pet food provide routes that can increase utilisation of smaller fish.
- **Prioritise products that reduce labour and bone-related barriers,** including headed-and-gutted fish, mince and familiar processed products.
- **Use public kitchens as a strategic entry market** where procurement conditions allow it. Schools, municipalities and other public kitchens can provide a route for introducing the species at a meaningful scale and normalising an unfamiliar raw material through familiar formats. Public procurement can support market introduction, but only when price, supply, traceability, logistics and kitchen requirements are addressed together.
- **Develop premium pet-food applications** as a complementary market, particularly where whole-fish utilisation creates value from smaller fish or material not suited to human-food products.
- **Strengthen local and regional markets** alongside export opportunities. A resilient value chain should not depend on one destination or one buyer.

5. Build recognition through taste and positive communication

- **Present round goby first as a lean, protein-rich, mild and versatile food fish** that can become attractive restaurant dishes, public meals and processed products. Food-safety communication should remain transparent and include location-specific monitoring where appropriate.
- **Focus communication on taste,** quality, local production, coastal livelihoods and responsible use of Baltic resources. The ecological story adds value when it is explained as part of a positive solution rather than used as the fish's primary identity.
- **Continue tastings, chef collaborations, demonstrations and public-kitchen trials.** The project's consumer results show that tasting is one of the most effective ways to turn unfamiliarity into interest.
- **Use familiar, appealing products** to make the first experience easy, while gradually building recognition of round goby as a valuable food resource from the Baltic Sea.





6. Put coastal fishers at the heart of development

- **Recognise that commercialisation depends on a viable small-scale coastal fleet.** Fishers provide not only catches but also local ecological knowledge, monitoring capacity and practical gear development.
- **Create business models that allow fishers to retain more value** through local processing, direct sales or shared infrastructure where appropriate.
- **Explore whether targeted removal** carried out primarily for documented ecological management objectives could qualify for public support or ecosystem-service-type financing where market revenues alone cannot cover the cost.
- **Include fishers, scientists, authorities, processors and buyers** in local management and value-chain planning from the beginning rather than developing ecological and commercial measures separately.

7. Continue Baltic cooperation

- **Maintain a Baltic network** for exchange on round goby management, monitoring, fishing methods and market development beyond the project period.
- **Share comparable monitoring and fisheries data,** practical gear experience and emerging management approaches between countries rather than developing solutions independently.
- **Continue dialogue** between fishers, researchers, authorities, processors and market actors, while linking round goby knowledge to relevant Baltic fisheries and environmental cooperation structures.
- **Use the project results as a common starting point,** while allowing management and utilisation models to be adapted to national and local conditions.
- **Transfer successful market-introduction approaches between Baltic countries,** including the use of tastings, chef collaborations, public kitchens and familiar product formats, while adapting them to national consumer preferences and market conditions.





Roadmap: turning project results into lasting value

1

Now (0-1 years) **Assess local potential**

Map current distribution, ecological concerns, regulations, fishing capacity, likely buyers and existing infrastructure. Identify where ecological management needs overlap with sufficient round goby abundance and an active coastal fleet. Work towards establishing monitoring programmes and management plans. Test potential business cases using local fish prices, labour costs, processing options and expected market prices. The RoundGoby Processing & Cost Calculator provides a practical starting point for this assessment.

Authorities, researchers, fishers

2

Short term (1-2 years) **Develop local value chains**

Bring fishers, authorities, researchers, processors and buyers together in selected demonstration areas. Use passive gear permitted under local regulations, bycatch solutions, landing routines, storage, transport, processing and product to market combinations as one connected system rather than as separate pilots.

Fishers, processors, local authorities

3

Medium term (2-4 years) **Invest in solutions**

Use the results from value-chain trials to direct investment towards the actual constraint: freezing and storage, processing machinery, sorting, gear, logistics or coordination. Public funding can reduce first-mover risk.

Processors, investors, funding bodies

4

Scale up (3-5 years) **Develop markets**

Combine several outlets rather than relying on a single product, export market or customer. Restaurants and markets for larger fish, public kitchens for mince and hybrid products, pet food and other applications for additional fractions, and export where it strengthens rather than destabilises the regional value chain.

Businesses, buyers, processors

5

Long term **Adaptive management**

Maintain monitoring, fisher–science cooperation and Baltic exchange of data, experience and management approaches as fisheries and utilisation develop. Fishing pressure, ecological effects, contaminant patterns, market conditions and distribution will change over time. Management rules and commercial effort should therefore be reviewed and adapted rather than fixed around current abundance and hotspots.

Authorities, researchers, fisheries organisations

Fisheries & Management
Infrastructure & Processing
Building the Value Chain

The direction ahead - a new chapter for round goby

Round goby will create different opportunities in different parts of the Baltic Sea. Some areas can support targeted commercial fisheries, while others may focus on smaller-scale utilisation linked to local management. The project has produced a toolbox rather than a single model, including monitoring approaches, selective gears, processing solutions, product concepts, consumer evidence and market pathways that can be adapted to local conditions.

The main lesson is how much has already been demonstrated. The fish can be caught selectively, processed efficiently, turned into a wide range of products, served in restaurants and public kitchens, and enjoyed by consumers. The next phase is about scale, connection and a long-term perspective, bringing science, fishers, processors, public authorities, chefs and buyers together so that these possibilities become functioning value chains.

As a result of this project, we now know that round goby could, and should, be presented with a new identity in the Baltic Sea. Not only as a species that requires management, but as a good food fish with genuine potential. By continuing the work started by the RoundGoby project, the region can turn knowledge into new seafood products, stronger coastal businesses and practical examples of how responsible management and utilisation can reinforce each other.

The project has shown the way. The opportunity now is to take it further.



Smoked round goby, one of many products with market potential.

EXPLORE ALL ROUNDGOBY PROJECT RESULTS

Scan to access the reports and outputs referred to throughout this guide.



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