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Fisheries innovations under the European Maritime and Fisheries Fund 2014-2020

In order to adapt commercial fishing to the ever-evolving risks of climate change and move towards more sustainable fisheries, the EMFF 2014-2020¹ provided ample support towards innovations in the fisheries sector.

This included the funding of many different projects promoting innovations in the fisheries sector:

- **new products, equipment, processes or techniques** to make commercial fishing more sustainable (Article 26);
- fisheries **management and organisation systems** (Article 26);
- **research partnerships** between scientists and fishermen (Article 28);
- **conservation measures and regional cooperation** (Article 37);
- **more selective fishing gears, reduced discards, and better handling of unwanted catches** to limit the impact of fishing on the marine environment and adapt fishing to the protection of species (Article 38);
- **improved technical or organisational fisheries knowledge** reducing impacts on the environment and achieving sustainable use (Article 39);
- protection and restoration of marine biodiversity and ecosystems through **investments in facilities, management of natural resources, management of N2000 and Marine Protected Areas, and increased public awareness** (Article 40).

This report provides specific examples of the types of unique projects funded under the EMFF in support of more innovative fisheries throughout the European Union.

¹ Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund



Smart Fishing: University research into integration of new technologies for sustainable and safe local fishing (Portugal)

EMFF Article 26: Innovation

Description of operation: Universidade Nova de Lisboa has collaborated with the ALA-ALA Fishing Association in the coastal and riverside areas of Almada to promote dialogue on the safety and sustainability of local fishing, with the aim of developing an Integrated Technological System.

EMFF committed: EUR 111 860

Main outcomes of project:

- Co-creation of a governance model with the fishing community, focused on identifying and solving problems with sustainability and safety of local fishing
- Co-involvement of fishers and researchers to develop an Integrated Technological System prototype, to solve the problems identified
- Involvement of legislators and public authorities to discuss the use of technological products developed
- Interactive website for fishermen/women
- Production of documentary
- Organising and hosting of 4 Summits

For more information:

Mônica Mesquita, NOVA University Lisbon
mmbm@fct.unl.pt
+351 913355334
www.smartfishing.olo.blue/



AUTOCATCH: Development of a real-time catch monitoring system with automatic detection of the catch composition to minimise catch of unwanted species and sizes (AUTOCATCH)

EMFF Article 26: Innovation

Description of operation: The Technical University of Denmark has developed an automatic, digital catch-information system to provide detailed live information on catches entering the trawl and minimize catches of unwanted species. The technology takes live video feed provided by TEKNOFISK cameras and automatically recognize species entering the net, enabling fishers to make informed decisions in real-time.

EMFF committed: EUR 451 047

Main outcomes of project:

- Digitalization of the catch process in demersal trawl fisheries
- Development of a digital tool for fishers to visualize the entire catch process
- Potential transformation of trawl fishing into a fully-informed digital process, limiting unwanted catches and improving sustainability

For more information:

Ludvig Ahm Krag
lak@aqua.dtu.dk
+45 2131 6457
<https://orbit.dtu.dk/en/projects/development-of-a-real-time-catch-monitoring-system-with-automatic>

MONTEREAL: real-time catch monitoring for small-scale bivalve dredge fisheries (Portugal)

EMFF Article 28: Partnerships between scientists and fishermen

Description of operation: The Portuguese Institute for the Sea and Atmosphere (IPMA) has developed a global positioning and ground penetrating radar system device to be installed on board bivalve dredge vessels, to monitor real-time activity of Portugal's bivalve dredging fleet.

EMFF committed: EUR 397 002

Main outcomes of project:

- Real-time digital tracking of 250 commercial bivalve dredging vessels
- Creation of online platform and operational center to track vessels
- Spatio-temporal data on SSF fishing activities, fishing area and gears
- Facilitates implementation of management measures (creation of spawning sanctuaries; temporal closures to protect juveniles; maximum towing speed; protection of sensitive habitats; etc.)

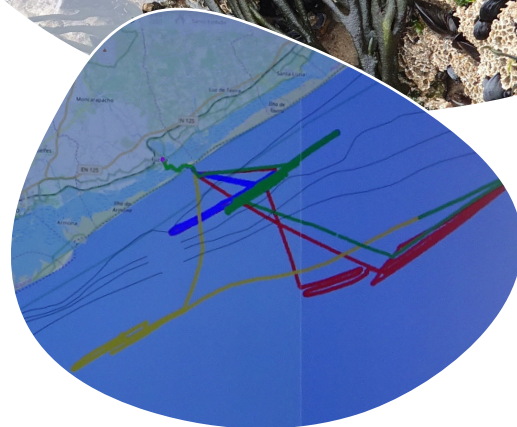
For more information:

Miguel Gaspar

mbgaspar@ipma.pt

+35 1 289700500

https://www.ipma.pt/export/sites/ipma/bin/docs/publicacoes/pescas.mar/projetos/Ficha_publicacoes_MAR2020_MONTEREAL.pdf



ECOFISH: Innovative eco-strategies for a sustainable fishery in the Gulf of Cádiz (Spain)

EMFF Article 40 (b) – (g), (i): Protection and restoration of marine biodiversity

Description of operation: Researchers at the University of Cádiz cooperated with fishers to develop innovative measures for environmentally sustainable fishing in the Gulf of Cádiz. EMFF funds were used to evaluate marine litter and discards; host meetings and interviews with the fishing sector; and organize workshops with fisheries administrations, researchers, conservationists, fishers and fisheries associations.

EMFF committed: EUR 83 482

Main outcomes of project:

- Over 100 research trips to evaluate by-catches, marine litter, and discards
- Registration of more than 30,000 seabirds of 33 different species
- Proposed increase of 8 km² of the Special Protection Areas for Birds (SPA)
- Delivery of workshops on managing discards under the landing obligation

For more information:

Gonzalo Muñoz Arroyo,

Faculty of Marine and Environmental Science, University of Cadiz

gonzalo.munoz@uca.es

+34 606765186

<https://www.programapleamar.es/proyectos/ecofish-estrategias-eco-innovadoras-para-una-pesqueria-sostenible-en-la-zepa-del-golfo-de>



Co-management as a method for ecosystem-based management and sustainable fishing (Sweden)

EMFF Article 28: Partnerships between scientists and fishermen

Description of operation: The co-management group of Norra Bohuslän, located in the Swedish west coast municipalities of Tanum and Strömstad, is increasing knowledge and communication of co-management as a method for ecosystem-based fisheries management. With the help of EMFF funds, the project beneficiaries have organised education and dialog meetings with policy officials, regulators, fishers and researchers.

EMFF committed: EUR 348 892

Main outcomes of project:

- Strengthened co-management organisation and increased awareness of co-management as a method of sustainable resource management among policy officials and regulators
- Highlighted critical components needed for successful resource management in a guidance that can be used when establishing co-management in new areas
- Contributed to enhanced public image and credibility of local commercial fishing among the wider public
- Organisation of trainings, information disseminations and media coverage, as well as strengthening local trademarks of fisheries products
- Increased capacity to resolve potential conflicts between opposing interest such as fishing sector and biodiversity proponents
- Evaluations of the project have demonstrated very high satisfaction with dialogue meetings and training opportunities

For more information:

Lars Tysklind (Strömstad Kommun)

lars.tysklind@stromstad.se

+46 526 190 00

<https://samforvaltningnorrabohuslan.se/index.html>



Development of 'Planes de explotación' by various Spanish Cofradías (Spain)

EMFF Article 37: Support for the design and implementation of conservation measures and regional cooperation

Description of operation: In Spain, management plans are used as a tool to establish multi-year frameworks to regulate shell-fishing activities. They aim to ensure environmentally, socially, and economically-sustainable harvesting of marine resources by establishing fishing schedules, fishing gear, catch specifications, and fishing effort.

These management plans are based on co-management and governance of resources, and heavily involve the fishing sector in their development and in assuming responsibilities for the sustainable management of resources. The fishing sector sends its management plan proposal to the Consellería del Mar, a public administration, which, after hearing the views of those interested in the plan, will determine the regulatory measures for the activity and propose its approval through an order from the consellería.

The General Plan 2024-2026 in Galicia, which includes 92 Exploitations plans for shellfish and seaweeds, has just been approved by the Fisheries department of the Regional Government. The Exploitation Plans are the result from a continued study of the evolution of resources and the habitat. These Plans include three years of biological, ecological, economic and social objectives that address sustainable long-term use of fishing resources, the improvement of incomes and the maintenance or creation of jobs.

Main outcomes of project:

- Plans on targeted species, extraction and control, semi-cultivation activities, care, monitoring, protection, and surveillance of shellfish banks
- Reference levels and indicators for the monitoring of management plans
- Development of plans for maritime tourism activities by fishers and shellfish producers
- Direct participation of fishermen and shellfish harvesters in organizing activities of production, commercialization, and protection of resources and ecosystems
- Alignment with the Marine Strategy Framework Directive (MSFD), providing data to assess marine environmental status
- Contribution to improving biodiversity, include measures for adaptation to climate change, and align with the concept of green infrastructure
- Improved collection of marine and environmental data by fishermen and shellfish gatherers



For more information:

Dirección Xeral de Desenvolvemento Pesqueiro – Consellería do Mar
Irmandiños s/n. Salgueiriños – 15701 Santiago de Compostela
cma.dxdesevolvemento@xunta.gal
+34 981 546 177
<https://mar.xunta.gal/es>
<https://www.pescadegalicia.gal/PlanesExp/index.htm>



DTU Aqua: Release of eels as a measure to improve the population (Denmark)

EMFF Article 37: Support for the design and implementation of conservation measures and regional cooperation

Description of operation: Through scientific trials assessing growth and survival, researchers at Danmarks Tekniske Universitet (DTU Aqua) used EMFF funds to help release eels into the wild and assess the contribution of eel releases to the Danish management plan.

EMFF committed: EUR 298 551

Main outcomes of project:

- Release of 1,625,000 eels in 2019
- 880,000 eels released in lakes and 745,000 eels released in streams
- Preliminary results show large density-dependent growth and mortality
- An 'Action plan for releasing eels in 2019' can be found on DTU Aqua's news portal: www.fiskepleje.dk

For more information:

Michael Ingemann Pedersen,
Danmarks Tekniske Universitet (DTU Aqua)
mip@aqua.dtu.dk
+45 35883100



Conversion from trawl to seine fishing (France)

EMFF Article 38: Limiting the impact of fishing on the marine environment and adapting fishing to the protection of species

Description of operation: Imanol Ugartemendia, from the fishing port of Ciboure in the French Basque Country, decided to transform an old 12 meter-long wooden trawler built in 1984 into a small purse seine boat to fish for small pelagics, mainly horse mackerel and sardines. The boat's transformation was made possible with the help of the last local shipyard still working with wood, and a marine architect who carried out a stability study.

EMFF committed: EUR 47 254

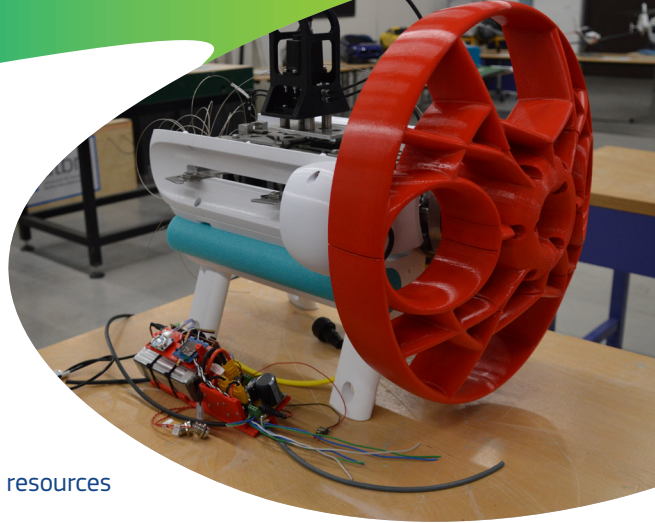
Main outcomes of project:

- Adaptation of hydraulic system at the front of the boat to pull the seine
- Installation of brine tanks (ice and water) to preserve fish
- The reduction of horse mackerel and mackerel quotas available to the boat has limited year-round fishing, so the transformation of the boat has not been fully exploited.

For more information:

Imanol Ugartemendia
+33 6 62 46 11 20





ASUR: Improved scientific knowledge of shark capture and post-discard mortality (France)

EMFF Article 39: Innovation linked to the conservation of marine biological resources

Description of operation: Surface longlines target tuna and swordfish but may accidentally catch sharks, some of which are vulnerable species. Researchers at the scientific institute IRD in La Réunion used EMFF funds to gather data on shark mortality after catch and release at sea, and to develop techniques to increase their likelihood of survival.

EMFF committed: EUR 307 164

Main outcomes of project:

- Electronic tagging of caught and released sharks to provide mortality data and estimated survival rate (survival rate around 90%)
- Important findings on factors affecting mortality after release
- Findings on best practices to limit shark mortality (fishers should cut branch line as close to the hook as possible)
- Development of prototype for an automatic branch line cutter to avoid additional stress on sharks and reduce shark bites

For more information:

Pascal Bach, Institut de Recherche pour le Développement (IRD)
pascal.bach@ird.fr
+33 4 99 57 61 29
<https://asur-allcut.com/>

Palica 2: Experiments with innovative fishing techniques to reduce accidental captures of large marine vertebrates by gillnetters (La Guyane)

EMFF Article 39: Innovation linked to the conservation of marine biological resources

Description of operation: In French Guiana, accidental catches are the main threat to dolphins and sea turtles that proliferate its coastal waters. A collaboration between the WWF and the regional fisheries committee (CRPMEM), the Palica 2 project evaluates four technical innovations developed to reduce interactions between fishers' driftnets and these sensitive marine species.

EMFF committed: EUR 549 983

Main outcomes of project:

- Evaluated four innovations developed by fishers:
 - reduced vertical profile of nets to allow dolphins and turtles to pass over them more easily
 - installation of 'acoustic repellants' on nets to keep dolphins away
 - removal of flotation ropes to prevent turtles from getting tangled in them
 - coloring floats red, so that leatherback turtles will not be attracted to them
- Trials resulted in either the same level of bycatch either reduced levels
- Third generation of the project (PELICA 3) is currently being developed to increase the number of trials and include other fishing practices

For more information:

<https://www.wwf.fr/espaces-prioritaires/guyane>
WWF France - Bureau de Guyane
Audrey Chevalier, project manager
2, rue Gustave Charléry
97 300 Cayenne
+594 (0) 594 31 38 28 (Office)
+594 (0) 6 94 28 80 16 (Mobile & Whatsapp)



CONTRAST: Studying interactions between rigging and bottom trawling and marine habitats in Atlantic coast Natura 2000 zones (France)

EMFF Article 40 (b) – (g), (i): Protection and restoration of marine biodiversity

Description of operation: AGLIA, IFREMER and the Regional Fisheries Committees of Nouvelle-Aquitaine, Pays de la Loire and Brittany are using EU funds to evaluate the effects of bottom trawling on seabeds in Natura 2000 areas, assessing the impacts of heavy and light gears.

EMFF committed: EUR 129 299

Main outcomes of project:

- Surveys of ~100 fishermen on trawls and fishing practices
- Use of modelling software to study practical cases to reduce the risks of impacts on the seabed
- Calculation of physical pressure exerted by trawls on the seabed
- Comparison of impact of heavy trawl gear and light trawl gears used by fishing vessels in Atlantic coast Natura 2000 areas
- Enables fishers adapting from heavy to light trawl gear

For more information:

François Gatel, Association du Grand Littoral Atlantique (AGLIA)
contact@aglia.fr
+33 5 46 82 60 60
<https://www.aglia.fr/contrast/>



DTU Aqua: Development of eDNA detection techniques to assess impacts of fishing regulations and area closures on environmental goals (Denmark)

EMFF Article 40 (b) – (g), (i): Protection and restoration of marine biodiversity

Description of operation: With the help of EMFF funds, researchers at Danmarks Tekniske Universitet are using environmental DNA to assess the impact of fisheries regulations on environmental targets related to marine benthic fauna.

EMFF committed: EUR 272 233

Main outcomes of project:

- Use of environmental DNA and underwater video to study sensitive species and monitor larger, vulnerable or threatened species
- Development of three environmental DNA assays to study how organisms contribute to preservation of biodiversity
- Environmental DNA is a fast and cheap method to detect the presence of aquatic organisms based on environmental samples

For more information:

Grete Elisabeth Dinesen, Danmarks Tekniske
Universitet (DTU Aqua)
gdi@aqua.dtu.dk
+45 31269241

