



**IP(19)06rev**

***NASCO Implementation Plan for the period 2019-2024***

***EU – Portugal  
(Revised version received 25 October 2019)***



|                               |                 |
|-------------------------------|-----------------|
| <b>Party:</b>                 | <b>UE</b>       |
| <b>Jurisdiction / Region:</b> | <b>PORTUGAL</b> |

## **1. Introduction**

### **1.1 What are the objectives for the management of wild salmon? (Max 200 words)**

In Portugal, the Atlantic Salmon is a resource supervised by different State Ministries, namely the Ministry of the Sea, the Ministry of the Environment and the Ministry of Defence.

Salmon occurs in the rivers of the northernmost region (Minho) of Portugal: in the Lima river, to the south and in the Minho to the north. In Portugal, the Minho river defines the border between Portugal and Spain (Galicia).

Considering that the occurrence of this distribution refers to the southern limit within the Northeast Atlantic region, it is of the utmost importance to assure protection to this species. To this effect the following elements have been considered in the cycle 2019-2024:

- 1) Constitution of a “Salmon community” gathering all State’s relevant departments involved in research/management/conservation/control of the salmon;
- 2) Enhanced communication, including information sharing, with Galicia’s authorities, and the harmonization of procedures and promotion of joint initiatives;
- 3) Improve the knowledge of the stock (genetics, age, etc.);
- 4) Habitat improvement.

As for the core threats, the Portuguese Administration considers that these are:

- Anthropogenic barriers, including system regulation;
- Lack of water quality;
- Changes in river dynamics;
- Pressure due to IUU fishing.

### **1.2 What reference points (e.g. conservation limits, management targets or other measures of abundance) are used to assess the status of stocks? (Max 200 words) (Reference: Sections 2.4 and 2.5 of the Fisheries Guidelines)**

At this stage, Portugal does not have robust scientific data over the existing salmon populations in the Minho and Lima rivers, in order to establish any biological reference points. The only available source of information are catch reports.

### **1.3 What is the current status of stocks under the new classification system outlined in CNL(16)11?**

| Stock Classification Score | Salmon Classification Category | No. rivers |
|----------------------------|--------------------------------|------------|
| 0                          | Not at Risk                    |            |
| 1                          | Low Risk                       |            |
| 2                          | Moderate Risk                  |            |
| 3                          | High Risk                      | 1 (Minho)  |
| N/A                        | Artificially Sustained         |            |
| N/A                        | Lost                           |            |
| N/A                        | Unknown                        | 1 (Lima)   |

**Additional comments:**

Since indicators are not sufficiently robust we cannot be confident on this classification.

|   |   |
|---|---|
| <b>1.4 How is stock diversity (e.g. genetics, age composition, run-timing, etc.) taken into account in the management of salmon stocks? (Max 200 words)</b>   |   |
| Stock/population diversity is unknown.  |   |
| <b>1.5 To provide a baseline for future comparison, what is the current and potential quantity of salmon habitat? (Max 200 words)<br/>(Reference: Section 3.1 of the Habitat Guidelines)</b>  |   |
| <p><b>Minho river:</b></p> <p>Based on the information available for other diadromous species, namely eel, the area of the hydrographic river network available for salmon is around 10% of hydrographic net. The Frieira dam (in Galicia) constitutes an insurmountable barrier for salmon, and creates an area where reproductive specimens are concentrated and more accessible to be caught. It is however worth mentioning that specimens utilized for restocking purposes are sourced from this area.</p> <p><b>Lima river:</b></p> <p>The current and potential salmon habitat area has been considered bearing in mind the existence of a considerable amount of uncertainty due to data limitations. To this effect, core information is still required:</p> <ul style="list-style-type: none"> <li>- Evidence to support the role of the river in the reproduction cycle of salmon;</li> <li>- A survey of the artificial barriers only exists for the main river, and not yet for the tributaries.</li> <li>- The spawning grounds are unknown,</li> </ul> <p>Considering the following elements:</p> <p>a) The total extension of the river basin and assuming that there are no insurmountable obstacles in the tributaries downstream of Touvedo dam, a situation that should be referred to as unlikely and resulting from a knowledge gap, which should be clarified in the future;</p> <p>b) Assuming that the fish lift of the Touvedo dam is not efficient for salmon;</p> <p>We estimate that the habitat area available for anadromous migrators in the Lima river is 33%.</p> |   |
| <b>1.6 What is the current extent of freshwater and marine salmonid aquaculture?</b>  |   |
| Number of marine farms  | 1 (experimental for one year - in the early stages of implementation since November 2018) <sup>1)</sup> |
| Marine production (tonnes)  | 0   |
| Number of freshwater facilities   | 21  |
| Freshwater production (tonnes)  | 783   |
| Append one or more maps showing the location of aquaculture facilities and aquaculture free zones in rivers and the sea.  |   |
| <p>Currently there are 21 aquaculture facilities that produce or hold trout (<i>Salmo trutta</i> and <i>Onchorhynchus mykiss</i>), 3 of which are aquaculture units of the Portuguese Administration. Of these 21, only 4 are located in the hydrographic basins where we can find salmon (Minho and Lima): 1 production /aquaculture unit and 3 fishing parks (maps are attached).</p> <p>Note that, currently in Portugal, the 21 aquaculture facilities for trout are officially declared free of Infectious Haematopoietic necrosis (IHN) and Viral Hemorrhagic Septicemia (VHS) for freshwater. Regarding Salmon Anemia (ISA) the whole national territory is officially declared free of this virus (source: <a href="http://www.dgv.min-agricultura.pt/portal/page/portal/DGV/genericos?generico=166863&amp;cbou=166863">http://www.dgv.min-agricultura.pt/portal/page/portal/DGV/genericos?generico=166863&amp;cbou=166863</a>)</p> <p><sup>1)</sup> The project was introduced in late 2018, since then, the cage is not yet in the water. The delay led to a request to extend the deadline for the implementation to begin. The project will evaluate for the first time the biological parameters of salmon growth on the Portuguese coast, subjected to a 40 m submersion technology in a sensor-fed cage (64m<sup>2</sup>).</p> <p>The salmon originate from Norway (Fjorn Bruk) and feature veterinary certificates that are free from ISA. They were vaccinated against ISA, ESR, IPN, PD, SRS and Furunculosis.</p>  |   |

The study involves monitoring the environmental impact.  
 The project does not predict, if it goes to production, more than 5 tons per year.

**1.7 Please describe the process used to consult NGOs and other stakeholders and industries in the development of this Implementation Plan. (Max 200 words)**

NGOs and Fishermen's associations are included as members of the Commission for the monitoring of fisheries for diadromous species in the salmon group.  
 Annually, and before the beginning of the fishing season, meetings take place which gather all of the relevant stakeholders, in order to define and adopt the required conservation and management measures. These meetings are an opportunity to share views and ideas among all relevant Stakeholders, resulting in the adoption of measures that allow for a sustainable management of the available resources.

**2. Management of Salmon Fisheries:**

*In this section please review the management approach to each of the fisheries in your jurisdiction (i.e. commercial, recreational and other fisheries) in line with the relevant NASCO Resolutions, Agreements and Guidelines. For Parties / jurisdictions that prosecute mixed-stock fisheries, there should at least one action related to their management.*

**2.1 What are the objectives for the management of the fisheries for wild salmon? (Max. 200 words)**

There are no targeted commercial fisheries for salmon in Portuguese waters. All catches of wild salmon made by professional fisherman occur as a by-catch, and Portugal aims to improve CPUE time series as a minimum for assessment.

Currently we are in the process of assessing the possibility of the legal implementation of a system of catch-release and adjusting the existent legal framework applicable to the recreational fishery. In parallel catch bans; gear specifications, time/area closures, new MCS tools are also being considered.

**2.2 What is the decision-making process for the management of salmon fisheries, including predetermined decisions taken under different stock conditions (e.g. the stock levels at which regulations are triggered)? (Max. 200 words)  
 (This can be answered by providing a flow diagram if this is available.)  
 (Reference: Sections 2.1 and 2.7 of the Fisheries Guidelines)**

Given that this is the southernmost limit of distribution of Atlantic salmon, and that it is classified as "Critically endangered", Portugal is in the process of assessing the possibility of the legal implementation of a highly restricted fishing season where the catch of salmon may be allowed.

**2.3 (a) Are any fisheries permitted to operate on salmon stocks that are below their reference point (e.g. Conservation Limits)? If so, (b) how many such fisheries are there and (c) what approach is taken to managing them that still promotes stock rebuilding? (Max 200 words)  
 (Reference: Section 2.7 of the Fisheries Guidelines)**

(a)  
**In-river waters - No biological reference points defined.**  
 You can find below information of the existent legal framework

| River | Fishing permission | Law | Remarks |
|-------|--------------------|-----|---------|
|-------|--------------------|-----|---------|

|              |                                  |   |  |
|--------------|----------------------------------|---|--|
| <b>Minho</b> | <b>Professional Recreational</b> | Regulation n°8 2008 of 9 <sup>th</sup> of April for the Minho River International Section | Prohibits fishing, maintain on board, transship and land salmon <55cm;<br>Closure periods<br>Allowed gears |
|              |                                  | Public notice (annually)  | Allows catches<br>Allowed gears and fishing period<br>Recreational;<br>Closure periods                     |
| <b>Lima</b>  | <b>Forbidden</b>                 | Law n° 112/2017 of 6 <sup>th</sup> of December  | Prohibits professional fishing;<br>Catch and release obligation  |
|              |                                  | Ordinance (annually)  | Determinates that <i>Salmo salar</i> is not an allowed species   |

**Coastal and Estuarine waters - No biological reference points defined.**  
You can find below information of the existent legal framework

| River        | Fishing permission               | Law  | Remarks   |
|--------------|----------------------------------|--|---|
| <b>Minho</b> | <b>Professional Recreational</b> | Regulation n°43/87 of 17 <sup>th</sup> of July altered by Regulation n°7/2000 of 30 <sup>th</sup> of May                     | Gears, fishing location and licences  |
| <b>Lima</b>  |                                  | Ordinance n° 1220/2010 of 3 <sup>rd</sup> of December, introduces changes to Ordinance n° 561/90 of 19 <sup>th</sup> of July | Fisheries and transport of salmonids (cane fishing only);<br>Fishing closure period |

(b)  
Professional fisheries: Gillnetters for lamprey and shad, in which salmon can be an occasional bycatch;  
Recreational fisheries: hook and line for trout in which salmon can be an occasional occurrence.

(c)  
These are residual fisheries (occasional bycatch), stock rebuilding is better achieved through environment enhancement.

**2.4 (a) Are there any mixed-stock salmon fisheries? If so (b) how are these defined, (c) what was the mean catch in these fisheries in the last five years and (d) how are they managed to ensure that all the contributing stocks are meeting their conservation objectives? (Max. 300 words in total)**  
(Reference: Section 2.8 of the Fisheries Guidelines)

|  |
|--|
| (a) There are no MSFs in Portugal because all by-catch (fisheries) are conducted within river basins.  |
| (b)  |
| (c)  |
| (d)  |
| <b>2.5 How are socio-economic factors taken into account in making decisions on management of salmon fisheries? (Max. 200 words)</b><br><i>(Reference: Section 2.9 of the Fisheries Guidelines)</i>  |
| <p>The Salmon fishery is residual. Due to the lack of knowledge involving the presence of this resource in Portuguese waters, the Portuguese Administration promoted the creation of a working group called “Commission for the Monitoring of Diadromous Species Fisheries”, involving all relevant stakeholders as previously mentioned, which, along with the salmon, is also responsible for dealing with other diadromous species, encompassing different State institutions from different Ministries sharing responsibilities over the management/conservation/control of the salmon, including scientific community, NGOs and the fishing sector.</p> <p>Since the international section of the Minho river acts as a border between Portugal and Spain, the fishing activity is managed by an International Commission (CPIRM – Comissão Permanente Internacional do Rio Minho). All relevant stakeholders are represented in this Commission, allowing for a shared participation in the decision making process.</p> |
| <b>2.6 What is the current level of unreported catch and what measures are being taken to reduce this? (Max. 200 words)</b><br><i>(Reference: Section 2.2 of the Fisheries Guidelines and the Minimum Standard)</i>  |
| <p>There has been a recent fishing season (2019/2010) when salmon fisheries in the International Section of the Minho River (TIRM) were banned. In the TIRM, professional fishermen have to declare all catches and, for this purpose, they are obliged to fill in a logbook, provided by the authorities of the Port of Caminha or by the Naval Command of the Miño in Spain/Galicia. This logbook is the same for both countries.</p> <p>Salmon is also caught in recreational/sport fisheries. In the case of these fisheries, there is no obligation to report the catches, although catches must comply with the mandatory cut of the caudal fin, in order to prevent sale of the specimens.</p> <p>Commercially some confusion is possible between salmon and some trout species, especially during particular stages of their life cycle, which decreases confidence in the reports.</p>  |
| <b>2.7 Has an assessment under the Six Tenets for Effective Management of an Atlantic Salmon Fishery been conducted? If so, (a) has the assessment been made available to the Secretariat and (b) what actions are planned to improve the monitoring and control of the fishery? (c) If the six tenets have not been applied, what is the timescale for doing so? (Max. 200 words)</b><br><i>(Reference: Six Tenets for Effective Management of an Atlantic Salmon Fishery, WGCST(16)16)</i>   |
| (a) The assessment under the six tenets for Effective Management of an Atlantic Salmon Fishery has not yet been conducted.   |
| (b) Not applicable.  |
| (c) Early stages of implementation. Timescale not yet available.   |
| <b>2.8 Identify the threats to wild salmon and challenges for management associated</b>  |

| <b>with their exploitation in fisheries, including bycatch of salmon in fisheries targeting other species.</b> |  |
|--|--|
| Threat / challenge F1  | Low level of coordination of the different stakeholders responsible for the management, control, and conservation of salmon. |
| Threat / challenge F2  | Lack of knowledge of the resource (I)  |
| Threat / challenge F3  | Lack of knowledge of the resource (II)   |
| Threat / challenge F4  | Coordination with SP/Galicia regarding the international section of Minho river.   |
| Threat / challenge F5  | IUU fishing  |

| <b>2.9 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 2.8 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the management of salmon fisheries?</b> |   |  |
|--|---|--|
| <b>Action F1:</b>  | Description of action:                                    | Establishment of a Commission for the Monitoring of Diadromous Species Fisheries with a working group exclusively dedicated to the Atlantic salmon.  |
|  | Planned timescale (include milestones where appropriate): | Ordinary meetings (three times a year) and extraordinary meetings whenever considered necessary.   |
|  | Expected outcome:   | Improve national coordination regarding salmon;<br>Improve science based decisions;<br>Improved reporting to NASCO;<br>Support for the adoption of legislation;<br>Promotion of the knowledge convergence and reflection;<br>Increase public awareness for salmon related aspects. |
|  | Approach for monitoring effectiveness & enforcement:      | Provide the agenda and minutes of the meetings;<br>Highlight adaptations of the management practices as a result of discussions in this fora.  |
|  | Funding secured for both action and monitoring programme? | Yes  |
| <b>Action F2:</b>  | Description of action:                                    | Perform a scientific assessment  |
|  | Planned timescale (include milestones where appropriate): | Still in early stage of design, pending on further considerations:<br>2019-2022 – evaluation of <i>Salmo salar</i> ;<br>2022-2024 – proposals for management of the resource.  |
|  | Expected outcome:   | Achieve a perspective of the salmon in Minho and Lima rivers in terms of genetics, age, migration pattern, reproduction areas and migration constraints.   |
|  | Approach for monitoring                                   | Follow-up reports.   |

|                   |   |   |
|-------------------|---|---|
|                   | effectiveness & enforcement:                              |   |
|                   | Funding secured for both action and monitoring programme? | Expected  |
| <b>Action F3:</b> | Description of action:                                    | Operational Plan for the Monitoring and Management of Anadromous Fish in Portugal – An@dromos.PT<br><br>Coordination: University of Évora / MARE (Portugal)   |
|                   | Planned timescale (include milestones where appropriate): | 2018-2021   |
|                   | Expected outcome:   | <p>The main objective of this project is the implementation, in Portugal, of a program focused in the monitoring and sustainable management of fishing activities directed to anadromous fish species, which are a highly valuable fisheries resource, both from socioeconomic, cultural and conservation perspectives.</p> <p>It is also expected that this project can promote a bidirectional transference of knowledge between scientists and commercial fishermen, capable of being maintained in the after-project period, to implement good practices guidelines that can protect this resource and, simultaneously, encourage fishermen to take part in a network where fisheries regulations will be defined for the sustainable exploitation of this resource.</p> <p>The project is being developed at the national scale since it includes work on all the river basins, between Minho, in the north, and Guadiana, in the south, where commercial fisheries for anadromous fish takes place.</p> |
|                   | Approach for monitoring effectiveness & enforcement:      | <p>Within this operation, we plan to implement an efficient method to collect data from the main areas where these species are captured, based on information provided by commercial fishermen, and posteriorly validate this data with the official landing records independently collected from responsible entities, which will allow to obtain reliable information that can be used in future management and production models.</p> <p>At the same time, independent electrofishing sampling campaigns are being conducted every project's year (more than 100 sampling sites per year throughout all the country), to complement the data collected by commercial fishermen and assess population status of anadromous species, including Atlantic salmon, within our studied river basins.</p>   |
|                   | Funding secured for both action and monitoring programme? | Yes   |
| <b>Action F4:</b> | Description of action:                                    | Portugal and Galicia have already a very active collaboration on managing the international section of Minho river under the supervision of the Permanent International Commission.   |

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|-------------------|---|--|
|                   |   | The goal is to establish an effective partnership between Portugal and Spain/Galicia under NASCO's framework.  |
|                   | Planned timescale (include milestones where appropriate): | This is a regular management scheme, involving Portugal and Spain/Galicia since the late 19 <sup>th</sup> century, which have been coordinating and managing Minho river and its resources. The CPIRM (Permanent International Commission) was formalized in 1967 and since then, has the competence for managing the international section of the river that for Portugal is the only section of the river.             |
|                   | Expected outcome:   | To maintain the good cooperation within the Permanent International Commission between PT and Galician Administration.<br><br>Harmonization of procedures, joint decisions and actions regarding salmon challenges.  |
|                   | Approach for monitoring effectiveness & enforcement:      | Ordinary and extraordinary meetings.<br>Joint (Annual) Action Plan.  |
|                   | Funding secured for both action and monitoring programme? | Yes  |
| <b>Action F5:</b> | Description of action:                                    | Establishing harmonized legislation regarding: fishing restrictions/interdictions, closures, minimum sizes, allowed gears, control and inspection in both rivers.<br>Promote clarification actions among fishermen.<br><br>There is no specific inspection routines for salmon. All authorized gears are regularly inspected. Joint annual inspection actions take place, involving both Portugal and Spain authorities. |
|                   | Planned timescale (include milestones where appropriate): | Annually at meetings where management measures are defined for each river.   |
|                   | Expected outcome:   | Improve stocks through limiting exploitation;<br>Develop consciousness about sustainable fishery;<br>Control IUU fishing.  |
|                   | Approach for monitoring effectiveness & enforcement:      | Public notices and regulations;<br>Inspection reports;   |
|                   | Funding secured for both action and monitoring programme? | Yes  |

|   |
|---|
| <p><b>3. Protection and Restoration of Salmon Habitat:</b><br/> <i>In this section please review the management approach to the protection and restoration of habitat in your jurisdiction in line with the relevant NASCO Resolutions, Agreements and Guidelines.</i></p>  |
| <p><b>3.1 How are risks to productive capacity identified and options for restoring degraded or lost salmon habitat prioritised, taking into account the principle of ‘no net loss’ and the need for inventories to provide baseline data? (Max. 200 words)</b><br/> <i>(Reference: Section 3 of the Habitat Guidelines)</i></p>  |
| <p>As an EU Member State, the options and priorities for restoring habitats are clearly identified in the EU Water Framework Directive (WFD), specially the elements regarding Annex V 1. – Surface water status.</p> <p>River Regulations Plans, equivalent to River Basin Management Plans are designed by the different State Ministries, namely the Ministry of the Sea, the Ministry of the Environment and the Ministry of Defence, scientists, NGOs and local communities.</p> <p>The management regarding WFD is a competence of the Ministry of the Environment, specifically supervised by the Portuguese Environment Agency (APA – Agência Portuguesa do Ambiente <a href="https://www.apambiente.pt/index.php?ref=16&amp;subref=7">https://www.apambiente.pt/index.php?ref=16&amp;subref=7</a>)</p> <p>Regarding the monitoring of the water condition/quality, there is a monitoring network implemented to obtain information on water quality and evaluate the state of the water bodies, surface and underground, complying to national directives and legislation. In the case of surface waters, not only chemical and physical-chemical parameters, but also biological parameters are analysed, which, in specific campaigns, may include fish fauna. The results of the chemical and physical-chemical analyses carried out by the APA are made available to the public through the National Water Resources Information System (<a href="https://snirh.apambiente.pt/">https://snirh.apambiente.pt/</a>)</p> <p>For licensing occupations/interventions in the water, riverbank and riverbed of the Minho and Lima, such as cleaning, plantations, cutting of trees and other riparian vegetation, need to comply with licensing schemes and other technical advice by the same Agency.</p> <p>An evaluation of the conservation status, by the Public Institute for Nature Conservation and Forestry (ICNF, I.P.), under the requirements of the Habitats Directive, namely Annex II and V, which also includes salmon along with other diadromous species - <a href="http://www2.icnf.pt/portal/pn/biodiversidade/rn2000/dir-ave-habit/dir-q-sao#hab">http://www2.icnf.pt/portal/pn/biodiversidade/rn2000/dir-ave-habit/dir-q-sao#hab</a></p> |
| <p><b>3.2 How are socio-economic factors taken into account in making decisions on salmon habitat management? (Max. 200 words)</b><br/> <i>(Reference: Section 3.9 of the Habitat Guidelines)</i></p>   |
| <p>Relevant EU Directives (see 3.1) include socio-economic factors, but they take special consideration of ecological requirements.</p>   |
| <p><b>3.3 What management measures are planned to protect wild Atlantic salmon and its habitats from (a) climate change and (b) invasive aquatic species? (Max. 200 words each)</b><br/> <i>(Reference: Section 3.2 of the Habitat Guidelines)</i></p>  |
| <p>(a)<br/>         Being the southernmost limit of spatial distribution in the Atlantic northeast we believe that the species has a more resilient genetic constitution and may therefore be able to withstand higher limits of temperature, salinity and lower stream flows. For that reason research projects are being conducted as specified under 3.5 below, action H1.</p> <p>Under the EU WFD there are obligations set up to mitigate alterations relative to the base status.</p>   |

(b)

Annually the Ordinance (Law 112/2017) identifies the exotic species and also prohibits the return of these species into the water.

It is estimated that every two years three new species of fauna are introduced into the rivers and dams of Portugal, one being an exotic fish. The studies show that, besides the competition and predation of native species, the presence of some of these exotic species may lead to loss of water quality and the transmission of diseases and parasites to native species. The introduction of exotic salmonids such as rainbow trout (*O. mykiss*) and brook trout (*S. fontinalis*) may increase competition for trophic space and resources in rivers where other salmonids occur, but also increase risk of introduction of diseases and parasites that could have major impacts on populations of native salmonids.

The FRISK project aims to:

- predict where exotic species will be introduced and reduce the dispersion of existing species;
- compare the historical progression of exotic fish in Portugal and Spain with the genetic proximity of the populations;
- study the habits of recreational/sport fishermen, promoting their engagement in the data collection through the sharing of information, namely on species caught, area, date and photo;
- carry out awareness-raising activities with the fishing community.

Coordination: MARE - Marine and Environmental Sciences Centre;

Partners: ICNF, BioDiversity4All e EDIA.

### **3.4 Identify the main threats to wild salmon and challenges for management in relation to estuarine and freshwater habitat.**

|                       |   |
|-----------------------|---|
| Threat / challenge H1 | Ecosystem quality.                          |
| Threat / challenge H2 | Conservation status.                        |
| Threat / challenge H3 | Habitat loss due to obstacles in the river. |
| Threat / challenge H4 |   |

### **3.5 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 3.4 to implement NASCO's Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for the Protection, Restoration and Enhancement of Atlantic Salmon Habitat?**

|                   |                        |   |
|-------------------|------------------------|---|
| <b>Action H1:</b> | Description of action: | Assessing and enhancing ecosystem services provided by diadromous fish in a climate change context – DiadES |
|-------------------|------------------------|---|

|  |   |   |
|--|---|---|
|  | Planned timescale (include milestones where appropriate): | 2019-2022   |
|  | Expected outcome:   | <p>Based on a multinational network of scientific, governmental and private partners, DiadES aims to assess and enhance ecosystem services provided by diadromous fish (shads, lamprey, eel, salmon, trout &amp; thin-lipped grey mullet) in the Atlantic Arc (AA), and in parallel, the conservation status of these species, by explicitly considering in their management expected impacts of climate change on their distributions.</p> <p>Building on previous EU-funded projects &amp; monitoring programmes, DiadES will positively impact diadromous fish management in the face of global climate change by: i) Fostering the necessary level of cooperation among Member States (MS) &amp; actors involved in diadromous fish management to enable sound decision-making; ii) Improving awareness and knowledge among policy makers and other key stakeholders on the services provided by these species and the need to set common management measures targeting both anthropogenic pressures &amp; climate change; iii) Favours a joint promotion of ecosystem services related to diadromous fish in the AA to the wider public because they influence decision-making; and iv) Ensuring a sustainable ecosystem services provision by these species, combining exploitation &amp; conservation, in support of AA local economies and quality of life.</p> <p>Three main outputs will be produced to increase the capacity of policy makers and other stakeholders to make efficient and informed management decisions and support them in the implementation of related policies on diadromous fish. An INTERACTIVE WEB ATLAS will present changes in diadromous fish distributions and trends in relevant ecosystem services under climate change, promoting benefits provided by these species. A SERIOUS GAME, of a role-playing form, will consist in bringing together target groups who have different sources of knowledge to (i) share this different knowledge, (ii) build a joint representation of fish population dynamics, and (iii) imagine alternative management strategies in the face of climate change. Along with the ATLAS, these main outputs will foster the emergence of POLICY GUIDELINES for the long-term management of diadromous fish and the maintenance of the ecosystem services and economic welfare they produce in the AA.</p> |

|                   |   |   |
|-------------------|---|---|
|                   | Approach for monitoring effectiveness & enforcement:      | <p>Integrated within the project framework and contributing to its main objectives, DiadES work in Portugal will be developed by three main entities: MARE-UÉ (Marine and Environmental Science Centre/University of Évora), MARETEC/IST (Marine, Environment and Technology Centre/Superior Technical Institute) and CMVNC (Vila Nova de Cerveira Municipality), accompanied by a set of associated partners composed of the main public and private entities involved in the sustainable management and exploitation of diadromous fish species. More specifically in terms of monitoring, MARE-UÉ and CMVNC will be responsible for this project component in Portugal, by coordinating and conducting field case studies in rivers Minho and Mondego that will ensure the validation of biological data and environmental scenarios used for the other DiadES objectives.</p> <p>Both entities will perform biological samplings and other analyses to study diadromous fish population status and functioning within their marine and freshwater life cycle stages within the respective study areas.</p>                                    |
|                   | Funding secured for both action and monitoring programme? | Yes   |
| <b>Action H2:</b> | Description of action:                                    | <p>Revision of the Portuguese Red Book of freshwater and diadromous fishes and development of an information system about these species.</p> <p>Coordination: FCIências.ID / MARE / cE3c (Portugal)</p>   |
|                   | Planned timescale (include milestones where appropriate): | 2018-2022   |
|                   | Expected outcome:   | <p>The last version of the Portuguese Red Book of Threatened Vertebrates dates from 2005. Therefore, the main objectives of this project are: i) to update information on population distribution and status of freshwater and diadromous fish species; and ii) build an information system on these species.</p> <p>More specifically, this project will contribute to enhance the knowledge on the threats and conservation status of fish species occurring in the Portuguese territory, with a particular emphasis on poor known and/or threatened fish species that are in a significant population decline, which is the case of the Atlantic salmon. This knowledge will help to protect these species by allowing the definition of priority populations and habitats for conservation.</p> <p>In a complementary way, this project also aims to develop an information system that allows the storage, treatment and public disclosure of data on the ecology, distribution and conservation status of freshwater and diadromous fishes in Portugal, in order to increase the knowledge and interest of the public on this subjects.</p> |

|                   |   |  |
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|                   |   | Objectives of this project will also contribute to enhance the response and compliance of Portuguese authorities to national and international legislation regarding protected species and habitats, such as National Strategy for Nature Conservation and Biodiversity or the management requirements of Natura 2000 sites.   |
|                   | Approach for monitoring effectiveness & enforcement:      | <p>Despite all the information on freshwater and diadromous fish distribution and abundance that has been collected in the past 10 years, several gaps of information have been detected, most of them related with the status of diadromous fish populations in downstream sections of the Portuguese river basins or in Natura 2000 sites.</p> <p>Considering that the identified gaps can hinder a successful update of the conservation status of these species, the information collected in the past 10 years will be complemented by data on fish distribution and abundance that will be collected in 2019 (e.g., fishermen and anglers surveys, electrofishing) in a total of 200 sampling sites distributed throughout all Portuguese territory, but with a special attention to downstream sections of the river basins and to diadromous fish species, to which 120 sampling points will be devoted.</p> <p>Due to its highly threatened status and poor amount of information, Atlantic salmon will be a particularly important target of these sampling campaigns, with several sampling sites planned for the known distribution area of this species, to try to evaluate both the number of adults entering in each river associated with this species distribution and the abundance of juveniles in their upstream sections.</p> <p>The University of Évora / MARE will be responsible for the work concerning diadromous species.</p> |
|                   | Funding secured for both action and monitoring programme? | Yes  |
| <b>Action H3:</b> | Description of action:                                    | <p>Migra Miño-Minho Project:<br/> Identification and interventions on river obstacles.<br/> Construction of fish passages;<br/> Intervention in riparian vegetation that has a direct impact in the riverbed;<br/> Monitoring <i>Salmo salar</i> and other diadromous species: <i>Alosa alosa</i>, <i>Alosa fallax</i>, <i>Anguilla anguilla</i>, <i>Salmo trutta</i>, and <i>Petromyzon marinus</i>.<br/> Coordination: Portuguese and Galician entities<br/> <a href="http://migraminho.org/socios/?lang=pt-pt">http://migraminho.org/socios/?lang=pt-pt</a></p>   |
|                   | Planned timescale (include milestones where appropriate): | 2015 - 2019 – (Migra Miño-Minho/Interreg Project)  |
|                   | Expected outcome:   | A set of river obstacles eliminated or transposed: demolition of dams, fish ladders or removable weirs. Allowing longitudinal and  |

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|                   |   | <p>lateral continuity of the river beds, increasing the accessibility of the tributaries of the Minho river to migratory fish species;</p> <ul style="list-style-type: none"> <li>- New devices designed, tested and installed in tributary river courses of the Minho sub-basin. It is an innovative product of the project, since it will contribute to the transposition of obstacles for migratory fish and the fauna in general by means of <i>ad-hoc</i> solutions adapted to the conditions of the obstacles that limit the fluvial continuity;</li> <li>- Common river fishing management standards established and agreed between the relevant management authorities in Galicia and Portugal;</li> <li>- Riparian vegetation recovered and restored for the improvement of river habitat quality. The restoration of forested river banks will habitats and therefore the quality of the river;</li> <li>- Restocking from indigenous river Minho salmon.</li> </ul> |
|                   | Approach for monitoring effectiveness & enforcement:      | <p>Three-monthly meetings between partners;</p> <p>All partners have to submit a status report regarding the completion of the objectives.</p> <p>Final report.</p>  |
|                   | Funding secured for both action and monitoring programme? | Yes  |
| <b>Action H4:</b> | Description of action:                                    |  |
|                   | Planned timescale (include milestones where appropriate): |  |
|                   | Expected outcome:   |  |
|                   | Approach for monitoring effectiveness & enforcement:      |  |
|                   | Funding secured for both action and monitoring programme? | Choose an item.  |

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| <p><b>4. Management of Aquaculture, Introductions and Transfers, and Transgenics:</b></p> <p><i>Council has requested that for Parties / jurisdictions with salmon farms, there should be a greater focus on actions to minimise impacts of salmon farming on wild salmonid stocks. Each Party / jurisdiction with salmon farming should therefore include at least one action relating to sea lice management and at least one action relating to containment, providing quantitative data in Annual Progress Reports to demonstrate progress towards the international goals agreed by NASCO and the International Salmon Farmers Association (ISFA):</i></p> <ul style="list-style-type: none"> <li>• 100% of farms to have effective sea lice management such that there is no increase in sea lice loads or lice-induced mortality of wild salmonids attributable to the farms;</li> <li>• 100% farmed fish to be retained in all production facilities.</li> </ul> <p><i>In this section please provide information on all types of aquaculture, introductions and transfers, and transgenics (including freshwater hatcheries, smolt-rearing etc.</i></p> |
| <p><b>4.1 (a) Is the current policy concerning the protection of wild salmonids consistent with the international goals on sea lice and containment agreed by NASCO and ISFA? (b) If the current policy is not consistent with these international goals, when will current policy be adapted to ensure consistency with the international goals and what management measures are planned to ensure achievement of these goals and in what timescale? (Max. 200 words for each)</b><br/><i>(Reference: BMP Guidance)</i></p>   |
| <p>(a) Not applicable.</p>   |
| <p>(b) Not applicable.</p>   |
| <p><b>4.2 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for 100% of farms to have effective sea lice management such that there is no increase in sea lice loads, or lice-induced mortality of wild salmonids attributable to sea lice? (b) How is this progress monitored, including monitoring of wild fish? (c) If progress cannot be demonstrated, what additional measures are proposed and in what timescale? (Max. 200 words each)</b><br/><i>(Reference: BMP Guidance)</i></p> <p><i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>   |
| <p>(a) Not applicable.</p>   |
| <p>(b) Not applicable.</p>   |
| <p>(c) Not applicable.</p>   |
| <p><b>4.3 (a) What quantifiable progress can be demonstrated towards the achievement of the international goals for achieving 100% containment in all (i) freshwater and (ii) marine aquaculture production facilities? (b) How is this progress monitored, including monitoring of wild fish (genetic introgression) and proportion of escaped farmed salmon in the spawning populations? (c) If progress cannot be demonstrated, what additional measures (e.g. use of sterile salmon in fish farming) are proposed and in what timescale? (Max. 200 words each)</b></p>   |

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| <p><i>(Reference: BMP Guidance)</i><br/> <i>The measures by which these goals may be achieved, and against which the Review Group will be measuring the effectiveness of the Implementation Plan, are set out in the BMP Guidance SLG(09)5 (Best management practice; reporting and tracking; factors facilitating implementation) as agreed by NASCO and ISFA.</i></p>  |
| (a)(i)   |
| (a)(ii)  |
| (b)  |
| (c)  |
| <p><b>4.4 What adaptive management and / or scientific research is underway that could facilitate better achievement of NASCO’s international goals for sea lice and containment such that the environmental impact on wild salmonids can be minimised? (Max 200 words)</b><br/> <i>(Reference: BMP Guidance and Article 11 of the Williamsburg Resolution)</i></p>  |
| Not applicable.  |
| <p><b>4.5 What is the approach for determining the location of aquaculture facilities in (a) freshwater and (b) marine environments to minimise the risks to wild salmonid stocks? (Max. 200 words for each)</b></p>   |
| <p>(a) In Portugal, the existing legal framework for aquaculture activities requires the issuing of a permission for all aquaculture establishments. In the case of salmon farms, since this is a protected species, a specific authorization needs to be granted by the Administration. In inland waters, this authorization is granted by the Public Institute for Nature Conservation and Forestry (ICNF, I.P.). Proposers must require ICNF, I.P authorization for setting up and exploring fish farming facilities, or any other related projects, including any modifications to the existing facilities. During the process ICNF, I.P. is required to consult the Environmental Agency (APA, I.P.), Food and Veterinary Central Directorate (DGAV) as well as other public departments that may be involved in the analysis of specific requests in order to provide the corresponding risk assessment (to the water quality, fish health and welfare, spatial planning, construction, etc.). Fish farms in inland waters are installed in private areas, as installation in public lands is not authorized.</p> <p>In order to authorize the installation, all consulted entities must approve the request. Moreover, it is mandatory to assure proper water treatment and the accomplishment of predefined technical parameters related with the dumping/release of waters into the hydrographic network. Fish health and welfare must always be guaranteed.</p> <p>The operator is required to meet the following requirements/minimum standards:</p> <ol style="list-style-type: none"> <li>1. restrictions on the species farmed, number of specimens and type of holding facilities;</li> <li>2. elaboration of an annual production report;</li> <li>3. follow good hygiene practices and implement biosecurity procedures to avoid the spreading of diseases, and;</li> <li>4. accomplish certain quality parameters (providing the adequate treatment) to water releases to the environment</li> </ol> <p>ICNF, I.P. can suspend or revoke an authorisation if the operator is considered to be failing in meeting these requirements.</p> <p>Fish culture sites are also likely to require water extraction licences and discharge permits from the Environment Agency. These set limits and standards for the amount of water taken and for parameters</p> |

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| of the water released.  |   |
| (b) The same legal framework and procedure. In marine environments the submission is made in the Directorate-General for Natural Resources, Safety and Maritime Services – Aquaculture Division.  |   |
| <b>4.6 What progress has been made to implement NASCO’s guidance on introductions, transfers and stocking?</b> (Max. 200 words)<br>(Reference: Articles 5 and 6 and Annex 4 of the Williamsburg Resolution)   |   |
| Within the joint Project Migra Miño-Minho, Galician authorities performing stocking activities only utilize specimens caught in the Minho river, in Frieira dam. (see item 3.5 – H3 Action).  |   |
| <b>4.7 Is there (a) a requirement to evaluate thoroughly risks and benefits before undertaking any stocking programme and (b) a presumption against stocking for purely socio-political / economic reasons?</b> (Max. 200 words each)<br>(Reference: Guidelines for incorporating social and economic factors in decisions under the Precautionary Approach and Annex 4 of the Williamsburg Resolution)   |   |
| (a) Unknown.  |   |
| (b) Unknown.  |   |
| <b>4.8 What is the policy / strategy on use of transgenic salmon?</b> (Max. 200 words)<br>(Reference: Article 7 and Annex 5 of the Williamsburg Resolution)   |   |
| GMOs and food or feed made from GMOs can be marketed in or imported into the EU, provided that they are authorized after passing strict evaluation and safety assessment requirements that are imposed on a case-by-case basis. Authorizations are granted for a ten-year period by the European Commission through a centralized procedure, as provided for in Regulation No. 1829/2003, or by national competent authorities under Directive 2001/18/EC, which regulates the intentional release of GMOs into the environment. At the EU level, the European Food and Safety Authority (EFSA) conducts the required risk assessments.<br>According to the EU policy, an authorization for transgenic salmon will not be expected, during the 2019-2024 cycle.<br>(additional information in <a href="https://ec.europa.eu/food/plant/gmo/authorisation/food_feed_en">https://ec.europa.eu/food/plant/gmo/authorisation/food_feed_en</a> ) |   |
| <b>4.9 For Members of the North-East Atlantic Commission only: What measures are in place, or are planned, to implement the eleven recommendations contained in the ‘Road Map’ to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of <i>Gyrodactylus salaris</i> and eradicate it if introduced, including the development and testing of contingency plans?</b> (Max. 200 words)<br>(Reference ‘Road Map’ to enhance information exchange and co-operation on monitoring, research and measures to prevent the spread of <i>G. salaris</i> and eradicate it if introduced, NEA(18)08)   |   |
|   |   |
| <b>4.10 Identify the main threats to wild salmon and challenges for management in relation to aquaculture, introductions and transfers, and transgenics.</b>  |   |
| Threat / Challenge A1   | Impact of aquaculture on the ecosystem.                       |
| Threat / challenge A2   | Introduced species (salmonids: <i>Onchorhynchus mykiss</i> ). |
| Threat / challenge A3   | Significant impacts of diseases and parasites.                |

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| Threat / challenge A4 |  |
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| <b>4.11 What SMART actions are planned during the period covered by this Implementation Plan (2019 – 2024) to address each of the threats and challenges identified in section 4.10 to implement NASCO’s Resolutions, Agreements and Guidelines and demonstrate progress towards achievement of its goals and objectives for aquaculture, introductions and transfers, and transgenics?</b> |   |   |
| <b>Action A1:</b>   | Description of action:                                    | <p>The authorization for fish culture facilities, for non-indigenous species or in classified areas is preceded by the advice of the national authority on nature conservation, and therefore, may be prohibited or conditioned.</p> <p>Intensive aquaculture projects are subject to an environmental impact assessment, a procedure that may impose constraints, measures to minimize possible negative impacts on the environment or compensatory measures of such impacts, if any.</p> <p>The authorization involves an administrative procedure and the compliance with legal requirements, ensuring the good ecological status of natural water bodies and the health and welfare of the animals. A deposit was implemented to guarantee, at the time of the assignment of the “Aquaculture Activity Permission”, the good environmental status of the marine/river environment and of the marine and inland water bodies, as well as the removal of the structures (DL 40/2017, 4th of April).</p> <p>In the case any aquaculture project, subject to an environmental impact assessment, specific monitoring programs or compensatory measures may be stipulated, to be implemented in the course of the operation.</p> |
|   | Planned timescale (include milestones where appropriate): | <p>The implementation of the above measures takes place essentially at a stage prior to the authorization and may affect the type of facility, production or place of installation. Water discharge monitoring programmes, water and waste treatment systems, contingency and emergency plans are evaluated and subject to approval.</p> <p>The manager of the aquaculture unit is obliged to implement a monitoring program directed essentially at discharge of water in the natural environment, whenever it is applied.</p>   |
|   | Expected outcome:   | <p>Ensure the monitoring and control of the facility and minimize the environmental impacts.</p> <p>To guarantee the physical-chemical quality and the biological safety of the discharged water in the natural environment.</p>  |
|   | Approach for monitoring effectiveness & enforcement:      | <p>Compliance visits are carried out based on degree of risk, according to a schedule created by the national authorities, responsible for licensing.</p>   |
|   | Funding secured for both action and monitoring programme? | <p>Yes</p>  |

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| <b>Action A2:</b> | Description of action:                                    | <p>The use of non-indigenous species in aquaculture is subject to legislation that regulates the introduction of these species into nature. However, some species already established in the natural water bodies in Portugal (eg. <i>Cyprinus carpio</i>, <i>Carassius auratus</i>, <i>Micropterus salmoides</i> or <i>Onchorhynchus mykiss</i>) are treated as indigenous in some river basins.</p> <p>In general, the use of these species (application of the DL 565/99 of 21<sup>st</sup> of December) is only accepted in closed, recirculating systems and subject to special measures that promote maximum environmental safety. Nevertheless, even in these systems the production of species with high risk of dissemination in the natural environment is not allowed.</p> <p>Restrictions on the production of these species aim at the protection of natural aquatic systems in general.</p> <p>Regarding salmonids, two species are currently produced: <i>Salmo trutta</i> and <i>Onchorhynchus mykiss</i>, which is a non-indigenous species. However, this species did not establish wild populations in lotic systems, in Portugal.</p> <p>Regarding the Regulation (EC) No 708/2007 of 11<sup>th</sup> of June 2007 concerning use of exotic and locally absent species in aquaculture. This Regulation, except for Articles 3 and 4, shall not apply to the species listed in Annex IV. The risk assessment in Article 9 shall not apply to species listed in Annex IV except in cases where Member States wish to take measures to restrict the use of the species concerned in their territory. <i>Onchorhynchus mykiss</i> is one of the species identified in the annex IV.</p> |
|                   | Planned timescale (include milestones where appropriate): | Measures to control and restrict the production of non-indigenous species precedes the authorization of an aquaculture project.   |
|                   | Expected outcome:   | Prevent the escape of non-indigenous specimens to the natural environment, avoiding the ecological impact.  |
|                   | Approach for monitoring effectiveness & enforcement:      | Monitoring programmes and studies of fish populations and the occurrence of the dissemination of non-indigenous species in Portugal are underway.   |
|                   | Funding secured for both action and monitoring programme? | Yes   |
| <b>Action A3:</b> | Description of action:                                    | <p>There is a health monitoring and control program for fish (Integrated Plan for Official Control of Piscicultures - PICOP) in order to achieve a disease-free status:</p> <p>Viral Hemorrhagic Septicemia (VHS), Infectious hematopoietic necrosis (IHN), and other diseases related to non salmonids.</p> <p>All freshwater fish farms in Portugal have a disease-free status or are in the process of obtaining one.</p>  |
|                   | Planned timescale (include milestones)                    | <p>The surveillance is implemented as required by the legislation, performed by the national veterinarian authority (DGAV).</p> <p><a href="http://www.dgv.min-agricultura.pt/portal/page/portal/DGV/genericos?generico=166863&amp;cboui=">http://www.dgv.min-agricultura.pt/portal/page/portal/DGV/genericos?generico=166863&amp;cboui=</a></p>  |

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|                   | where appropriate):                                       | <a href="#">166863%E2%80%9D)</a><br>IHN and VHS Plans for trout are implemented in Portugal since 1992.   |
|                   | Expected outcome:   | Attribution and maintenance of a disease-free status for all aquaculture establishments.  |
|                   | Approach for monitoring effectiveness & enforcement:      | Monitoring programmes exist according the Directive n° 2006/88/CE of 24 <sup>th</sup> of October;<br>The managers are obliged to notify whenever there is a suspicious related to high rates of mortality.<br>Annually reports for the “PNVS” - National Plans for the sanitary surveillance and “PICOP” - Integrated Plan for Official Control of Piscicultures.<br>PICOP integrates the sanitary aspects (including the referred plans), hygiene, animal feed and veterinary medical products and aims to establish a regular monitoring system, based on risk assessment that involves proportional controls (degree of compliance with applicable legal requirements) and the health status assigned. |
|                   | Funding secured for both action and monitoring programme? | Yes   |
| <b>Action A4:</b> | Description of action:                                    |   |
|                   | Planned timescale (include milestones where appropriate): |   |
|                   | Expected outcome:   |   |
|                   | Approach for monitoring effectiveness & enforcement:      |   |
|                   | Funding secured for both action and monitoring programme? | Choose an item.   |
|                   |   |   |

This Plan was coordinated by DGRM - Directorate-General for Natural Resources, Safety and Maritime Services – Department of Natural Resources and with the contributions of the following public entities:

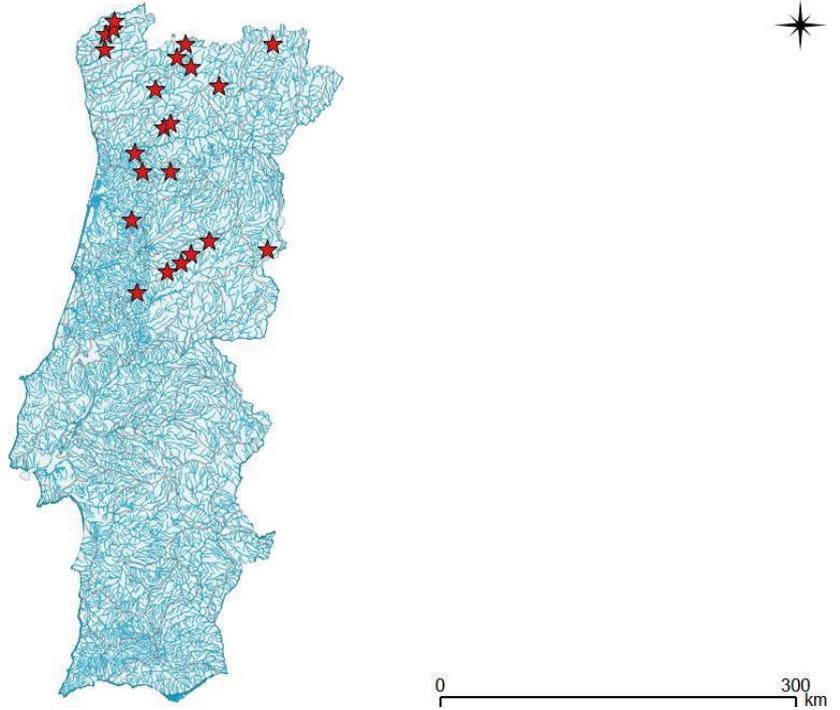
- ICNF - Public Institute for Nature Conservation and Forestry; under shared supervision of the Environment Ministry and the Agriculture Ministry;
- DGAM/Capitania do porto de Caminha - Ministry of Defense;
- APA/ARH-Norte – Portuguese Environment Agency, Ministry of Environment;

Scientific entities:

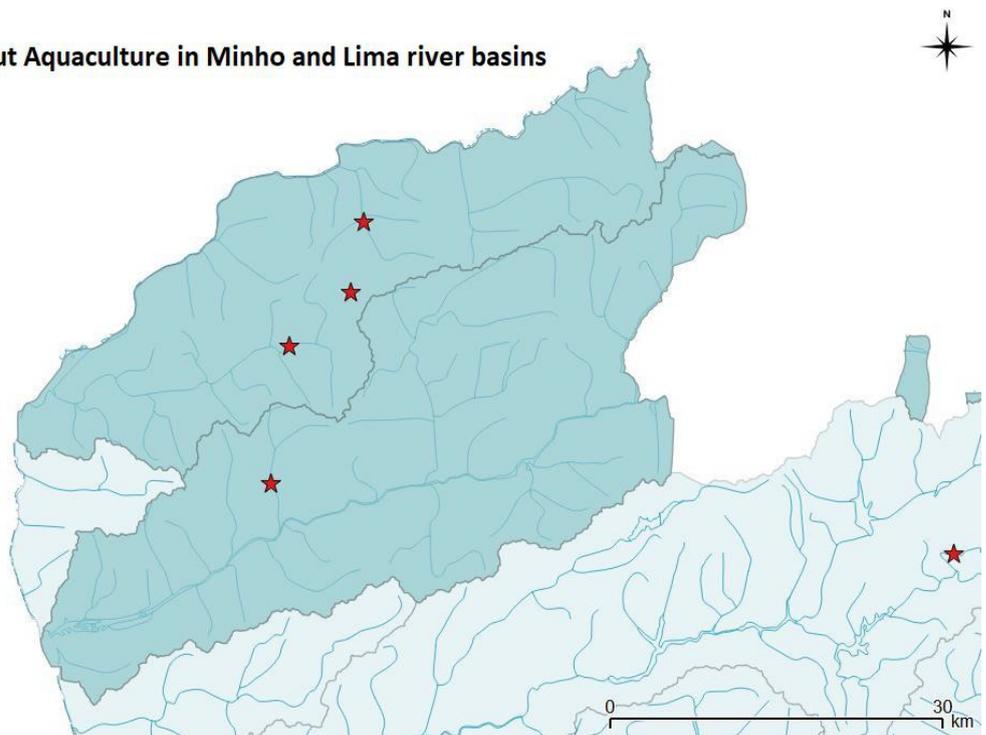
- MARE – Marine and Environmental Sciences Centre;
- Évora University;
- CIIMAR - Interdisciplinary Centre of Marine and Environmental Research;

**Annex 1.6 item - freshwater and marine salmonid aquaculture location**

**Tout Aquaculture in Portugal**



**Trout Aquaculture in Minho and Lima river basins**



## Experimental project

