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<b>Report</b>	RECOMMENDATION DOCUMENT FOR COMMON AND SHARED PRACTICES FOR AQUACULTURE
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<b>Author</b>	Agriteco - PP1 Veneto Region

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# 1. Introduction

The ARGOS project (ShARed GOVERNance of Sustainable fisheries and aquaculture activities as leverage to protect marine resources in the Adriatic Sea) matured within the ITALY-CROATIA development programme; the core of this project was the formation of a group of specialists from different Italian and Croatian regions under the scientific supervision of the CNR IRBIM of Ancona and the IOR institute of Split with the aim of attempting to establish a common framework for the governance of fishing and aquaculture activities in the entire Adriatic basin. In addition, the group was enlarged to include stakeholders from the Italian and Croatian fisheries and aquaculture in order to have the direct point of view of the operators as well as representatives of the respective Italian and Croatian ministries with a collaborative bottom-up development.

All these experts were brought together in the AAC (Adriatic Advisory Council) technical board, where aspects related to maritime spatial planning, marine resource management, and habitat protection in the Adriatic were discussed.

Many activities take place at sea; fishing, aquaculture, shipping, renewable energy, nature conservation and other uses compete for maritime space. Maritime spatial planning is the main tool for managing and coordinating marine space and ensuring that human activities at sea take place in an efficient, safe and sustainable manner. The approach for a sustainable blue economy, strongly encouraged by the EU, also places maritime spatial planning at the heart of the sustainable development of the blue economy in Europe.

The Adriatic basin is one of the largest fishing areas in the Mediterranean and is identified by two specific GSAs 17 and 18; it has morphological and chemical-physical peculiarities that make it almost a sub-unit separate from the rest of the Mediterranean, with which however it has continuous exchanges. It has a length of about 420 nautical miles and a maximum width of about 100 nautical miles, a northern basin into which many rivers flow, providing nutrients but also fresh water with lower salinity than the southern basin. Such small dimensions do not allow for local management, but shared management becomes essential, which is

precisely the approach of ARGOS; in order to achieve the best management of the Adriatic area, however, the AAC brings to the SC's attention the need to succeed in integrating the other non-participating states, such as Slovenia and the two non-EU states, Montenegro and Albania, into future projects.

The ARGOS project first of all highlighted that the local administrations of the Italian and Croatian regions or counties, which are actively engaged in the support and development of the fisheries sector, should be included in the Adriatic Sea governance process, as the effects of management choices directly affect the coastal areas they administer. Furthermore, not only should the effects directly related to the fisheries sector be assessed following the entry into force of specific management measures, but also what the cascading consequences will be with respect to all supporting activities (shipbuilding, suppliers, etc.).

Fish stocks of target species, but also protected species such as dolphins and turtles (which are not restricted to national waters), must not be the subject of disorganised management measures for each Adriatic state, but must be included in elaborated and shared proposals. At present, in fact, regulations are not homogeneous (even though they always refer to European ones) but are implemented by each State (sometimes even by each individual region) without having a common management framework; the single management measures may generate negative effects on resources compared to common and coordinated action.

To have a shared vision, an "Adriatic approach" was used during the meetings and in the development of its activities, looking for proposals and solutions that can be implemented at basin level and not only for the project areas. The development of this unitary consciousness with respect to Adriatic management must also be implemented by providing Adriatic operators with the possibility of an open confrontation among themselves in order to highlight common problems in order to have a basin-wide resolution.

At the same time, an attempt has been made to manage all information through an ecosystemic approach based on the application of appropriate scientific methodologies focused on levels of biological organisation, which encompass the essential structure, processes, functions and interactions among organisms and their environment; humans, with their cultural diversity, are an integral component of many ecosystems. The ultimate goal of this

approach is to achieve conservation sustainable use and the fair and equitable sharing of the benefits arising out of the utilisation of resources.

The final synthesis of all the work carried out within the ARGOS project is summarised by the recommendations that the AAC wishes to bring to the attention of the Steering Committee, some of which refer only to the fisheries sector and others of a more general nature and referable to a more global vision of the Adriatic's resources.

## 2. Shared Adriatic Governance

Article 18 of Regulation (EC) 1967/2006 mentions the possibility of local management plans

Article 18 Community-level management plans

1. The Council may adopt management plans for specific Mediterranean fisheries, in particular, in areas totally or partially beyond the territorial waters of Member States.

In the case of the Adriatic Sea, a common management strategy could be proposed to the Council that would be derived directly from the information gathered at the level of the AAC Technical Table (also extended to non-participating states in ARGOS) to provide the best knowledge on fisheries, fish stocks and interactions with the environment. The Adriatic approach to fisheries would provide complete and better information that would trigger a virtuous process leading to consistent and shared information from both the fisheries and environmental and stock protection sectors. Therefore, it becomes fundamental to succeed in involving fishing operators (bottom-up strategy) so that they can participate proactively and be protagonists in the choices that affect them, bridging the gap that has been leading fishing categories to strong social clashes for several years with respect to the proposed management policies. This approach, which is closer to the real needs of the territory, would make it possible to try out an adaptive management that also interfaces with the various ecosystems of the protected areas by modelling interventions and measures on real needs.

The stakeholders' willingness to participate emerged during the exchanges between the Italian and Croatian stakeholder groups, which were important to make them understand the close correlation between the issues on both sides of the Adriatic. The local and cross-border network for the training and education of all actors in the fishery sector for environmental



protection and sustainability, which was developed during the activities of WP5 of the project, must become the starting point for strengthening the role of fishermen (but also of farmers) with regard to many issues, especially environmental ones. Again, this will have to be extended to all other Adriatic states that do not currently participate.

It will be important for the future to be able to channel this willingness to participate also towards forms of collaboration in the process of drawing up shared strategies with the twofold objective of obtaining better information than just survey campaigns, but also better acceptance of management regulations.

All these activities were carried out on an experimental basis during the development of the ARGOS project through the activities of the AAC technical board where its members met to discuss the issues that emerged but also the results of the various studies carried out. The SC is asked to promote to European bodies the stabilization of the AAC table, which could become a reference point to be consulted on activities in the Adriatic. At the same time, the States that do not yet participate should also be proposed to join this consultative body in order to achieve a complete sharing of governance among all the states.

### 3. Good knowledge for good choices

The creation of management proposals by this Adriatic advisory body can only start from the most consolidated and validated scientific knowledge possible; for this reason, the information base on which all proposed management measures must be based must be the Data Collection Framework (DCF) for Member States' data and the Data Collection Reference Framework (DCRF) for non-Member States (Montenegro and Albania).

The AAC asks the SC to take the lead in overcoming the problem of the availability of official data that emerged during the project. It is necessary that these data be made available to institutions that request them, but also to stakeholders who wish to consult them so that knowledge about fishing activities can be shared as effectively as possible.

In parallel, the ARGOS project promoted data collection at the local level, where each partner collected data for the most significant 'minor' activities in its area. This locally collected data will be standardised according to a methodology that will make it usable throughout the Adriatic and will complement the official data collected for vessels over 12

metres long. Argos has demonstrated how the widespread use of low-cost, zero-interruption devices for fishermen can bring important information to define the areas most exploited by artisanal fishing. Making fishermen, but also local administrators or those who follow MSP on a larger scale, aware of which areas are most affected by certain activities, could guide spatial planning choices.

In addition to the professional fishing sector, it is also important to be able to intercept the output from sport fisheries, which, given the number of practitioners of this activity, could significantly affect some target species. The AAC, also thanks to the methodologies developed in local data collection, could promote a system capable of retrieving information from the recreational fishing sector.

Effective and comprehensive data collection would enable assessments that correspond as closely as possible to the true state of the environment and resources, reducing conflicts with operators and making them aware of the need for correct data. From the perspective of MSP, they could be used to develop models that become useful tools to support decision-making. The complexity of these tools (the DISPLACE prediction model was implemented in Argos) requires careful use to obtain correct information.

Forecasting models are tools that can help in the vision of future management proposals, but they must be appropriately analysed and interpreted in order to obtain useful information for the management of Adriatic fisheries; obviously, these analyses, if carried out at the basin level, allow for a better interpretation and perspective. Models could also be used as MSP tools as they allow us to see if certain management choices, which do not derive directly from the management of fish stocks, have potential effects on resources or production (e.g. the creation of an MPA or a wind farm in the sea with the consequent prohibition of certain activities).

## 4. Alien species and climate change

The process of globalisation combined with climate change has led to an increase in the speed of movement of organisms, causing many non-native species in the Adriatic to settle in its waters, finding in them an ideal environment for development.



It therefore becomes important to be able to intercept the presence of these new species even before they manifest themselves openly, through a coordination of the Adriatic's environmental analysis laboratories that could be coordinated within the AAC. The e-DNA technique, tested in one of the ARGOS projects, could make it possible to discover alien species in Adriatic waters and plan possible containment measures.

Another important contribution to the early detection of problems in the marine environment must come from the direct involvement of fishermen, who much more than researchers live and observe at sea, knowing all its secrets. Giving fishermen the opportunity to easily communicate with research centers on environmental changes (new species, particular phenomena, die-offs, etc.) can make them true sea sentinels, also contributing to a considerable improvement in their image.

## 5. Protected areas

Marine protected areas and Natura 2000 sites are areas of crucial importance for a number of species or habitat types and play an important role in the balance of marine ecosystems. Their establishment is, however, a source of heated debate with the fishing community, which sees itself deprived of productive areas.

The new concept of a bottom-up approach can also be extended to the establishment of these areas by sharing with fishing stakeholders the procedure for identifying these areas, so that they can be more easily understood and accepted by them. It is necessary to make them participants in the management and protection of these areas, bringing them evidence of the spill-over effect and benefits they can find there in the medium to long term.

The contributions of the ARGOS project made it possible to clarify the basic steps for the definition of marine SCIs (deliverable of marine protected area "Cape Stupišće, Island of Vis") or to obtain initial information on the effects following the establishment of Natura 2000 areas in the sea (Veneto and Emilia-Romagna new SCI areas).

## 6. Reassessing the role of fishermen

Fishermen have often been compared to pirates of the seas for the excessive fishing effort they exert on resources and the marine ecosystem. This project, on the other hand, puts

fishermen on the same side as administrators and researchers, trying to make them aware of their activities and co-responsible for shared management choices. In ARGOS it was not easy to have the operators present at the meetings, but the greater involvement of their representatives must be one of the pillars on which the plurality of competences of the future AAC permanent table is based. They are also ever-present sentinels in the sea (which they know in all its nuances), so allowing them to have a reference to whom they can turn in the event of problems could allow them to intervene promptly on certain environmental phenomena.

The increased involvement of fishermen in the management of the sea should also take the form of their direct participation in the management of protected areas, allowing in parts of these a limited openness to certain fishing activities