



## New species for EU aquaculture

### Deliverable Report

<b>Deliverable No:</b>	D31.22	<b>Delivery Month:</b>	56
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**Lead Scientist preparing the Deliverable:** Robles, R. (CTAQUA),

**Other Scientists participating:** Estévez, A. (IRTA), Papandroulakis, N. (HCMR), Álvarez, B.(IEO).

**Objective:** The objective of this Deliverable was to provide downloadable documentation for the general public.

**Description:** The audio material is a podcast including three interviews with three of the six Species leaders of DIVERSIFY: greater amberjack (Dr. Nikos Papandroulakis, HCMR), meagre (Dr. Alicia Estevez, IRTA) and wreckfish (Dr. Blanca Álvarez, IEO) (**Fig. 1**). Each Species leader comments on the most relevant results of the research done on each species.

The podcast has been uploaded in the DIVERSIFY web (News) (<https://www.diversifyfish.eu/>).



**Figure 1.** Species leaders interviewed for the podcast; from left to right, Dr. Alicia Estevez, (P3. IRTA), for meagre; Dr. Nikos Papandroulakis, (P.1 HCMR) for greater amberjack and Dr. Blanca Álvarez, (P.8 IEO) for wreckfish.

The audio starts with the introduction of each Species leader by the Dissemination leader who asks specific questions to the Species leader in order to publicize the most relevant results obtained with the species.



## Meagre

The first interview is for the meagre Species leader Dr. Alicia Estévez (P.3 IRTA). Dr. Estévez explains how “the genetic characterization of the broodstock of all the partners and stakeholders, showed that carefully designed breeding programs are required. Accordingly we have identified thousands of genetic markers. We have also developed protocols to control reproduction to cross breeders with desired phenotypes of commercial interest.

For the first time for this species, the muscle and liver transcriptome it has been characterized, in order to base future physiology, immunology and genetics studies. A protocol for early weaning of larvae has been developed, considering several measures to avoid cannibalism among the larvae such as reducing light intensity and/or increase the food doses along the day. New insights in fatty acid and vitamin requirements of the larvae have been achieved”.

Moreover, Dr. Estévez, explained how the description of the organs involved in the immune response and the expression of several of the implicated genes have allowed to set the correct timing for future vaccination of this species. The study of the differences in growth among juveniles from different origins and stocks have shown no compensatory growth observed in meagre, indicating that the differences in growth had a genetic origin.

In feeding experiments, juveniles fed with demand feeders over the entire 24-hour period including the night, have shown no growth advantage when compared to programmed feeding periods. It has been possible to understand the specific husbandry requirements in cage culture, after studying the effect of cage depth, period of feeding (day vs night) and feed distribution method (surface or submerged). With regard to meagre health issues, it has been understood the origin and causes of granulomatosis and chronic ulcerative Dermatopathy in meagre. Meager parasites have been also described, such as *Diplectanum*. Moreover, the use of plant oils has been studied as a treatment for monogenean parasites such as *Scianocotyle*”.

## Greater amberjack

The second interview was of Dr. Papandroulakis, Species leader of greater amberjack. Dr. Papandroulakis explained the major effort made on the species reproduction and the development of a protocol for the reliable production on demand of viable eggs of adequate quality and quantity. In the area of larval rearing we have studied the nutritional and environmental requirements, such as light and hydrodynamic conditions in the culture tanks, optimum levels and ratio of essential fatty acids and carotenoids in enrichment products for rotifers have been established.

Significant breakthroughs have allowed to stock large numbers of juveniles in research facilities and in commercial sea-cages. Several trials have been executed to determine the feeding patterns and temperature tolerance of the species. There are ongoing trials in open sea cages for the first time for the species in order to define appropriate husbandry methods.

With regard to the health studies with greater amberjack, several tools have been developed to monitor fish health, such as probes for the early detection of epytheliocystis, identification of immune markers, etc. The project also gave insight on the parasites affecting the species such as *Zeusapta seriolae* and *Neobenedenia*, and examine methods for the experimental treatments.”

## Wreckfish

Following, Dr. Blanca Álvarez, wreckfish Species leader, provided a summary of the research done with wreckfish and the main achievements and difficulties encountered with the species. The research work has been focused on the reproduction and larviculture, and spontaneous spawning have occurred at the facilities of IEO in Vigo (Spain), in a public institution in Spain and in the HCMR in Crete (Greece). Artificial spawning has been achieved thanks to hormonal induction, producing a considerable amount of high quality eggs. Larvae have been obtained, although until the time of the interview the larviculture period was limited to 27



days post hatching. This has now been solved, and juveniles of >90 days old are now available in the facilities of the participating partners. Several zootechnical parameters are being optimized to extend the larviculture success.

With regard to nutritional work, the chemical composition of the breeders has been used to elucidate the nutritional requirements of breeders and to formulate appropriate diets. Several trials are going on to increase larval survival of wreckfish.

**Deviations:** Although the preparation of the deliverable document has been delayed, the podcast has been available on due time in the project web.



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