New species for EU aquaculture

Deliverable Report

Deliverable No:	D31.33		**Delivery Month:**	59
Deliverable Title	Know-how Transfer seminar for the aquaculture industry (Spain), presenting the progress achieved in DIVERSIFY in the technology for wreckfish.			
WP No:	31		**WP Lead beneficiary:**	P18.CTAQUA
WP Title:	Dissemination			
Task No:	31.5		**Task Lead beneficiary:**	P8(IEO)
Task Title:	Full-day seminars on 'Know-how Transfer' of the aquaculture of each of the DIVERSIFY species.			
Other beneficiaries:	P3. IRTA	P8. IEO	P12. APROMAR	P15. ULL
P19. CMRM	P22. SWH	P32. MC2		
Status:	Delivered		**Expected month:**	59
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Lead Scientist preparing the Deliverable: Robles, R. (CTAQUA), Álvarez-Blázquez (IEO) , Mylonas, C.C. (HCMR),

Other Scientists participating: Linares, F., Rodríguez Villanueva, J.L., Vilar, A., Pérez, M., Pérez Rial, E., Lluch, N., Papadakis, I.,

Objective: The objectives of this Deliverable are the following:

1. Disseminate the knowledge acquired to the scientific community, to promote further research,
2. Disseminate the knowledge acquired to the aquaculture sector, to enhance feedback acquisition,
3. Promote implementation of new husbandry methods, protocols and products developed by DIVERSIFY by the aquaculture industry and the seafood processors,
4. Enhance awareness of the diversification efforts of the project to the general public, with special attention to the food industry and consumer's organizations,
5. Promote investment opportunities making available the species feasibility studies to the industry,
6. Provide documented information to fish producers, fish processors and consumers on the new farmed aqua products from DIVERSIFY.

Description:

The seminar for wreckfish (*Polyprion americanus*) has been organized during the19th and the 20th of July 2018 at the facilities of the Instituto Español de Oceanografía, IEO of Vigo (Pontevedra- Spain). Major achievements on the culture of the species were presented during the full-day seminar (day 19th).

The seminar was included 8 presentations from DIVERSIFY partners and 3 presentations from wreckfish experts outside the consortium. After all presentations, a debate moderated by Rocio Robles (CTAQUA) was organized. The agenda of the workshop is shown in **Fig. 1.**

WRECKFISH WORKSHOP PROGRAM

		Species: Wreckfish			Collaborating researcher:	Rocío Robles
		Species leader (SL): Blanca Alvarez-Blázquez				Montse Pérez
		Venue: VIGO. SPAIN				Constantinos Mylonas
		Dates: 19 July 2018				
8:30	8:45	Welcome and registration				
8:45	9:00	WELCOME	Besada	Victoria	IEO Director	direccion.vigo@ieo.es
9:00	9:15	The DIVERSIFY project	Mylonas	Constantinos	HCMR	mylonas@hcmr.gr
9:15	9:30	*The wreckfish as a potential new species for the aquaculture in the Eastern Atlantic*	Alvarez-Blázquez	Blanca	IEO	blanca.alvarez@ieo.es
9:30	10:00	*Reproductive cycle for wreckfish in captivity*	Mylonas	Constantinos	HCMR	mylonas@hcmr.gr
10:00	10:30	*Reproduction of wreckfish in captivity and induction of spawning with GnRHa treatments*	Alvarez-Blázquez	Blanca	IEO	blanca.alvarez@ieo.es
10:30	11:00	*Induction of wreckfish maturation using gonadotropins (FSH+LH)*	Giménez	Ignacio	RARA AVIS. SPAIN	igimenez@raraavis-bio.com
11:00	11:30	*Reproduction of hapuku Polyprion oxygenius in New Zealand*	Wylie	Mathew	PLANTANDFOOD. New Zealand	Matthew.Wylie@plantandfood.co.nz
11:30	12:00	Coffee break				
12:00	12:30	*Wreckfish broodstock nutrition*	Linares	Fátima	CMRM	fatima.linares.cuerpo@xunta.gal
12:30	13:00	*Advances in wreckfish larval culture*	Álvarez-Blázquez	Blanca	IEO	blanca.alvarez@ieo.es
13:00	13:30	*Ontogeny of the digestive and vision*	Papadakis	Ioannis	HCMR	papad@hcmr.gr
13:30	14:00	*Development and optimization of a practical feed for wreckfish broodstock*	Dias	Jorge	SPAROS. PORTUGAL	Jorgedias@sparos.pt
14:00	15:30	Lunch break (compliments of DIVERSIFY)				
15:30	16:00	*Capture wreckfish and interest of the species for the industry*	Rodriguez Villanueva	Jose Luis	CMRM	xose.luis.rodriguez.villanueva@xunta.es
16:00	16:30	Aquaculture research on wreckfish in Vigo	Peleteiro	Tito	IEO	tito.peleteiro@gmail.com
16:30	17:00	*Round table discussion on bottelnecks to imporved production and defining the farmer's needs*	Robles	Rocio	CTAQUA	Rocio.robles@ctaqua.es
17:15	18:00	Visit IEO facilities	Pérez Rodríguez	Montse	IEO	montse.perez@ieo.es

Figure 1. Agenda of the wreckfish workshop (day 1).

The sessions started with a short welcome was done by Victoria Besada, IEO Director. Constantinos Mylonas, coordinator for DIVERSIFY project gave a short summary of the project followed by a presentation from Blanca Álvarez-Blázquez, wreckfish species leader for the project, entitled *'The wreckfish as a potential new species for the aquaculture in the eastern Atlantic'*, emphasizing the good adaptation of the species to the culture conditions (captivity and handling), the high growth rate and the economic potential.

The second talk dealt with wreckfish reproduction, '*Reproductive cycle for wreckfish in captivity'* and it was presented by Constantinos Mylonas. Dr. Mylonas gave an overview of the reproduction cycle of males and females along the year, stressing the relevance of this in the establishment of the pre-spawning and spawning period and resting interval.

After that, the presentation "*Induction of wreckfish maturation using gonadotropins (FSH+LH)"* was given by Ignacio Giménez, owner and researcher of a biotechnological Spanish company, Rara Avis; he presented the work done with FSH and LH hormonal induction, as a possible methods to induce oogenesis in wreckfish. The method has been successfully applied to other fish species (*Solea senegalensis, Dicentrarchus labrax, etc*

Finally, before coffee break, Mattew Willie, researcher from the Institute for Plant and Food Research, in New Zealand, gave a talk on the *'Reproduction of hapuku (Polyprion oxigeneios) in New Zealand*', which is a amberjack speices very similar to wreckfish, with good results for the aquaculture research.

Regarding Nutrition, a presentation on '*Wreckfish broodstock nutrition*' was done by Fátima Linares, researcher for CIMA (Xunta de Galicia) and partner of the DIVERSIFY project. In her talk, it was highlighted the relevance of the studies on the composition of wild wreckfish (muscle, liver and gonads) as well as eggs from reared wreckfish in order gain knowledge in the nutritional requirements of this species.

A new diet for broodstock management has been formulated and evaluated. The results of the new diet were excellent in terms of feed acceptance and spawning performance.
Continuing with this important topic of nutrition, a presentation entitled *'Development and optimization of a practical feed for wreckfish broodstock'* was done by Jorge Días from Sparos, Portugal, a private company in charge to produce the special wreckfish feed, transmitting his high knowledges about the nutritional requirements and inert food formulation.

With respect to the wreckfish larval culture, Blanca Álvarez-Blázquez presented the '*Advances in wreckfish larval culture*'. It is important to mention that after some difficulties, there are healthy wreckfish juveniles at the facilities of IGAFA (Xunta de Galicia, Spain).

Another important task *'Ontogeny of the digestive and vision system of wreckfish*' was addressed by Ioannis Papadakis, from HCMR, who presented the characteristics of the wreckfish larvae development. According to the results, wreckfish larvae show a slower development than other species. This slower progress in the development of specific organs and systems will determine the specific feeding sequence in terms of type and size of prey.

In the afternoon, and continuing with our interest to disseminate to the industry our knowledge and work during this five years with wreckfish, José Luís Rodríguez Villanueva, also partner from DIVERSIFY consortium, gave a presentation about *'Wreckfish captures in Galicia and interest of the species for the industry'*. Shortages in the wreckfish catches was remarked as well as the importance to promote the market for the species with the aquaculture as alternative.

Finally, J. Benito Peleteiro, leader of the wreckfish species and retired nowadays, gave a summary of the work done with wreckfish since the beginning of the project. He acknowledged the work of all the team and their implication in the project tasks.

To conclude this journey, a 'Round table discussion on bottlenecks to improved and defining the farmer's needs' was moderated by Rocío Robles, from CTAQUA, scientist and dissemination leader of DIVERSIFY. Although the culture of the species is still far from being a reality, it was very motivating to check the interest of the sector (via the present companies in the meeting) in the species. Data on growth (3 kg in 1 year) and FCR (1.4 for fish of 1.4 kg to 4.8 kg) are very promising, even taking into account that there is no specific diet for the species. Final comments were focused on the time still needed to have a complete species production control.

The day finalized with a visit to the Experimental Marine Aquaculture facilities of IEO, in which Montserrat Pérez, DIVERSIFY responsible for IEO and facilitiy responsible, explained the different work in the areas of reproduction, larvae culture, genetic, growth, systems and technologies going on with different fish species (wreckfish, turbot, sole, hake) and mollusks (*Octopus vulgaris*).

The seminar had an attendance of 49 people from different sectors: governmental institutions, technological companies, fish farms and other private companies (**Fig. 2**).

On the 20th of July, the attendees were invited to visit the facilities of the IGAFA (Instituto Galego de Formación en Acuicultura, Consellería do Mar, Xunta de Galicia) in the Illa de Arousa (Pontevedra, Spain) guided by Jose Luis Rodriguez Villanueva and Fátima Linares, partners of DIVERSIFY . In this facilities, they are training aquaculture marine technicians, being a European reference in these studies. Related with DIVERSIFY project, this Center holds one of the wreckfish broodstock batches as well as the first fry of wreckfish obtained in 2018 **(Fig. 3)** . In the afternoon, a visit of Aquarium Finisterrae (Museos Coruñeses) in A Coruña (Spain), was organized. The general vision and technical details were provided by Antonio Vilar, scientist responsible of the facilities and partner of the project. In this aquarium facility is maintained the third wreckfish broodstock part of the DIVERSIFY project.

Figure 2. Group picture of the attendees to the meeting.

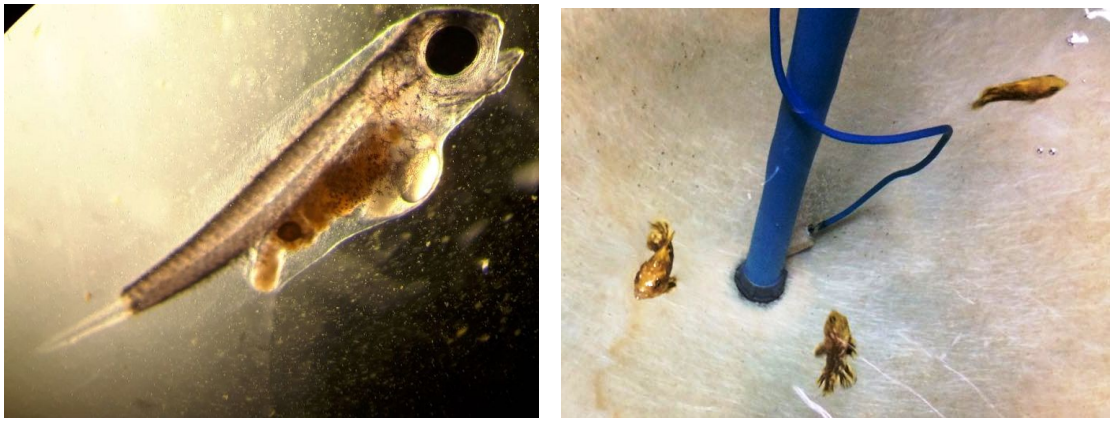

Figure 3. Wreckfish larvae of 7 days (left) and juveniles of the species at the IGAFA facilities (right)

Conclusions:

The workshop attracted quite some representatives from the aqua industry sector. The attendees were very interested in the wreckfish as a potential species to be included in aquaculture practices and demanded more information on the market possibilities. The work carried out in the DIVERSIFY project has shown the potential of the species in terms of growth and feed conversion and in the last months, finally the larviculture has reached successful data on survival and growth for this very new species in aquaculture.

For this event a technical manual (**Fig. 4)** has been elaborated and it is available in the project webpage, https://www.diversifyfish.eu/wreckfish-workshop.html , with the results and advances in the study of the species within DIVERSIFY project.

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DIVERSIFY

New species for EU aquaculture

Technical Manual – Wreckfish (*Polyprion americanus*)

Species Leader: Álvarez-Blázquez, Blanca, (Instituto Español de Oceanografía, Vigo, Spain).

Other Scientists participating: Mylonas, Constantinos C., Papandroulakis, Nikos, Papadakis, Ioannis (Hellenic Center for Marine Research), Papadakis, Ioannis (Hellenic Center for Marine Research), Linares, Fátima (Centro de Investigaciónes Mariñas, Consellería do Mar, Xunta de Galicia, Spain), Rodríguez Villanueva, J.L. (Instituto Galego de Formación en Accuicultura, Consellería do Mar, Xunta de Galia, Spain) Vilar, Antonio (Aquarium A Coruna, Museos Coruñeses, Spain), Fauvel, Christian (IFREMER, France), Duncan, Neil (IRTA, Spain), Covadonga Rodríguez (Universidad de La Laguna, Spain), Robles, Rocio (CTAQUA, Spain.

XUNTA DE GALICIA CONSELLERÍA DO MEDIO RURAL E DO MAR · hcmr · AQUARIUM FINISTERRAE · ULL Universidad de La Laguna · Parque Científico Tecnológico · Ifremer · IRTA · ctaqua

DIVERSIFY 2018

Figure 4. First page of the technical manual on wreckfish (*Polyprion americanus*) available in the project web https://www.diversifyfish.eu/wreckfish-workshop.html

Deviations: No deviations.

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