



Deliverable Report

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WP Title:	Project Management			
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Task Title:	Annual Coordination meeting			
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P6. SWR (DLO)	P7. IMR	P8. IEO	P9. UL	P10. TU/e
P11. AU	P12. APROMAR	P13. UNIBA	P14. IFREMER	P15. ULL
P16. FUNDP	P17. NIFES/IMR	P18. CTAQUA	P19. CMRM	P20. SARC
P21. DTU	P22. SWH	P23. ARGO	P24.	P25. DOR
P26. GEI	P27. FORKYS	P28. CANEXMAR	P29.	P30.
P31. IRIDA	P32. MC2	P33. FGM	P34. BVFi	P35. MAHAL
P36. ANFACO	P37. EUFIC	P38. HRH	P39. F2B	P40. GMF
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Objectives

The final Annual Coordination Meeting (ACM) had more emphasis on dissemination of the results, and less on the coordination of the consortium. Therefore, the objectives of the ACM 2018 Final were to:



- (a) Present a summary of the objectives and achievements of the whole project in each of the six species,
- (b) Report on the Perspectives of the DIVERSIFY species in the European aquaculture market,
- (c) Present the technical assessment of the DIVERSIFY species and new product development,
- (d) Present the work on Fish health and the production of the Health Manuals,
- (e) Present the dissemination activities of the consortium (WP 31),
- (f) Plan the dissemination activities of the Consortium in the coming years after the completion of the project,
- (g) Address some issues relevant to the 4th Scientific and Financial Report, and
- (h) Organize the preparation of the Final Report.

Description

The ACM 2018 Final was hosted by Matthias Keller (P34. BVFi) and Carlos Abundancia (P38. EUFIC). It was held in the Thon Hotel Brussels Center on the 22-23 November 2018 (**Fig. 1**). As proposed during the previous ACM 2018 held in Tenerife, (Spain) in January 2018, and according to the suggestion of our EU Scientific Officer Dr. Marta Iglesias, this final ACM was held in Brussels (Belgium). This central location was decided in order to be able to invite a large number of relevant officers from the European Commission, the Parliament and relevant stakeholders that have their headquarters nearby. As we had already completed the six “Species-specific Knowledge Transfer workshops”, which were organized between May and October 2018 with the objective of disseminating the acquired knowledge to the aquaculture industry (farmers, feed companies, veterinarians, etc.), we considered important to broadcast the results of the project to this different audience.



Figure 1. The venue of the Final Annual Coordination Meeting (ACM) 2018, held in Brussels, Belgium.

Invitations went out to specific persons suggested by our EU Scientific Officer, and also to other people and organizations decided by the Project Coordinator and the Dissemination leader. These included officers from the EC such as DG RTD, DG MARE and DG ENVIRONMENT, REA, members of the European Parliament Fisheries Committee, the European Aquaculture Technology and Innovation Platform (EATIP), the Federation of European Aquaculture Producers (FEAP), the European Aquaculture Society (EAS), the Aquaculture Advisory Council (AAC), and the European Market Observatory for fisheries and aquaculture (EUMOFA) and the International Union for Conservation of Nature (IUCN). A total of 16 people from the above organizations accepted our invitation (**Fig. 2**), while a number of people excused their absence.

The 1-day meeting was attended by 58 persons: 43 coming from the DIVERSIFY consortium and 15 invited guests from the list. No representative attended from Beneficiaries P2. FCPCT, P5. UNIABD (PI was retired), P14. IFREMERE (PI was retired), P23. ARGO (death in the family) P25. DOR, P26. GEI, P27.



FORKYS, P28. CANEXMAR, P31. IRIDA (prior commitment). The PI from P2. FCPCT did not attend the meeting (as in the previous five occasions) and the GWP for Nutrition belonging to the same institution could not attend due to economical limitations of his institution. Nevertheless, once the Project Coordinator was aware of the problem, he offered financing for the travel; however, nobody from the institution attended the final project meeting.


 DIVERSIFY 7FP-KBBE-2013-603121 List of Participants - 2018 Annual Coordination Meeting Brussels 22-23 November 2018				
	Lastname	Name	Comments	Affiliation
1	Balmforth	Nigel		SM Publishing
2	Buckhout	Marc-Philip		Seas at Risk, Aquaculture Policy Officer
3	Cheilari	Anna		EC DG Environment, Policy Officer
4	De la Cruz-Iglesias	Lorella	afternoon	EU DG MARE 2
5	Fouquet	Cecile		Aquaculture Advisory Council
6	Goode	Andy		Focusbiz
7	Hatziyanni	Eleni		Region of Crete
8	Hough	Courtney		FEAP
9	Iglesias	Marta		DG RTD, Program Officer
10	Lacey	Rob		Focusbiz
11	Lane	Alistair	late morning	EAS, Secretary
12	Myrseth	Bjorn		Vitamar
13	Neyts	Alexandra	afternoon	EATIP, General Secretary
14	Petralli	Nila		EC
15	Valcarcel	Germán		REA
16	Zampoukas	Nikos		EC DG RTD

Figure 2. The list of invited people from outside the consortium who accepted our invitation.

As it has been done for all previous ACMs, the information regarding the meeting has been uploaded on a continuous basis on the project's web site (<https://www.diversifyfish.eu/2018-final-coordination-meeting-nov.html>) to ensure that all participants had access to the most updated information. The Agenda (**Tables 1 and 2**) was developed with assistance from GWP leaders and consisted of:

- DAY 1: A dissemination session open to outside guests, where summary presentations were made for the work achieved in each of the six species, in Fish health, Socioeconomics and New Product Development, and in Dissemination,
- DAY 2: Presentation by the Project Coordinator (PC) dealing with the preparation of the 4th Periodic and Financial Report, and the preparation of the Final Report; and presentation by the WP31 Dissemination leader Dr. Rocio Robles discussing issues related to preparation of Scientific papers and to the continuation of dissemination activities beyond the end of the project.

DAY 1 – Objectives and accomplished results in the six species

The morning session started with a welcoming by the Project Coordinator Dr. Constantinos C. Mylonas who gave a brief presentation regarding the project and the consortium, some highlights of major achievements and a presentation of the Agenda for the meeting (**Fig. 3 and Table 1**). Then the Species Leaders continued with the presentations on the objectives and achievements in all six species included in the project.

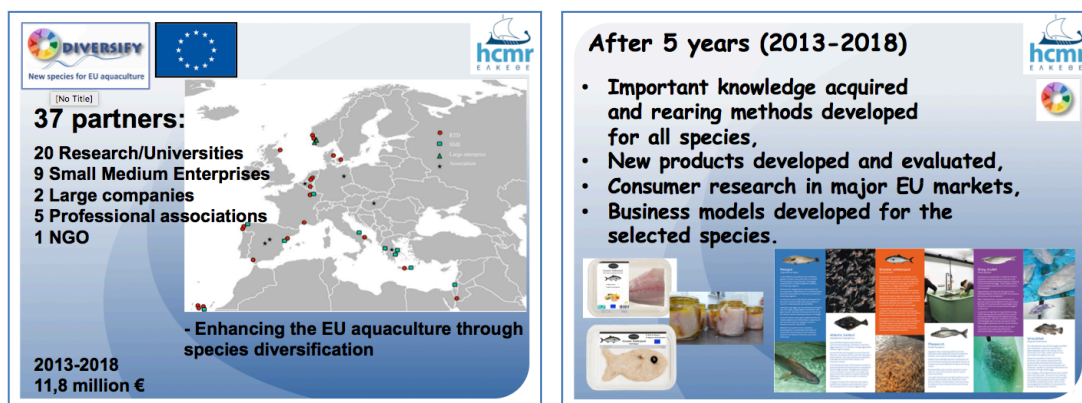



Figure 3. Representative slides from the opening presentation of the PC at the Final ACM 2018, in Brussels.

Table 1. Agenda of DAY 1 of the Final ACM (Nov 2018), which took place on the 22-23 November 2018, in Brussels, Belgium.



DIVERSIFY

7FP-KBBE-2013-603121

Meeting Agenda

2018 Final Coordination Meeting

Brussels 22-23 November 2018

Thon Hotel

DAY 1		22-Nov		Thursday (Open Day presentations)	
Start	End		Title	Presenter	Details
8,30	9,30		Registration		Pick up badges
9,30	10,00	1	The DIVERSIFY project	Dr Constantinos Mylonas (HCMR, Greece), Project Coordinator	
10,00	10,30	2	The meagre (<i>Argyrosomus regius</i>): objectives and progress	Dr Alicia Estevez (IRTA, Spain), meagre leader	
10,30	11,00	3	The greater amberjack (<i>Seriola dumerili</i>): objectives and progress	Dr Nikos Papandroulakis (HCMR, Greece), greater amberjack leader	
11,00	11,30	Coffee			
11,30	12,00	4	The pikeperch (<i>Sander luciperca</i>): objectives and progress	Dr Pascal Fontaine (UL, France), pikeperch leader	
12,00	12,30	5	The Atlantic halibut (<i>Hippoglossus hippoglossus</i>): objectives and progress	Dr Birgitta Norberg (IMR, Norway), Atlantic halibut leader	
12,30	13,00	6	The wreckfish (<i>Polyprion americanus</i>): objectives and progress	Dr Blanca Alvarez (IEO, Spain), wreckfish leader	
13,00	14,30	Lunch on site			
14,30	15,00	7	The grey mullet (<i>Mugil cephalus</i>): objectives and progress	Dr Bill Koven (IOLR, Israel), grey mullet leader	
15,00	15,30	8	Perspectives of the DIVERSIFY species and the European aquaculture market	Dr Gemma Tacken (SWR/DLO, Netherlands) Socioeconomics leader	
15,30	16,00	9	Technical assessment of the DIVERSIFY species and new product development	Dr Lluís Guerrero (IRTA, Spain)	
16,00	16,30	10	Fish health	Dr Pantelis Katharios (HCMR, Greece)	
16,30	17,00	Coffee			
17,00	17,30	11	Dissemination	Dr Rocio Robles (CTAQUA, Spain), dissemination leader	
17,30	18,00	12	Future directions-discussion	Dr Constantinos Mylonas (HCMR, Greece), Project Coordinator	
20,00	Dinner at local restaurants				

The first species-presentation was given by Dr. Alicia Estevez (IRTA, Spain), who is the **meagre** (*Argyrosomus regius*) leader (**Fig. 4**). The highlights of the achievements in meagre include the identification of three different populations and the documentation on the sufficient genetic variation in a



number of broodstocks around Europe; if managed properly there is sufficient genetic variation to apply breeding programs. Protocols for meagre paired spawning and for the acquisition of gametes for *in vitro* fertilization have been developed, as methods to implement breeding programs. A protocol for early weaning was developed and the role of essential fatty acids and vitamins C, E and K in weaning diets was identified. Feeding in sea cages can be carried out during day or night using programmed feeders with good results. Optical and mechanical stimuli can be used to improve feeding behavior in meagre. Immune markers have been established for the innate, adaptive and inflammatory responses of the immune system of meagre in order to develop vaccines in the future. Methods to prevent Chronic Ulcerative Dermatopathy, to ameliorate the extend of Systematic Granulomatosis and to address parasitic and bacterial infections have been developed.

Dr Nikos Papandroulakis (HCMR, Greece), species leader for **greater amberjack** (*Seriola dumerili*) reported that although spontaneous reproduction in captivity is still problematic, hormonal induction methods have been developed to induce spawning in broodstock maintained in tanks and sea cages, producing large numbers of eggs of good quality for commercial larval rearing purposes. Hatchery-produced (F1) individuals were shown to undergo reproductive maturation in captivity. Significant breakthroughs were achieved in larval rearing, allowing the production of large numbers of juveniles adequate for commercial production. Husbandry practices were developed for successful transfer of juveniles to sea cages. On growing trials until commercialization resulted in important information on feeding patterns and stocking densities, while the species' temperature tolerance has been determined. Identification of immune markers and health management tools under aquaculture conditions were developed, including probes for the early detection of epitheliocystis, and methods to control infestations of the parasites *Zeuxapta seriolae* and *Neobenedenia gireliae*.

Dr Pascal Fontaine (UL, France), species leader of **pikeperch** (*Sander lucioperca*) presented the achievements in this species, which included the development of a genetic map comparing captive and wild broodstock using microsatellite markers, which can be used for breeding programs. Studies have identified optimal combinations of environmental, feeding and population factors to improve survival and growth during larval rearing in RAS. Essential fatty acids must be supplied in larval diets for normal development and to reduce stress sensitivity. Low light intensity and red-light spectrum have proven to be less stressful and the effect was confirmed in RAS farm conditions. Domestication level was shown to influence stress responsiveness and immune response.

Then, Dr Birgitta Norberg (IMR, Norway), the species leader for **Atlantic halibut** (*Hippoglossus hippoglossus*) explained that the use of GnRHa implants advanced and synchronized spawning, resulting in improved egg production in F1 females, though egg quality remains highly variable. Larvae fed well and had good survival when dry feed was introduced 28 days post first feeding in small systems. Full-scale systems are needed to evaluate and improve these results in an industrial context. First feeding of larvae in RAS systems resulted in improved growth and development compared to flow through systems. Metagenomic analyses of the microbial communities in the water and larvae of the two systems revealed interesting differences, which will be useful in industrial applications. Finally, a range of systems for expression of a capsid protein from nodavirus were tested for use in the development of a vaccine against VNN.

Dr Blanca Alvarez (IEO, Spain), the species leader for **wreckfish** (*Polyprion americanus*) reported that the reproductive cycle of wild-caught fish was completed in captivity. Spontaneous spawning takes place in the spring, with a periodicity of 3-5 days. Males may be in full spermiation throughout the year. Based on evaluation of mature wreckfish from the fishery, the nutrient requirements for an appropriate broodstock diet have been determined. The commercial broodstock diet produced resulted in successful maturation and production of high-quality eggs. The ontogeny of the digestive and vision system has been described. Successful larval rearing was finally achieved in the last year of the project, resulting in the production of a small number of hatchery-produced juveniles, which is very encouraging for the efforts to incorporate this species in the aquaculture industry.



The last species-specific presentation was given by Dr. Bill Koven (IOLR, Israel) who is the species leader for **grey mullet** (*Mugil cephalus*). He reported that spontaneous reproduction in captivity remains a problem, but spawning was achieved using GnRHa and metoclopramide therapies, producing millions of fertilized eggs. Optimization of the hormone-based reproduction control protocol is still necessary. Algal addition during larval rearing provides beneficial effects in terms of rotifer consumption, and larval survival and growth. After metamorphosis, commercial feeds for juveniles should be designed for the omnivorous feeding of this species and include higher levels of starch or other low cost amylolytic energetic compounds. Larvae have a high taurine requirement during rotifer feeding, and the benefit of this nutrient during early feeding was still apparent during juvenile growth. Taurine is essential not only for promoting growth in larvae, but also for other physiological pathways such as muscle function. Diets with low fishmeal content can be used successfully for on-growing without any detrimental effect on growth performance.



Figure 4. Representative slides from the presentations of the six species leaders, highlighting the objectives of the project and the accomplished work 5 years afterwards.



Following the species-specific presentation, the leader of the Socioeconomics WPs Dr. Gemma Tacken (SWR/DLO, Netherlands) gave a presentation on the “Perspectives of the DIVERSIFY species and the European aquaculture market”, and Dr Lluís Guerrero (IRTA, Spain) presented the “Technical assessment of the DIVERSIFY species and new product development” (Fig. 5). Then, Dr Pantelis Katharios (HCMR, Greece) gave a presentation on the Fish health work carried out in the project.

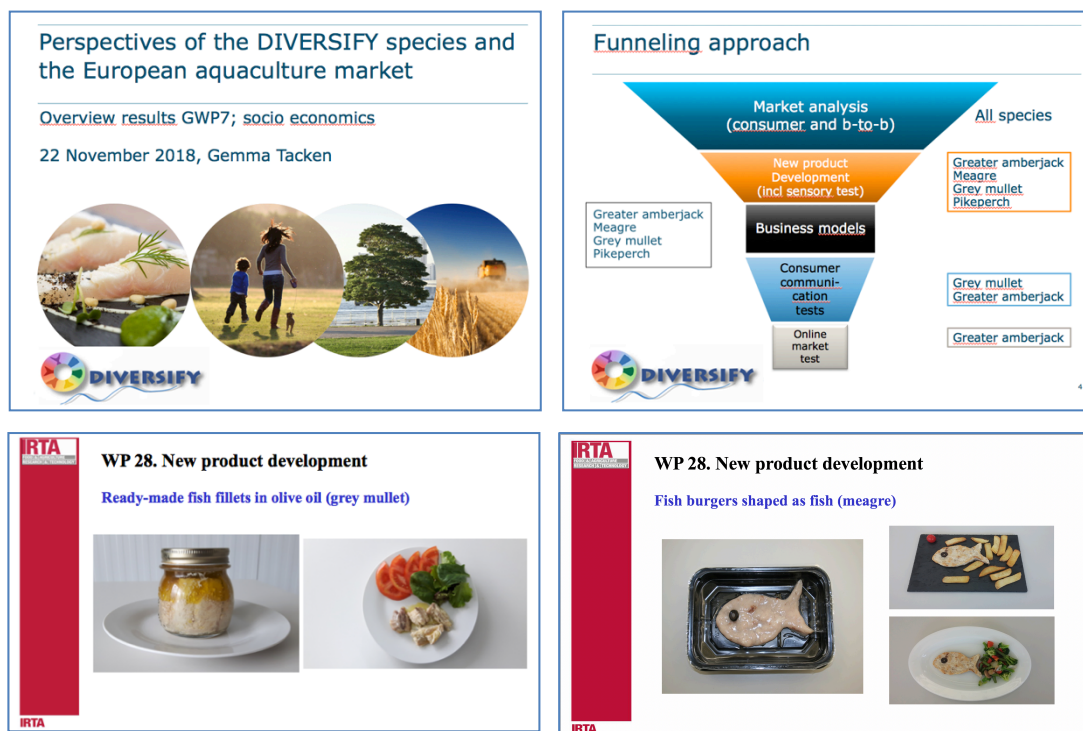


Figure 5. Representative slides from the presentations of the work carried out in the Socioeconomics WPs.

The presentations closed with the Dissemination leader Dr Rocio Robles’ who presented a summary of the dissemination activities carried out during the project. Special emphasis was given to the Promotional Workshops and the Species Workshops (Know-how transfer for the project species).

The Promotional Workshops were one-day workshops organized in specific countries where fish production and processing are relevant economic activities. The workshops were designed for specific audience, such as fish producers, processors and retailers, consumer organizations, and fisheries and aquaculture authorities. Four Promotional Workshops have been successfully organized in Germany, Spain, Italy and Greece (Fig. 6) with the collaboration of the fish processors’ associations and fish producers’ associations of the project. Project achievements with special emphasis on the Socioeconomical research area were presented to the audience.

The Species Workshops were “Know-how Transfer” seminars for the aquaculture industry, presenting the progress achieved through DIVERSIFY in the production technology of each of the six project species. The seminars included presentations on selected aspects of the culture given by DIVERSIFY Partners, but also from some authorities in the species, whose work was considered relevant. Fish farmers, feed companies, European aquaculture support companies (feed, pharmaceutical, equipment, engineering, etc.), researchers and educators and government organizations have been part of these meetings. Six Species Workshops have been organized in Italy (for grey mullet), France (pikeperch), Spain (wreckfish and meagre), Norway (Atlantic halibut) and Greece (greater amberjack) (Fig. 7). A Technical Manual for each species has been elaborated and uploaded in the website of DIVERSIFY (Fig. 8). In collaboration with the producers’ and



processor associations, the Technical Manuals have been translated to other EU languages: Spanish (APROMAR and ANFACO) and German (BVFi). Translated Manuals are also available in the project web.

All the presentations from the Promotional workshops (<https://www.diversifyfish.eu/promotional-workshops.html>) and the Species Workshops (<https://www.diversifyfish.eu/species-workshops.html>) are available in the project website.

Task 31.6 DIVERSIFY Promotional workshops

Industry, producers associations, purchase responsables from big supermarkets, policy makers, consumers associations, government representatives etc in a dedicated forum to explain the Project with the focus on the Socioeconomic research

1. Bremen, Germany, 24 May, 2017 (BVFi)
2. Cádiz, Spain, 28 September, 2017 (CTAQUA)
3. Verona, Italy, 22 February, 2018 (Apromar, API)
4. Athens, Greece, 11 July, 2018 (FGM)

<https://www.diversifyfish.eu/promotional-workshops.html>



Figure 6. Slide presenting the four Promotional Workshops of the project that have been organized during 2017 and 2018.

Task 31.5 Full-day seminars on “Know-how Transfer”: Species Seminars

Species workshops

Invited speakers

2018



Figure 7. Slide presenting the six DIVERSIFY Species Workshop organized in Europe during 2018.

Technical Manuals per sps

Spanish (Apromar, Anfaco)
German (BVFi)




Figure 8. Slide presenting the Technical Manual per species of the project.



Another important dissemination activity has been the elaboration and publication of a dedicated article in the magazine Aquaculture Europe (from the European Aquaculture Society, EAS) every six months. Since the beginning of the project, an article on the project as a whole and for each of the six species has been published in the magazine, starting in March 2014 with an overview article of DIVERSIFY and finalizing with a double publication in the last issue of the second semester of 2018, on the grey mullet and on the break-through larviculture of wreckfish (**Fig. 9**). In continuation of the dissemination efforts and thanks to the good collaboration with the Aquaculture Magazine editor and secretary of the EAS (Dr. Alistair Lane) a compilation issue has been published in the last month of October, including the 9 articles about DIVERSIFY published in the Aquaculture Europe magazine. This special issue has been distributed during the meeting in Brussels.



Figure 9. DIVERSIFY publications in the AE magazine and the compilation issue produced in October 2018.

Another relevant Dissemination task has been the design and production of the second DIVERSIFY folder (partners HCMR, CTAQUA and EUFIC), where the major achievements per species has been included. The second folder (**Fig. 10**) has been also distributed among the audience of the final Coordination and Dissemination meeting in Brussels.

2nd DIVERSIFY folder

Task 31.1 brochure



Figure 10. Presentation of the second and final DIVERSIFY folder which was distributed to the attendees of the final meeting in Brussels.



The communication of the project activities to the industry during the five years duration was summarized in several slides (**Fig. 11**). Major broadcasting activities during relevant aquaculture events directed to the aqua industry and also specific aquaculture events more targeted to the scientific and academic sectors were presented. The collaboration of the aquaculture producer and processors associations have been essential for this dissemination activities (BVF and APROMAR).




Figure 11. Slides with a summary of the major dissemination activities directed to the aquaculture and seafood industry (left) and presence of DIVERSIFY in the annual Aquaculture Europe conferences organized during the 5 years of the project.

As before, and in agreement with the intentions of the consortium to be as open as possible and to disseminate the results as promptly as possible, all the presentations of the ACM 2018 Final were uploaded on the website of the project within a week after the end of the meeting (end of November 2018), to be available to all interested stakeholders.

DAY 2 – Management and coordination issues

The preparation of the 4th Periodic Report and the Final Report was the focus of the presentation by the PC during the Day of the meeting (**Table 2**), which was only for consortium members. Unfortunately, a key Partner in the consortium (P2. FCPCT) did not attend the meeting, neither with the Principle Investigator Dr Marisol Izquierdo, nor with the GWP leader for Nutrition, Dr Daniel Montero.

Table 2. Agenda of DAY 2 of the Final ACM (Nov 2018), which took place on the 22-23 November 2018, in Brussels, Belgium.

	DIVERSIFY				
	7FP-KBBE-2013-603121				
	Meeting Agenda	2018 Final Coordination Meeting	Brussels 22-23 November 2018	Thon Hotel	
DAY 2 23-Nov Friday (Consortium Management)					
Start	End		Title	Presenter	Details
8,00	9,00		Registration		Pick up badges
9,00	10.00		Scientific and Financial Reporting	Constantinos Mylonas, PC (HCMR)	
10.00	11.00		Dissemination activities after the end of the project	Rocio Robles, (CTAQUA)	
11.00	11.30	Coffee			
11.30	13.00		Future actions for the promotion of DIVERSIFY II	Constantinos Mylonas, PC (HCMR)	
13.00	15,00	Lunch at a local restaurant for the ones staying the day in Brussels			



Preparation of the Periodic and Final Reports

As before, the partners were given instructions as to the process that was going to be followed for the preparation of the 4th Periodic Report, which covered the last 12 months of the project (**Fig. 12**). The PC would prepare the format documents for all WPs, which would include summaries of the work done in previous reporting periods, so the partners would only have to include the data obtained in the last reporting period. The time schedule for the conclusion of the various steps was agreed.

The figure shows two slides from a presentation. Both slides have the title '4th Periodic Report - DIVERSIFY' and the DIVERSIFY logo. The left slide lists the format to be prepared by WP leaders, including an information table, objectives, task headings, an example of format, and brief instructions. The right slide lists the responsibilities of WP leaders, GWP leaders, and the PC, including compiling/editing the report, completing task reports by December 7, 2018, preparing WP reports by December 14, 2018, and compiling/reviewing all WP reports by December 31, 2018.

4th Periodic Report - DIVERSIFY

- Each WP leader and member will be send the format to prepare their WP for the Periodic Report, which includes:
 - Information table (WP name, Partners, Scientists, etc.)
 - Objectives (from DOW)
 - Task headings (from DOW)
 - Example of the format of Tables/Figures
 - Brief instructions

4th Periodic Report - DIVERSIFY

- The WP leaders, GWP leaders and PC are responsible for compiling/editing the report
- Task leaders complete all Task reports and submit to WP leaders by **7 December 2018** (All researchers!!!)
- WP leaders prepare their WP report and submit to GWP leader by **14 December 2018**
- GWP leaders compile/review all WP reports and submit to PC by **31 December 2018**

Figure 12. Slides from the PC's presentation on the preparation of the Periodic Report.

Then the PC dealt with the preparation of the final report (**Fig. 13**), which is very different in format from the Periodic Reports with which the partners are very well familiar. Again, the PC will send the partners a format document with all the information needed to be filled by each partner, so that the contribution of each will be then consolidated by the PC.

Lastly, there was a mention of the financial situation of the project (**Fig. 13**). The partners were informed of the possibility of some money remaining at the conclusion of the project, due to reductions in the budget of some SMEs. Therefore, they were encouraged to declare any additional expenses that they might have incurred during the project, due to additional work done (repetition of experiments, added analyses to improve the quality of the data, participation as speakers in the Species Workshops, etc.)

The figure shows two slides from a presentation. Both slides have the DIVERSIFY logo. The left slide is titled 'Final Report - DIVERSIFY' and lists the format to be provided by each partner, including a document with instructions and a return document with partner information. The right slide is titled 'Financial Issues' and lists the requirements for declaring leftover budget, species workshop presentations, additional work to improve the project, justified travel, and prior approval for outside EU needs.

Final Report - DIVERSIFY

- Each Partner (PI) will be send the format Document to provide information for the Final Report
- December 14, 2018 - receive Document with instructions
- January 14, 2019 - return Document with Partner information

Financial Issues

- If you have spent more than your DOW, declare it (leftover budget from some partners)
 - Species workshop presentations
 - Additional work to improve the project
- Travel must be justified, including a report for each trip
 - Outside EU needs prior approval!

Figure 13. Slides from the PC's presentation on the preparation of the Periodic



Dissemination activities after the completion of the project

During Day 2, the presentation by the WP 31 Dissemination leader focused on the pending actions concerning mainly the scientific publications. A total of 42 scientific articles have been published in peer-reviewed scientific journals and 7 more are under revision for publication. Moreover, a total of 26 articles are in preparation in the consortium (**Fig. 14**). The partners were encouraged to finish the preparation and submit their scientific work for publication in the coming month.

The scientific articles are accessible in the “Scientific Publications” page in the main menu bar of the project web, (<https://www.diversifyfish.eu/scientific-articles.html>) so that visitors can have a more rapid and direct access to the scientific work of the Consortium.

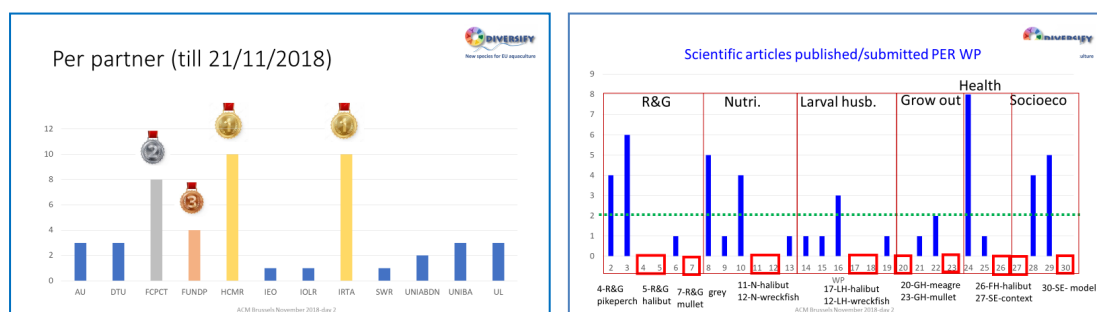


Figure 14. Slides from the Dissemination leader presentation showing the summary of the published articles.

Following the close collaboration that we had with the Aquaculture Europe Magazine, we have agreed to prepare for next March 2019 issue a special extended article on the results of the project in each of the research areas and species. A similar extended article will be also published in the magazine Aquafeed International, which is very popular publication among the fish farmers. A specific publication focused on the areas of Reproduction and Genetics, and Larval husbandry has been also agreed with the consortium.

It has been agreed also to maintain the project website active for a period of 3-4 years since it is considered a good tool to make available all the information on the culture of the six DIVERSIFY species generated during the five years of the project. Moreover, the conclusions of our project will be presented in the next EAS conference in Berlin (Germany), next October 2019.

Once again and as a reminder, the Dissemination WP leader discussed the issue of uploading dissemination activities on the ECAS portal, as well as preparing the work done in DIVERSIFY for submission to scientific magazines (**Fig. 15**).



Figure 15. Representative slides from the discussion on uploading dissemination activities and publications on the ECAS portal.



Future directions

The second day closed with some reflections of the work done in DIVERSIFY, and what needs to be done in the future, based on the conclusions of the six Species leaders presented at the end of Day 1 (**Table 1, Fig. 16**). The partners agreed to maintain the communication among them, and in the coming months develop a document (s) identifying the needs for future research in the DIVERSIFY species in order to provide the EU DG RTD and EATIP with the bases for the potential opening of future calls for Species Diversification.



Figure 16. Future needs for research in the six DIVERSIFY species.



For example, in meagre we are still facing the issue of the lack of a specialized diet, and the occurrence of Systemic Granulomatosis. The results obtained with wreckfish reproduction and larviculture during the last year of the project need further research to finally offer a this fish species to the industry. Grey mullet is another species that would require further research. Reproduction and larviculture, including nutrition requirements, have been documented well in the project, but further work is needed in addressing the monoculture cultivation of the species and the effect of density of the grow out phase. Greater amberjack has been one of the most successful species in the project, providing more than half million fingerlings to the industry in the Mediterranean to be grown in cages. However, the control of parasitic infestations still needs much further and deeper investigation.

As a general remark during the second day of the meeting, the necessity was mentioned to include recirculation aquaculture systems (RAS) in the culture of the species, specially to carry the nursery phase in more controlled conditions on land and move the fish once they have reached a size and developmental status that could guarantee a high survival in the sea cages.

Deviations

The only deviation of this ACM according to the DOW, was that instead of an ACM being held in Greece (hosted by HCMR), it was decided to hold it in Brussels, after the recommendation of the EU Scientific Officer Dr Marta Iglesias.



A group photo of some of the participants of DIVERSIFY at the Final ACM (Nov 2018) at the Thon Hotel Brussels Center, Brussels, Belgium.



Co-funded by the Seventh
Framework Programme
of the European Union

