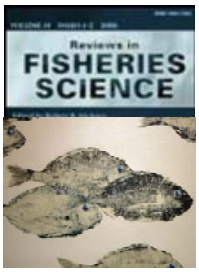
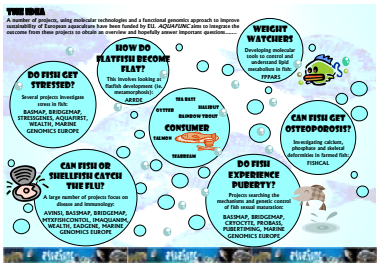
SIXTH FRAMEWORK PROGRAMME
PRIORITY 8.1
Scientific Support to Policies
Specific Support Action

Integrated knowledge on functional genomics in sustainable aquaculture

Participants of the Aquafunc Working Group Meeting - February 2006.
CCMAR, Universidade do Algarve, Faro,

http://genomics.aquaculture-europe.org/





Periodic activity report for the period: November 1st 2005 – October 31st 2007

Project no.: N°022685

AQUAFUNC

Integrated knowledge on functional genomics in sustainable aquaculture

Instrument: **Specific Support Action**

Thematic priority: **SIXTH FRAMEWORK PROGRAMME**
PRIORITY 8.1
Policy oriented research

Periodic activity report

Period covered by the activity report:
November 1st 2005 to October 31st 2007

Date of preparation: **12 February 2008**

Start date of project*:** **November 1st 2005** ***Duration: **24 months**

Project coordinator: **Kristina Sundell**

***Project coordinator organisation*:** **Göteborg University**
Sweden

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Executive summary:

Projects funded within the scope of FP5 and 6 contributed and continue to contribute to the implementation of the common fisheries policy (CFP), a cornerstone of EU policy in relation to fisheries and aquaculture. A relatively large number of projects have been funded in the context of FP5 and 6, which are underpinned by the same general philosophy of improving sustainability of European aquaculture by developing molecular technologies, gene mapping and functional genomics approaches.

Aquafunc aimed to integrate the outcome of these projects in order to identify specific needs in this area, to reduce repetition now and in the future and prepare the foundation by integrating previous investment and investigation in this area. This was done by drawing up a list of FP5 & 6 projects and National programs in European countries which utilized functional genomics to address issues associated with sustainability of Aquaculture and scientific coordinators were invited to join the Aquafunc working group (WG). A working group meeting was held at which the objectives and outcomes of collaborating projects was presented and results were synthesised, information exchanged and discussed. The integration of the outcome of projects using functional genomics and related technologies was seen as an essential step and contributes significantly to building a common knowledge base in this area. A number of different instruments have been used in Aquafunc to build a common knowledge base and are now highlighted. 1) A web page has been launched (http://genomics.aquaculture-europe.org) which presents the outcomes of the WG meeting hosted by CCMAR, Universidade do Algarve, Faro and includes powerpoint presentations summarising each project. 2) A report was compiled summarizing the scientific and technical content together with the main achievements and outcomes of FP5, FP6 and National projects which use functional genomics in Aquaculture. 3) scientific publications have been elaborated by WG members which highlight the state of the art and integrate the outcome of various projects on stress, disease, nutrition, larval development and molecular genetics and these are published in a dedicated issue of Reviews in Fisheries Science.

The need for information, development of additional tools for use by scientists in the research area, the way in which the research area could respond to emerging and new problems was studied as was the need for common bioinformatics facilities and resources and how such resources could be managed in a pan European context. The methodology and means by which information about resources could be attained, the bioinformatics resources which are available, their location and accessibility was assessed using the trout which is molecular/tool resource rich as a consequence of investment at a European, National and International level. Divulgation of Aquafunc and the associated FP5, FP6 and national projects was carried out in a number of ways, by presence at both scientific meetings (AQUAGENOME 2007, Aquaculture Europe 2007) and Trade meetings (AQUANOR 2007). A promotional pack consisting of a project banners and logo, posters, 2 flyers (directed at the industry and public respectively) and a journal issue launcher pamphlet were taken to, or distributed to relevant meetings. This resource is available on the project web page

and is available for distribution in the future through the mailing list of Aquagenome the second generation project which aims to contact with all stake holders.

Project no.: N°022685
Contractors involved:

Partner no.	Contractor name	Contr. short name	Country
1	Fish Endocrinology Laboratory, Department of Zoology/Zoophysiology Contact: Dr. Kristina Sundell e-mail: k.sundell@zool.gu.se	UGOT	Sweden
2	Comparative and Molecular Endocrinology Group, Campus de Gambelas, 8005-139 Faro Contact: Dr. Deborah Power e-mail: dpower@ualg.pt	CCMAR, UALG	Portugal
3	Group on Physiology of Stress and Adaptation in fish, Campus de Beaulieu, 35042 Rennes Cedex, France. Contact: Dr. Patrick Prunet e-mail: Patrick.Prunet@rennes.inra.fr	INRA	France
4	Instituto Investigaciones Marinas, Eduardo Cabello 6, 36208 Vigo Contact: Dr. Antonio Figueras e-mail: pato1@iim.csic.es	CSIC	Spain

Project co-ordinator contact:

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Telephone: +46 31 7863671
Telefax: +46 31 7862538
E-mail address: k.sundell@zool.gu.se

Project Logo:

Public website: http://genomics.aquaculture-europe.org

Section 1 – Project objectives and major achievements

Overview of general objectives

Background

Projects funded within the scope of FP5 and 6 contributed and continue to contribute to the implementation of the common fisheries policy (CFP), a cornerstone of EU policy in relation to fisheries and aquaculture. A relatively large number of projects have been funded in the context of FP5 and 6, which are underpinned by the same general philosophy of improving sustainability of European aquaculture. The diverse activities covered by this sector, means that such projects may address specific questions/problems in different species as well as in disparate areas which nonetheless may generate knowledge applicable at a much broader level. Until now relatively few opportunities of integrating the outcome of such projects have existed. In particular FP5 and 6 bridged a period of exceptionally rapid changes in molecular technology associated with a number of large scale sequencing projects, and this technology has inevitably been transferred and become a standard tool in other research areas, including aquaculture research. This transfer has been reflected in recent years by an increased number of funded aquaculture projects, which use molecular technologies, gene mapping and a functional genomics approach to address problems peculiar to aquaculture.

The integration of the outcome of projects using functional genomics and related technologies will unquestionably be a logical approach and will contribute to building a common knowledge base in this area. The integration will have a number of consequences, it is expected that the synthesis of an increased data set, as this action promotes, may be expected to give a more significant output than the sum of the individual projects. Integration should also reduce repetition now and in the future and reduce risks as it will be possible to build on the basis of an already substantial investment and knowledge base. Bringing together a large number of research groups/projects in a common forum should generate a critical mass and improve European and International visibility in this important area of production. The proposal will therefore directly contribute to integrating and strengthening the European research area.

The overall aim of the present project is, therefore, to integrate the outcome of projects funded in FP5 & 6 in order to generate a common scientific basis of a functional genomics approach to aquaculture.

In order to attain the overall aim of the project a number of instruments will be used to generate mechanisms that will facilitate the accessibility to results from the 5th and 6th FP, for both the scientific community and the public in order to allow better exploitation and divulgation of the resources generated.

The instruments used:

- To organise a working group to bring together project participants, working with a functional genomics approach to aquaculture, of FP 5 and FP 6 projects in order to discuss and synthesise results and exchange information.
- To combine and analyze results from these projects in joint scientific publications (book or journal issue).
- To create a common WEB-page presenting projects using functional genomics and providing links and contacts to respective institutions and research.
- To evaluate the need of information and tools which should be developed and shared among the projects in order to integrate bioinformatic facilities and resources from the FP5 and FP6 projects.

Summary of work performed and main achievements

WP1.1 Invitation of FP5 and FP6 projects to join the working group (WG)
Contractors involved: UGOT, CCMAR
A list of FP5 & 6 projects and National programs in European countries which have been utilizing functional genomics to address issues associated with sustainability of Aquaculture was drawn up and scientific coordinators were invited to join the Aquafunc working group (WG) to generate a forum for discussion and integration of project outcomes. The list drawn up included all relevant information about the project, contact details of the coordinators and link to project web pages. Two separate letters of invitation was prepared, one for project coordinators inviting them to participate in Aquafunc and one for National research projects inviting coordinators to participate in the WG meeting under the conditions that they make an oral presentation of their project and openly participate in discussions and exchange of scientific information. These letters were distributed by email with a request that they confirm their interest in collaborating in Aquafunc. The letter drawn up explained the objective of Aquafunc and the WG meeting and invited the participation of 2 members from each of the projects

The main achievements of the WP were the generation of a list of working group (WG) members. The WG was composed of coordinators of FP5 & 6 projects and also National projects in European member states. Moreover, a short report which summarised the scientific and technical content of each project was prepared with the collaboration of the WG members.

WP 1.2 Working group meeting
Contractors involved: UGOT, CCMAR
The objectives of the WG meeting were several fold, 1) to allow participants of invited FP5 & 6 projects to meet each other and establish dialogues, 2) to permit 1 participant per project to present the main objectives and outcomes of their project to facilitate the identification of synergies with other projects participating in

Aquafunc, 3) to establish discussion groups which represent groups of projects with synergies in order to make a synthesis of the overall outcome of their projects, 4) to arrange a plenum meeting in which potential research papers arising from group meetings was presented and the potential authors indicated. The Aquafunc WG project meeting took place in Universidade do Algarve, on the 27th/28th February 2006. WG members were requested to provide a brief written overview of their project and the contributions were collected and collated into a short report. The WG meeting was conducted by Prof. Sundell and Power and was opened at 9.00h with a brief presentation of the Aquafunc project; objectives, instruments and expected achievement. The objectives activities and expected achievements of the WG meeting were also outlined.
The first day of the WG meeting was given over to a thorough review of the projects participating in Aquafunc. One participant per attending project gave a Power point presentation of the principal objectives and outcome of their project and then a short discussion pursued. All Power point presentations were uploaded to the project website. The Aquafunc website was launched by Dr Patrick Prunet (partner 3). The objectives of the website were outlined and an open discussion followed during which the expectations of WG members were canvassed. The WEB-page address and maintenance (the web site will be hosted by the INRA/SIGENAE group (Toulouse, France). It will use a TYPO3 management system and the web page content was defined during the meeting. A key concern raised by WG members was the short duration of the Aquafunc project and the duration the Web page would remain active after the termination of the project.

The second day of the meeting was opened with a outline of how the round table discussions would proceed. Four major topics were covered during the meeting, **Stress and disease resistance, Nutrition, Endocrine driven processes and the genomic toolbox.** WG members participated in two discussion forums. The topics discussed were selected to contemplate all the "stakeholders" interests eg. research and development, industry and public. The discussion groups were coordinated by the 4 Aquafunc project members in order to ensure that discussions were maintained within the boundaries proposed by the WG organisers and to ensure that all proposed outcomes were attained.

The main achievements attained in this WP were: 1) organisation of an Aquafunc WG meeting which was hosted by CCMAR, Universidade do Algarve, Faro. The WG meeting provided members with the opportunity to contact with representatives of other FP5 & FP6 projects and identify synergies and discuss technical and scientific outcomes; 2) production of a series of power point presentations summarising participating projects instruments and outcomes were collected for divulgation and made available on the Aquafunc website; 3) a report was compiled summarizing the scientific and technical content together with the main achievements and outcomes of Fp5, FP6 and National projects which use functional genomics in Aquaculture. And

4) an Aquafunc publication was defined and the role of different WG members and potential manuscripts were identified.

WP1.3 Open workshop/dissemination meeting

Contractors involved: UGOT, CCMAR

Several workshops/dissemination meetings were organised and attended by Aquafunc partners to maximize divulgation of the results of the project and the Fp5 & 6 projects that it represents. The preparation of a project logo, posters, flyers (scientific and public divulgation and journal issue launcher) in the context of this WP meant that these could be distributed at appropriate meetings either by attendance of MC members or by requests to conference organisers and this activity represented an important "spreading activity" directed at both industry and scientists.

The AQUANOR Forum was the European /International Aquaculture meeting chosen for dissemination of Aquafunc results. The project was represented at AQUANOR forum by the project coordinator, Snuttan Sundell and her PhD student Henrik Sundh (Figure 4) and the meeting was held in Trondheim, Norway, 15th and 16th August 2007. The meeting was organised by the European Aquaculture Society, the Nor-Fishing Foundation and SINTEF Fisheries and Aquaculture and the key focus of the meeting was "Welfare as a driver for technological development in aquaculture". A total of 251 people attended the FORUM, 34.3% of attendees were researchers, 25.9% were suppliers, 24.7% were producers and PO, 9.6% were government and policy makers, 2.8% were press, 2.0% were NGO and 0.8% was from other activities in the Aquaculture sector. In total 34 countries were represented (Taken from AQUANOR Forum Summary).

Aquafunc was present on the Institute of Marine research (Bergen) trade stand in the trade show and also in the lobby of the meeting. The Aquafunc stand was prepared with Aquafunc banners integrating the project logo, a poster presenting the objectives and instruments of Aquafunc, a flyer as well as a running Power point presentation which briefly divulged each of the participating projects integrated in Aquafunc. In addition, a poster and a flyer which had been prepared for public divulgation of Aquaculture projects in Europe and a Journal issue launcher to announce the Aquafunc issue of Reviews in Fisheries Science were distributed.

In addition, the outcome of Aquafunc was presented at an opening session of a workshop organised by the project Aquagenome. As no budget was available to fund participation of scientists and industry in a second Aquafunc workshop divulgation was carried out at existing European and International Aquaculture meetings.

The main achievement of the WP was the dissemination to different "stake holders" of the objectives and instruments of Aquafunc and the FP5, FP6 and National projects that it represents.

WP 2.1 Publishing contract

Contractors involved: UGOT, CCMAR

The initial decision which was taken was to establish if publication of the FP5 & FP6 projects should be in the format of a book or Journal issue. In consultation with the

manuscript co-ordinators it was agreed that publication should be in a Journal issue on the basis of a number of factors; 1) length of time it takes to publish a book which frequently makes their contents "out of date", 2) absence of indexing of books in the science citation index, 3) reduced distribution compared to journals which are available in an electronic format.
The identification of a suitable journal was carried out initially using Web based searches with the Web of Knowledge to identify and draw up a list of the principal Journals publishing reviews in the area of Aquaculture and Fisheries. Subsequently, a careful analysis was made of the character of the journals on the list, taking into consideration, quality of product, circulation and impact factor. After preliminary analysis 5 journals were identified as being of interest, the first journal Editor-in-chief consulted, Dr Robert R. Stickney - Texas A & M University, College Station, Texas, was extremely enthusiastic about the plan presented and immediately agreed to publish the manuscripts arising from Aquafunc in *Reviews in Fisheries Science* (Ranked 2nd out of 40 journals in Fisheries). After some preliminary negotiations and discussion by email a formal understanding was reached that the issue would be ready and handed in to the Editor-in-chief during September 2007 and would be published soon after.

The main achievement of the WP was the elaboration of a publishing contract for the Aquafunc reviews with the Editor-in-chief Dr Robert R. Stickney (Texas A & M University, College Station, Texas) of *Reviews in Fisheries Science* (Ranked 2nd out of 40 journals in Fisheries).

WP 2.2 Publication plan

Contractors involved: UGOT, CCMAR

A provisional publication plan detailing the journal contents and organisation was prepared during the WG meeting in Faro. Subsequently a more detailed 2 page plan and manuscript synopsis was prepared by coordinating authors who also contacted co-authors and secured their collaboration. On agreement of publishing conditions with the Editor-in-Chief of Reviews in Fisheries Science, documentation was prepared for circulation to manuscript coordinators. A letter was sent to each manuscript coordinator indicating the Journal in which the manuscripts would be published and also stipulating the timing for the various phases of manuscript preparation, planning, writing, reviewing and editing and finally publishing. No specific signed agreement was required by the Editor-in-Chief or the publisher of the Journal (Taylor & Francise) from either the WG members coordinating the action or the authors preparing the manuscripts and no formal contract was celebrated.
Practical information about the length of manuscripts, typescript, margins etc and advice about coordinating the process was also provided in the letter to the coordinating authors. Moreover, coordinators were encouraged to include younger authors (post-docs) in the preparation of the manuscripts when possible.

The main outcome of the WP was the elaboration of a publishing strategy and schedule and instructions for the preparation of manuscripts.

WP 2.3 Editorial work

Contractors involved: UGOT, CCMAR

Professors Sundell and Power divided the responsibility of the various reviews between themselves but maintained close contact throughout the process. The editorial process was found to be extremely time consuming particularly as authors failed to follow the instructions provided or follow the guidelines laid down for timing of the various phases of manuscript preparation. A number of interventions were made by the editors to resolve problems with manuscripts.

The aim of the editorial task was to receive and scrutinise the completed manuscripts, accompany the writing process to resolve any problems and ensure that authors kept the manuscripts on schedule as far as possible. A short introduction to the Aquafunc journal issue was prepared by Profs. Sundell and Power and presented the background as to why the Journal issue arose. Initially editorial corrections were made which entailed ensuring manuscripts were prepared in agreement with the instructions provided and to correct grammar and English usage.

A reviewer list was drawn up by the partners involved in the WP the choice of reviewers was based on recognised expertise and excellence in the field of the review. Reviewers were identified in several ways, either they were known to the MC members or they were identified via Web of Science searches which permitted senior scientists publishing in the area of the reviews to be identified. The editors followed Journal policy with regards to manuscript reviewing and 2 independent reviewers saw each manuscript in addition to the editors.

When manuscripts were deemed suitable by the WP participants (Profs Sundell and Power) they were sent out for reviewing in a pdf format and reviewers were requested to give an overview of manuscripts and suggest modifications or improvements which could be made. It was decided by the WP participants that taking into consideration the work required in reviewing the manuscripts, the need to obtain the reviews quickly and the important contribution reviewers were making to the project that they would be offered a small honorarium.

The production of the journal issue is on schedule and finalised and reviewed and revised manuscripts will be delivered in the final report. However, the failure of the coordinating authors and co-authors to comply with deadlines has meant that the publishing date initially agreed with the publishers and Editor-in-Chief of Reviews in Fisheries Science has had to be move into 2008. Although this does not impact on the planned project deliverables and Milestones it is disappointing that the journal issue will not be in final print form before the end of the project. The projected online appearance of the Aquafunc issue is May 2008 and the paper version October 2008. Taking into consideration the time to publication of most scientific manuscripts (6 -12 months) and that the Aquafunc journal concept was only finalised in August 2006 the appearance of the issue online in May 2008 is well within the normal timing for scientific publications.

The main achievement of the WP was the production of a Journal issue containing Aquafunc reviews arising from the outcome of FP5 & FP6 projects which used functional genomics in Aquaculture research.

WP 3.1 Gathering information and test drive

Contractors involved: INRA, CSIC

A large variety of tools related to fish or shellfish have been generated in both European and National projects and include EST clone collections, microarrays, genetic maps, BAC libraries and radiation hybrid panels. Associated with these biological resources, bioinformatic tools necessary for the use of these biological resources have been generated. Although numerous bioinformatic resources exist, they are not collected or listed in a single site and scientists are frequently unaware of the bioinformatics tools

The overall aims of the present task was to bring together European research laboratories that have developed genomic resources and knowledge to improve access to these tools and increase efficiency in these approaches. An inventory of existing resources was generated, information was disseminated and new links have been developed between resources.

To reach these objectives, the following actions were carried out:

- A webpage (www.aquafunc.com) was designed and implemented which has been gradually improved over the duration of the project as a results of feedback from the management committee members and also from members of the project WG.
- A list of existing genomic resources was established, including information and platforms developed within Aquafunc associated project and available for the community. An important objective of this task was to analyze the accessibility, the quality and also the sustainability of these resources and identify potential bottlenecks for access by the scientific community in Europe.

Information presented on the WEB page:

1. AQUAFUNC page which includes major information on the project, including objectives, major meetings, picture of the participants
2. A summary of the EC and national projects involved in AQUAFUNC (including contacts): projects and participant information which includes:

- Project information : summaries and presentations of the projects from the WG-meeting
- Contacts – e-mail addresses
- Links with other EC or national websites

Additional information:

- Description of tools available within the participating projects

- Tables on available genomic tools and contacts – in order to create a picture of the state-of-the-art in the area – and providing contact information to facilitate the exchange of currently available resources.

The gathering of information about Fp5 & 6 projects using genomic approaches was through mailing of questionnaires to project coordinators but also by collection of information available on project webpages or alternative sites. A scientific and technical summary of each project was collected and assembled.

WP 3.2 Information on all projects and scientific areas – public and restricted
Contractors involved: INRA, CSIC

The aim of this task is to bring together European research laboratories that have developed genomic resources and knowledge to improve access to these tools and increase efficiency in these approaches. To achieve that objective, an inventory of existing resources and a dissemination of the collected information was carried out. The following actions have been developed:

1) Based on the information supplied by Aquafunc associated research projects but also on information collected from personal contact, a first list of resources and genomic tools in aquaculture was established. The list was validated by discussions with researchers involved in this research area. These discussions indicated that in order to establish a useful and complete resource the collection and pooling of resources should not be limited to Aquafunc associated partners but should encompass all projects developed within Europe and Internationally. However, it was noted during the development of this part of the project that EC-funded resources have lead to generation of a significant number of the genomic resources available in the aquaculture domain (including fish and shellfish species).

2) In order to validate the approach, we first decided to concentrate on trout species which represent a resource rich species with regards to genomic resources. Moreover, the resources generated come from various partners within different consortiums and this served to highlight the complexity of trying to link all resources which are available. In this context analysis of resources in trout species represents a model situation for the approach developed in Aquafunc for integration of resources and bioinformatics tools and resources. This permitted a list of all the resources and tools to be analyzed in our investigation. This includes: (i) libraries (Complete genome sequence, BAC library, cDNA library, Radiation Hybrid Panel) (ii) genetic markers (SNP marker, Microsatellite marker, AFLP marker, Candidate gene marker) (iii) array (Microarray gene expression, Microarray genotyping) (iv) biological resources with specific genetic characteristics (Special genetic background, transgenic lines) (v) genetic map (Physical map, Genetic linkage map, Physical/genetic map integration, Radiation hybrid map, QTL detection) (vi) Bioinformatics resources (database, services, tool).

3) Interviews of relevant persons was carried out in order to collect the proper information. This list was established after discussion with INRA-SCRIBE researchers who are very much involved the genomic study of this species. Most of these interviews were done by telephone discussion as scientists were spread over

France, UK, Norway, Canada and States. As specific agreements have been developed with Canadian and American colleagues about common genomic resources, we have included these information in our investigation as access to these resources were considered as possible with specific conditions.
4) All the collected information was put in a large table which gives us an overview on all the available resources. It was interesting to note the large panel of tools and resources available for trout species.
5) According to our initial strategy, the next step was to make this information available for any researcher interested by genomic and aquaculture. To achieve this task, the trout table presenting all collected information was put on the Aquafunc website.
6) Analysis of these trout resources clearly showed the complexity of the relationships and links between them. It appears very difficult or impossible to think about development of new structure or even improved links between these resources. The rules of access vary according to each resources and most of the persons having developed these resources would agree to share it as long as it is done within a collaborative project. In this context, the only way to have access to any of these resources appeared to have direct contact with the scientists responsible of that resource. The complexity and time consuming nature of cataloguing and integrating of resources for trout meant that it was not possible to extend this approach to the other species as initially planned in the lifetime of Aquafunc.

WP 3.3 List of required bioinformatics tools to be developed
Contractors involved: INRA, CSIC
During the investigation of available trout resources, we also questioned our colleagues about the important needs in term of new bioinformatic resources to be developed. The first contacts clearly indicated that quality of EST annotation is a major concern in the field of genomic and aquaculture species. In many cases when dealing with these fish and shellfish species, more than 50% of the obtained sequences cannot be properly annotated. Absence of full genome sequences for aquaculture species is also a major concern and does not help solving the problem of having not necessarily a correct name (and then possible biological function) for an EST of interest. This first conclusions appeared very quickly during this investigation and allowed us to proposed within Aquagenome a new strategy based on phylogenic analysis to improve the available annotation.

WP 4.1 Coordination of the project
Contractors involved: UGOT
The overall project coordination and the financial and administrative coordination was the responsibility of the project coordinator Prof. Kristina Snuttan Sundell (UGOT). The Management Committee (MC) consisted of the four project partners: Prof. Kristina Snuttan Sundell, Prof. Deborah M Power, Dr Patrick Prunet and Dr Antonio Figueras. Prof. Sundell and Prof. Power were responsible for the execution and finalising of work packages 1 and 2 while Dr Prunet and Dr Figueras were

responsible for work package 3. The MC also assisted the coordinator in her responsibilities with regards to financial management of the project, in order to ensure the correct and effective use of funds provided. The four persons of the MC were all charged with the responsibility of reviewing progress, in their specific areas of responsibilities within the project, against the agreed deliverables and milestones. The small dimension of the project and well defined objectives meant that through frequent email and telephone contact the coordinator was able to deal with all major management issues and ensure the prompt response of all partners to requests made by the coordinator.

WP 4.2 Management committee meetings

Contractors involved: UGOT, CCMAR, INRA, CSIC

As planned and stated in the technical annex, the MC of the Aquafunc project had three scheduled meetings over the duration of the project.

Kick-off meeting: February 28th, 2006

Progress meeting: February 11th 2007

Final meeting: September 18th, 2007

The project coordinator Prof K Sundell called all meeting which were provisionally programmed at the start of the project and then several months before scheduled meetings, dates were agreed by the 4 MC members and meetings were formally called in an email invitation sent by the project coordinator. During the MC meetings all issues regarding the projects main achievements and possible failings in the context of the technical annex with reference to deliverables and milestones were discussed and activity plans were established in order to correct for delays in the various project activities. Minutes were taken for all MC meetings to ensure records of the proceedings existed so that decisions taken by the 4 MC members were recorded.

In addition to the scheduled MC meetings the coordinator and partner 2 had several additional meetings during which journal production and editorial issues as well as issues concerning the dissemination and divulgation of the project outcomes were extensively discussed and actions and activities were planned.

WP 4.3 Flyer – project presentation

Contractors involved: UGOT

The project has been presented in several ways during its lifetime. At the very beginning of the project a summary of the project was published through the European Servise Network. Two 4 page Flyers, two Posters and a Journal Issue Launcher were prepared and printed by the co-ordinator. Flyers and Posters contained general information about the work program, list of participants, project main goals, key issues expected achievements and exploitation strategy. Similarly, power point presentations and running slide shows have also been prepared presenting the projects main deliverables, the projects included as well as general information about the work program, list of participants, project main goals, key issues and expected achievements

Section 2 - Workpackage progress

WP 1: Establishment of Working group (WG) and joint meetings
Objectives

1. Assembling of a working group, composed of the project proponents and invited members from the projects identified in FP5 & FP6 which have been utilizing functional genomics to address issues associated with sustainability of Aquaculture, to generate a forum for discussion and integration.
2. Collations of a short report which summarizes the scientific and technical content of each project and which will serve as basic information for webpage construction.
3. Outline plan of a book or a journal issue which has the objective of presenting the scientific and technical advances made towards the implementation of molecular tools and functional genomics in aquaculture.
4. Presenting the total outcome of the project in an Open workshop at an Aquaculture meeting

Commencement date: November 1st 2005

WP1.1. Invitation of members of FP5 & FP6 projects to join the working group
Contractors involved: UGOT and CCMAR

Progress towards objectives:
Generation of list of participating projects
The implementation of the workpackage passed through several distinct phases the first of which was associated with identification of FP5 & FP6 projects which utilised functional genomics. A provisional list of projects had been drawn up in the context of the project application but in preparation for the working group meeting and to ensure maximum participation further attempts were made (Web based searches, literature searches, National contact points) to recruit projects with appropriate objectives to the Aquafunc forum. It was agreed that if possible National programs in European countries which applied functional genomics to Aquaculture would also be invited to participate on the condition that they share openly the outcome of the project. A list was drawn up which included the relevant contact person and full contact details (table 1).

Table 1 – The projects integrated in Aquafunc and their coordinating scientist together with the people they proposed would attend the Aquafunc working group meeting

Invited projects	Coordinator	Attending persons	e-mail address
ARRDE	Thrandur Björnsson	Thrandur Björnsson Glenn Sweeney	th.bjornsson@zool.gu.se sweeneyge@Cardiff.ac.uk
FPPARS	Grigorios Krey	Grigorios Krey Mike Leaver	krey@otenet.gr m.j.leaver@stir.ac.uk
MYXFISHCONTROL	Pilar Alvarez-Pellitero alvarezp@iats.csic.es	Ariadna Sitjà-Bobadilla Oswaldo Palenzuela	ariadna@iats.csic.es oswaldo@iats.csic.es
PUBERTIMING	Geir-Lasse Tarranger geir.lasse.taranger@imr.no	Jean-Jacques Lareyre Alicia Felip	jean-jacques.lareyre@rennes.inra.fr afelip@iats.csic.es
STRESSGENES	Patrick Prunet	Patrick Prunet	Patrick.Prunet@rennes.inra.fr
WEALTH	Geir-Lasse Tarranger	Öyvind Haugeland	Oyvind.Haugland@veths.no
AQUAFIRST	Patrick Prunet	Chris Secombes Jeanne Moal	secombec@marlab.ac.uk jmoal@ifremer.fr
EADGENE	Marie-Hélène Pinard	Bjørn Høyheim Abdenour Benmansour	Bjorn.Hoyheim@veths.no Abdenour.Benmansour@jouy.inra.fr
AVINSI	Tristan Renault		Tristan.Renault@ifremer.fr
BRIDGEMAP	Georgios Kotoulas	Georgios Kotoulas Luca Bargielli	kotoulas@imbc.gr luca.bargelloni@unipd.it
BASSMAP	Philip Volckaert	Philip Volckaert Brendan McAndrew	Filip.Volckaert@bio.kuleuven.be b.j.mcandrew@stir.ac.uk
FISHCAL	Deborah Power	Deborah Power Mel Clark	dpower@ualg.pt mscl@bas.ac.uk
PROBASS	Silvia Zanuy	Ana Gomes Francesc Piferrer	ana@iats.csic.es piferrer@icm.csic.es
CRYOCYTE	Esther Lubzens	Esther Lubzens Joan Cerda	esther@ocean.org.il jcerda@icm.csic.es

IMAQUANIM	Niels Lorezen nl@dfvf.dk	Paola Venier Inderjit Mercy	venier@civ.bio.unipd.it InderjitSingh.Mercy@veths.no
MARINE GENOMICS EUROPE	Adelino Canario	Adelino Canario Richard Rheinhart	acanario@ualg.pt rr@molgen.mpg.d
NATIONAL GENOME PROJECTS			
AEGENAE (French)	Yann Guigeun	Yann Guigeun	yann.guiguen@rennes.inra.fr
SGP (Norwegian)	Björn Höyheim	Björn Höyheim	Bjorn.Hoyheim@veths.no
Sole project (Spanish)	Joan Cerda	Joan Cerda	jcerda@icm.csic.es
BIVALGEN (Spanish)	Beatriz Novoa	Beatriz Novoa	virus@iim.csic.es

In a short virtual meeting (internet) held by the two participants of WP1.1, UGOT and CCMAR, it was decided that the Aquafunc WG meeting would be held in the Centre of Marine Science, Universidade do Algarve, Faro, Portugal. Several factors were taken into consideration when deciding on the meeting location and included ease and cost of travel to the meeting location, cost of accommodation and adequate meeting facilities (rooms and multimedia support). Moreover, to facilitate organisation it was decided that the WG meeting should be held at the institute of one of the partners participating in WP1.1. In line with what was laid out in the contract the WG meeting was organised a few months after the start of the project (27th/28th February 2006). Two separate letters of invitation was prepared, one for project coordinators (Figure 1) inviting them to participate in Aquafunc and one for National research projects inviting coordinators to participate in the WP meeting under the conditions that they make an oral presentation of their project and openly participate in discussions and exchange of scientific information (Figure 2). These letters were distributed by email with a request that they confirm their interest in collaborating in Aquafunc. The letter drawn up explained the objective of Aquafunc and the WG meeting and invited the participation of 2 members from each of the projects (Table 1).

Figure 1 – letter of invitation sent to all coordinators of FP5 & FP6 EU projects.

Dear Colleague Göteborg, 12 February 2008

We have just finished the contract negotiations for a new EU project within FP 6 - Priority 8.1. The name of the project is:
"***Integrated knowledge on functional genomics in sustainable aquaculture***"; **AQUAFUNC**.
The project is a specific support action, SSA, under Task 13.2.2: Exploitation of results of 5th and 6th Framework Program in relation to Sustainable aquaculture, including genomics.

The main goal of AQUAFUNC is to integrate the outcome of projects, within Framework Program 5 and 6, that concern genome mapping and functional genomics in aquaculture.

There are today a number of projects, using molecular technologies and a functional genomics approach to improve sustainability of European aquaculture, funded within the EU 5th and 6th frame work program. Therefore, the overall aim of AQUAFUNC is to integrate the outcome of these projects in order to generate a common scientific basis of a functional genomics approach to aquaculture.
In order to attain the overall aim of AQUAFUNC a number of instruments will be used to generate mechanisms that will facilitate the accessibility to results, for both the scientific community and the public in order to allow better exploitation and divulgation of the resources generated:

- To organise a working group to bring together project participants, working with a functional genomics approach to aquaculture in order to discuss and synthesise results and exchange information.
- To combine and analyze results from these projects in joint scientific publications to be published in a special journal issue.
- To create a common WEB-page presenting projects using functional genomics and providing links and contacts to respective institutions and research.
- To evaluate the need of information and tools which should be developed and shared among the projects in order to integrate bioinformatic facilities and resources from the FP5 and FP6 projects.

As coordinator for XXXXX, one of the important projects within FP 5/6 that concerns functional genomics within Aquaculture, we would most sincerely like to invite you and your project to participate in AQUAFUNC. All projects invited are listed in appendix 1.

As a start, we would like to invite you, together with one of the Partners in your project, to attend a Working-group meeting in Faro, Portugal, February 27 and 28, 2006.

We would appreciate if you could give us a preliminary response, by e-mail, to this invitation before December 12th, 2005. Further information and timetables will follow.

Sincerely yours,

Kristina Sundell	Deborah Power	Patrick Prunet	Antonio Figueras
Göteborg University	University of Algarve	INRA	CSIC

Annex 1

FP 5
ARRDE
Coordinator – Björn Thrandur Björnsson, Göteborg University, Sweden
AVINSI
Coordinator – Tristan Renalt, IFREMER, La Tremblade, FRANCE
BASSMAP
Coordinator – Philip Volckaert, Katholieke Univeristeit Leuven, Belgium
BRIDGEMAP
Coordinator – Georgios Kotoulas, Hellenic centre for marine research, Greece
CRYOCYTE
Coordinator – Esther Lubzens, Israel oceanographic and limnological research Ltd., Israel
FISHCAL
Coordinator – Deborah Power, Universidade do Algarve, Portugal
FPPARS
Coordinator - Grigorios Krey, National agricultural research foundation-fisheries research institute, Greece
MYXFISHCONTROL
Coordinator – Pilar Alvarez Pellitero-Ariadna Sitjá , Instituto de acuicultura de Torre de la Sal – IATS, Spain
PROBASS
Coordinator – Silvia Zanuy, Instituto de acuicultura de Torre de la Sal – CSIC , Spain
PUBERTIMING
Coordinator – Geir Lasse Taranger, Institute of marine research, Norway
STRESSGENES
Coordinator – Patrick Prunet, INRA, Rennes, France

FP6
AQUAFIRST
Coordinator - Patrick Prunet, INRA, Rennes, France
IMMUNOAQUANIM
Coordinator – Niels Lorezen, Danish Institute for Food and Veterinary Research, Aarhus, Denmark
WEALTH
Coordinator – Geir Lasse Taranger, Institute of marine research, Norway
EADGENE
Coordinator - Marie-Helene Pinard-van der Laan, INRA, Rennes, France
MARINE GENOMICS EUROPE
Fish node coordinator – Adelino Canario, Universidade do Algarve, Portugal

National genome projects
National genome projects interested in sharing scientific genomic information will be invited to participate.

Figure 2 – letter of invitation sent to coordinators of National projects in European member states. Annex 1 was the same as in Figure 1

Dear Colleague Göteborg, 12 February 2008

We have just started a new EU project within FP 6 - Priority 8.1.
The name of the project is:
"***Integrated knowledge on functional genomics in sustainable aquaculture***"; **AQUAFUNC**.
The project is a specific support action, SSA, under Task 13.2.2: Exploitation of results of 5th and 6th Framework Program in relation to Sustainable aquaculture, including genomics.

There are today a number of projects, using molecular technologies and a functional genomics approach to improve sustainability of European aquaculture, funded within the EU 5th and 6th FP. The overall aim of AQUAFUNC is to integrate the outcome of these projects in order to generate a common scientific basis of a functional genomics approach to aquaculture.
In order to attain the overall aim of AQUAFUNC a number of instruments will be used to generate mechanisms that will facilitate the accessibility to results, for both the scientific community and the public in order to allow better exploitation and divulgation of the resources generated:

- To organise a working group to bring together project participants, using a functional genomics approach to aquaculture in order to discuss and synthesise results and exchange information.
- To combine and analyze results from these projects in joint scientific publications to be published in a special journal issue.
- To create a common WEB-page presenting projects using functional genomics and providing links and contacts to respective institutions and research.
- To evaluate the need for
- information and the development of tools to be shared among the projects in order to integrate bioinformatics facilities and resources from FP5 and FP6 projects.

A first working group meeting within AQUAFUNC will be held at The Faculty of Engineering and Resources (FERN), University of Algarve, Campus de Gambelas, Faro, Portugal, February 27th and 28th, 2006.
Sixteen projects within FP 5/6 that concerns functional genomics within Aquaculture have been invited to participate in this working group meeting. However, apart from the EU-funded projects invited, we also would like to invite selected National genome projects concerning Aquaculture.
As coordinator of AGENAE we would like to invite you to participate in the first working group meeting of AQUAFUNC. As you understand from the presentation of the AQUAFUNC project its aim is to promote sharing and exchange of information. Therefore in accepting this invitation to participate in the working group you would also be accepting to openly share and discuss the data generated in AGENAE. If our proposal is acceptable could you please give us a response, by e-mail, to this invitation before February 17th, 2006.
Further information and timetables will follow.

Sincerely yours,

Kristina Sundell	Deborah Power	Patrick Prunet	Antonio Figueras
Göteborg University	University of Algarve	INRA	CSIC

In order to prepare for the working group meeting project coordinators were invited to provide a summary about their project. They were also invited to make a short oral presentation of their project during the WG meeting in Faro (see Figure 3). The summary documents supplied by the WG members were then compiled into a short report (Annex 1 – compilation of project reports) in which the main scientific and technical content of each project was reported. The information collected and collated formed the basis for the construction of the project webpage (WP3).

Figure 3. – Third announcement of the WG-meeting of Aquafunc, with requests for short written summaries of all projects as well as oral presentations at the meeting.

Dear Colleague Göteborg, 12 February 2008

We would like to welcome you to the first working group (WG) meeting of the EU-project "***Integrated knowledge on functional genomics in sustainable aquaculture***"; **AQUAFUNC**.

The meeting will be held at The Faculty of Engineering and Resources (FERN), University of Algarve, Campus de Gambelas, Faro, Portugal, February 27th and 28th, 2006.

The present letter is to provide practical information about the meeting and to also gather information from participants for the preparation and organisation of the meeting.

Funding
A part of the AQUAFUNC budget is for payment of workshop expenses including travel expenses and subsistence for two participants from each invited project, up to a maximum of 1100 € per person. The least expensive way of travelling should be chosen and we provide you with a list of pleasant, average rated hotels in Faro (see attached word file) to select from. AQUAFUNC will reimburse expenses so **you should book your flights to Faro and your accommodation**. After the meeting you should present an expenses form detailing your expenditure and provide invoices (flight tickets and hotel bill) with payment details and VAT-number so you can be reimbursed (actual cost up to a maximum of 1100 €).

Snuttan Sundell, Fish Endocrinology Lab,Department of Zoology, Göteborg University, PO-Box 463, S-405 30, Sweden, will be responsible for reimbursement of participants from the following projects: ARRDE, FPPARS, MYXFISHCONTROL, PUBERTIMING, STRESSGENES, WEALTH, AQUAFIRTS and EADGENE
Deborah Power, CCMAR, UALG. Comparative and Molecular Endocrinology Group, Campus de Gambelas, 8005-139 Faro, Portugal, will be responsible for reimbursement of participants from the following projects: AVINSI, BRIDGEMAP, BASSMAP, FISHCAL, PROBASS, CRYOCYTE, IMMUNOAQUANIM, and MARINE GENOMICS EUROPE.

In response to the first announcement we now have the names and e-mail addresses of some of the participants, but in order to have a detailed picture of the participating persons we would kindly ask you to check the names and e-mail addresses of the representatives from your project in the attached excel file and add missing information.

The WG meeting
We also would like you to prepare and attach a brief report (maximum 2 pages) up until the **17th of February** summarising the main objectives as well as the scientific and technical content of your

project, with emphasis on the molecular and genomic work. This information will be circulated to other WG participants and will also serve as a basis for the construction of an AQUAFUNC internet site.

The WG meeting will provide the opportunity for representatives to present their project to other delegates. In line with this, we would like a short oral presentation for each project (10 min with 5 minutes for questions) in which the principal scientific and technical aims and developments of the project are highlighted. If possible try also to identify synergies with other projects included in AQUAFUNC. We would appreciate the possibility to keep a copy of your presentation, after the meeting, in order to make them available from the AQUAFUNC internet site.

These oral presentations will constitute the first part of the WG-meeting. The presentations will be followed by group discussions during which complementary projects will try to identify topics considered important and suitable as scientific and/or methodological reviews for publication in a journal issue on functional genomics in sustainable aquaculture.
The meeting will finish with a general assembly during which the potential review papers to be included and the role of various WG members or other members of the participating projects in authorship of these papers will be decided.

During the meeting a number of other issues will be considered by the WG such as, effective mechanisms for divulgation of the R&D activities in functional genomics in aquaculture to the industry and the public; emerging research areas and future perspectives for European research in aquaculture and possible inclusion in the WG of other EU projects. The AQUAFUNC internet site – discussion about its function, structure and content.

With this letter we would like to most sincerely welcome you to Faro and the WG meeting of AQUAFUNC, and we are looking forward to receive your participating information (by **February 10th**, fill in the attached excel file) and your brief project report (**February 17th**).

Sincerely yours,

Snuttan Sundell	Deborah Power	Patrick Prunet	Antonio Figueras
UGOT	CCMAR	INRA	CSIC

Attainment of Deliverables

D1 – A list of working group (WG) members was established within 2 months of the start date of the project. The WG was composed of coordinators of FP5 & 6 projects and also National projects in European states.
On schedule – month 3
D2 – A short report which summarised the scientific and technical content of each project was prepared with the collaboration of the WG members (Annex 1).
On schedule – month 5

Deviations from the work programme:

No significant deviations from the work programme occurred and all the deliverables were achieved within the time scale planned in the project.

Corrective actions taken:
No corrective actions were required.

WP1.2. Working group meeting.

Contractors involved: UGOT and CCMAR

Progress towards objectives:
The objectives of the WG meeting were several fold, 1) to allow participants in invited FP5 & 6 projects to meet each other and establish dialogues, 2) to permit 1 participant per project to present the main objectives and outcomes of their project to facilitate the identification of synergies with other projects participating in Aquafunc, 3) to establish discussion groups which represent groups of projects with synergies in order to make a synthesis of the overall outcome of their projects, 4) to arrange a plenum meeting in which potential research papers arising from group meetings was presented and the potential authors indicated. All the objectives of this WP were achieved within the time frame initially planned.

The Aquafunc WG meeting project took place in Universidade do Algarve, on the 27th/28th February 2006. Via internet contact Partners 1 and 2 established the Agenda (Annex 2 – WG meeting Agenda, Faro) for the Aquafunc WG meeting through regular email contact. The final document was sent to Partners 3 and 4 for consultation. Partner 1 dealt with the collection of summarise and compiling of the short report (Annex 1) and Partner 2 dealt with practical issues relating to accommodation of WG members, meals and refreshments and preparation of the meeting rooms and facilities. Most of the WG participants arrived on Sunday night and were taken to the meeting forum on Monday 27th February 2006 by a coach.

The meeting was opened at 9.00h with a welcome by Dr Kristina Sundell (project coordinator) followed by a brief presentation of the Aquafunc project; objectives, instruments and expected achievement (Annex 3 – Aquafunc project outline). The objectives activities and expected achievements of the WG meeting were also outlined. Subsequently, the first day was given over to a thorough review of the projects participating in Aquafunc. One participant per attending project gave a Power point presentation of the principal objectives and outcome of their project and then a short discussion pursued. An agreement was reached with all of the WG participants that the Power Point presentations would be made available via the Aquafunc webpage (Annex 4 – PowerPoint presentations).

At the end of the first day the Aquafunc website was launched by Dr Patrick Prunet (partner 3). This entailed an outline of the objectives followed by an open discussion during which expectations of WG members were canvassed. The main questions discussed were:

1) WEB-page address and maintenance (the web site will be hosted by the INRA/SIGENAE group (Toulouse, France).
2) The use of a TYPO3 management system was proposed because of its versatility.
3) The web page content.
A key concern raised by WG members was the short duration of the Aquafunc project and the duration the Web page would remain active after the termination of the project.

The second day of the meeting was opened with a outline of how to proceed with the round table discussions (Annex 5) which covered 4 major topics (Table 2). WG members were invited to participate in those they felt would favour synergy with projects of other WG members. WG members, registered for two different discussion groups and then two rounds of discussion were organised to allow WG members to participate in the chosen discussion groups. The topics discussed were selected to contemplate all the "stakeholders" interests eg. research and development, industry and public. The discussion groups were coordinated by the 4 Aquafunc project members in order to ensure that discussions were maintained within the boundaries proposed by the WG organisers and to ensure that all proposed outcomes were attained.

Table 2 - The Aquafunc WG meeting with suggested topics and sub-topics for discussion

Suggested topics and • **sub-topics**	**Suggested project contribution**
Stress and disease resistance • **stress** • **immune function** • **host-pathogen interactions**	STRESSGENE, AQUAFIRST, WEALTH, EADGENE, MYXFISHCONTROL, AVINSI, BRIDGEMAP, BASSMAP, IMAQUANIM
Nutrition • **lipid metabolism** • **growth and nutritional status** • **reproduction and nutritional status**	fPPARS, PUBERTIMING, PROBASS, CRYOCYTE
Endocrine driven processes • **deformities/abnormalities** • **metamorphosis** • **reproduction** • **growth**	ARRDE, FISHCAL, PROBASS, CRYOCYTE, PUBERTIMING, WEALTH, STRESSGENE, AQUAFIRST, IMAQUANIM
Genomic tool box • **species status** • **resources in place** • **resources required** • **applications**	MARINE GENOMICS EUROPE, BASSMAP, BRIDEMAP, EADGENE

A number of different outcomes arose from the WG discussions and are summarised below:

- Suggestion of two or more titles for state-of-the-art scientific and/or technologic review articles on the use of molecular methods and functional genomics in aquaculture.
- A brief written synopsis/disposition on possible content for each chapter (See Annex 6 – Title and synopsis of Reviews).
- Suggestion on authors for each chapter.
- Discussion on WEB-page and other issues highlighted during the working group meeting.

In total, 10 review titles were proposed together with the coordinator and the possible co-authors (Table 3). It was agreed that the coordinating author would be responsible for contacting and inviting co-authors. Moreover, coordinating authors were urged to include women and young scientists in the writing process. As some of the chapters proposed had no representative in Aquafunc it was decided that project partners 1 and 2 would contact these authors and solicit their collaboration.

Table 3 - Proposed title for Aquafunc review articles and manuscript co-ordinators and co-authors

Title of Review	Manuscript coordinator	Co-authors
Genomic and stress	Dr Patrick Prunet	Dr Tom Pottinger, Dr F Fridell, Dr Power, Dr Canario
Development and genomics	Prof B. Th. Bjornsson	Dr G Sweeny, Dr P-Y Rescan, Dr K Pittmann, Dr Power
Reproduction and Genomics	Dr Geir Lasse Taranger	Drs Francesc Piferrer, Joan Cerda
Comparative regulation of lipid metabolism in cultured fish	Dr Mike Leaver	Drs Grigorios Krey, Douglas Tocher, Jose Baotista, David Menoyo, Thrandur Björnsson, Lisa Jönsson-Bergman
Functional aspects of lipoproteins in fish	Dr Esther Lubzens	Dr Patrick Babin
Protein metabolism	Dr S. Kaushik	DRs K. Rouhonen, D. Houlihan, I. Johnston
Disease and stress processes in Salmonids (Atlantic salmon and rainbow trout)	Prof. Chris Secombes	Drs Oystein Evensen, Tony Ellis, Abdenour Benmansour, Patrick Prunet, Snuttan Sundell

Disease and stress processes in Non salmonid fish species. (Turbot, Sole, Sea bass, Sea bream, Carp)	Dr A. Figueras	Drs A. Sitja, O. Palenzuela, B. Novoa, P. A. Pellitero, , V. Mulero, J. Perez Sánchez, G. Scapigliati, Paulino Martínez Portela, Giorgios Kotoulas, Patrick Prunet
Disease and stress processes in Bivalve (M. edulis, M. galloprovincilis, C. Gigas, R. decussatus, R. Philipinarum)	Dr A. Figueras	Drs - E. Bachere, P. Venier, , P. Roch, V. Boulo, A. Palavicini
Genomic tool box	Prof. Adelino Canario	Drs Y Guigeun, G. Koutolous, Brendan McAndrew, Bjorn Hoyheim

Some review titles were clearly defined and confined whereas others encompassed a larger area of research. These discrepancies were highlighted in the plenary discussion. For example, it was proposed that (ie. Reproduction) should be split into several chapters and not one as was currently proposed and that 3 papers on disease was too many and that salmonids and other fish could be considered in one chapter. It was pointed out that the manuscripts should be state-of-the-art review articles in a special journal issue and not chapters for a book. Thus, it was decided that some of the chapters suggested, needed to be better specified and more clearly defined during the work with the disposition – and this would probably result in dividing up some of the suggested titles. Partners 1 and 2 agreed to contact the members of the Aquafunc WG to request updates about chapters and to define with them the final form of the chapters to appear in the review issue.

A brief written synopsis/disposition of the possible content of each chapter was presented subsequent to the meeting. The coordinators were given time to consult with co-authors, plan their manuscript contents and prepare a brief synopsis of their review. The manuscript plan and synopsis were sent to the WP contractors for consideration.

In order to record the proceedings of the Aquafunc, Faro WG meeting, minutes were taken and summarised the main points of the two day proceedings (Annex 7 – minutes from Aquafunc).

Four months after the Aquafunc meeting in Faro, on receipt of the plan and synopsis of reviews from the coordinating authors, the outline of a journal issue dedicated to functional genomics in Aquaculture was prepared (Annex 8 – journal issue outline). The prepared outline of the journal issue was used to divulge the project to journal editors and publishers. Moreover, this served as a milestone and acted as a reference point for assessment of progress of the journal issue.

Attainment of Deliverables

D3 Publication strategy with role of different WG members was defined during the Aquafunc meeting held in Faro.
On schedule – month 4
D5 A short report summarizing scientific and technical content of each project was prepared as an outcome of the Aquafunc WG meeting held in Faro.
On schedule – month 5

Deviations from the workprogramme:

No significant deviations from the work programme occurred and all the deliverables were achieved within the time scale planned in the project.

Corrective actions taken:

No corrective actions were required.

WP1.3. Open workshop/dissemination meeting

Contractors involved: UGOT and CCMAR

Progress towards objectives:

The extensive collaborative work carried out by partners 1 and 2 to elaborate the outline of the Aquafunc reviews and to establish a dissemination program made it necessary for the partners to meet on a number of occasions. The first meeting after the WG meeting in Faro was conducted on the 7th and 8th of August 2006 in Glasgow, Scotland and provided a forum for evaluating the progress of the Aquafunc reviews and to assess the synopsis provided by the coordinating authors of manuscripts. In addition, measures to ensure a wider divulgation of Aquafunc and the Fp5 & 6 projects it represents were discussed. It was decided that the project should be presented at a meeting with a strong "trade show" component such as AquaNor and to this end a project banner, poster and flyer should be prepared. The flyer for presentation at "trade shows" of scientific meetings would be prepared for a scientific and technical audience. A second more general flyer for divulgation to the public was also planned. Further, the adoption and development of a project logo was discussed and it was decided to engage a design and art studio to carry out this work.
Short minutes of the meeting were prepared (see Annex 9 – project minutes).

Open workshop/dissemination

Several workshops/dissemination meetings were organised and attended by Aquafunc partners to maximize divulgation of the results of Aquafunc and the Fp5 & 6 projects that it represents. The preparation of a project logo, posters, flyers (scientific and public divulgation and journal issue launcher) in the context of this WP meant that these could be distributed at appropriate meetings either by attendance of members of the MC group or by requests to conference organisers and this activity represented an important "spreading activity" directed at both industry and scientists. These actions are all summarised below with AQUANOR Forum corresponding, as specified in the technical annex, to a European/International Aquaculture meeting at which Aquafunc results were divulged. Aquagenome, the second generation project arising from Aquafunc, had an opening session at the beginning of its first "open workshop" for the divulgation of Aquafunc results. The absence of a planned budget in Aquafunc for funding participation of scientists and industry in this last Task (3) of WP1 meant the partners involved decided it was prudent to use existing European and International meetings, as a means to maximise project divulgation.

AQUANOR Forum, Trondheim, Norway

Aquafunc was represented by the project coordinator, Snuttan Sundell and PhD student Henrik Sundh (Figure 4) at AQUANOR Forum which was held in Trondheim, Norway, 15th and 16th August 2007. The meeting was organised by the European Aquaculture Society, the Nor-Fishing Foundation and SINTEF Fisheries and Aquaculture and the key focus of the meeting was "Welfare as a driver for technological development in aquaculture". A total of 251 people attended the FORUM, 34.3% of attendees were researchers, 25.9% were suppliers, 24.7% were producers and PO, 9.6% were government and policy makers, 2.8% were press, 2.0% were NGO and 0.8% was from other activities in the Aquaculture sector. In total 34 countries were represented (Taken from AQUANOR Forum Summary).

Figure 4 – Attendence at AQUANOR

The Institute of Marine research, Bergen had a trade stand in the trade show at which Aquafunc was kindly allowed to present material. The Aquafunc stand was prepared with Aquafunc banners integrating the project logo (Annex 10), a poster presenting Aquafunc objectives and instruments (Figure 5, Annex 11), a flyer (Annex 12) as well as a running Power point presentation (Figure 6, Annex 13) briefly divulging each of the main projects integrated in Aquafunc. In addition, a poster (Figure 7, Annex 14)

Figure 5 – Aquafunc exhibited at AquaNor

Figure 6 – Aquafunc slideshow

Figure 7 - Aquafunc exhibited at AquaNor

and a flyer (Annex 15) which had been prepared for public divulgation of Aquaculture projects in Europe and a Journal issue launcher to announce the Aquafunc issue of Reviews in Fisheries Science were distributed (Annex 16).

On the second day of the meeting the Aquafunc stand was divided up and parts of it (mainly duplicate material) moved out into the lobby area of the AquaNor Forum (Figure 8), to ensure conference delegates would see the display and this ensured a more ample divulgation.
The exercise was considered a success and generated considerable interest from other conference delegates. All the flyers for public divulgation were taken (approx. 200). The issue of "Reviews in Fisheries Science" is eagerly anticipated by both the scientific and the technical community and all of the (approx. 100) issue launcher pamphlets were taken and a number of conference delegates engaged the project coordinator in discussion.

Figure 8 –
The Aquafunc stand at AQUANOR-FORUM

AQUAGENOME – Bergen, Norway
Final Aquafunc MC meeting
The final Aquafunc meeting was conducted the day before the meeting of the second generation project, Aquagenome (Coordinator Dr Patrick Prunet), which took place on 19th September 2007 in Bergen Norway. The members of the Aquafunc MC present at the meeting were Prof. S Sundell, DM Power and Dr A. Figueras. Dr Prunet apologized for his absence.
In the final MC meeting the coordinator, outlined the projects main achievements and failings in the context of the technical annex making reference to deliverables and milestones. It was noted by all present that throughout the life of the Aquafunc project the coordinator maintained frequent contact with all MC members and used this medium to alert members of pending deliverables or Milestones for which they were responsible as registered in the project technical annex. The project coordinator requested corrective actions formally by email or telephone to partner with the responsibility for deliverables who failed to deliver on schedule. This procedure was considered a success as most of the project deliverables and Milestones were attained in a timely manner.

The second part of the MC meeting was given over to reporting. The project coordinator highlighted the reporting deadlines in a power point presentation (Annex 17) and also provided information about how the periodic project report, final project report and financial report should be prepared. Questions were taken from the MC members present and after responding to all questions a short discussion pursued and then the meeting was terminated.
The power point presentation and further information about outstanding deliverables and a request for corrective action were provided to all the MC members by the project coordinator in an email after the Bergen meeting.

Workshop/dissemination
Aquagenome, the second generation project arising from Aquafunc, had an open meeting on 20th-21st September in Bergen, Norway. The opening session of this meeting was given over to Aquafunc – in a Power point format the results and outcome of the project was divulged (Annex 18). There was also time on completion of the presentation for discussion with workshop attendees. Moreover, flyers and the journal issue launch synthesis were also available and were distributed.

Aquaculture Europe 2007, Istanbul, Turkey
It was not possible for either partner 1 or 2 or any of the other MC members of Aquafunc to attend the EAS Aquaculture Europe 2007 meeting "COMPETING CLAIMS**",** which was held in Istanbul from October 24-27, 2007. The meeting attracted close to 700 participants from 60 countries and although it was not possible for Aquafunc members to be present, thanks to the help of attending European commission representatives information on the Aquafunc project (Flyers and the Journal issue Launcher) was present on the EC stand 513-hall 9 in Istanbul.

Deviations from the work programme:
No significant deviations from the work programme occurred and all the deliverables were achieved within the time scale planned in the project.
A number of additional meetings to those initially planned were attended by MC members to ensure maximum "spreading" and divulgation of Aquafunc objectives and results. To facilitate divulgation an Aquafunc "promotional pack" (Banner, poster, flyers, journal issue launch) was prepared and was distributed during meetings by representing MC members or sent to conferences for display when MC members were unable to attend.

Corrective actions taken:
No corrective actions were required.

WP 2 Joint publication of book/journal issue
Objectives

1. Identification of appropriate publisher for the book/journal issue and signing of provisional contract.
2. Preparation of first draft of the book/journal issue and editing to final format.

Commencement date: November 1st 2005

WP 2.1. Publishing contract

Contractors involved: UGOT and CCMAR

Progress towards objectives:
At the onset of the project it was still unclear if the product of the Aquafunc WG meeting would be presented in the format of a book or as a Journal issue. Considerable consultation was carried out with the Fp5 & 6 project coordinators, which culminated in a discussion on the second day of the WG meeting in Faro (see minutes, Annex 7). The general consensus arising from consultation and the WG meeting was that manuscript co-ordinators would prefer to see them published in a journal issue rather than a book. A number of reasons were cited for this preference, 1) length of time it takes to publish a book which frequently makes their contents "out of date" when they appear in print, 2) absence of indexing in the science citation index, 3) reduced distribution compared to journals which are available in an electronic format.
For this reason most attention was paid to identifying a suitable publisher.

The identification of a suitable journal was carried out initially using Web based searches with the Web of Knowledge to identify and draw up a list of the principal Journals publishing reviews in the area of Aquaculture and Fisheries. Subsequently, a careful analysis was made of the character of the journals on the list, taking into consideration, quality of product, circulation and impact factor. After preliminary analysis 5 journals were identified as being of interest and ranked in order of impact factor and the width of circulation; Reviews in Fisheries Science (Ranked 2nd out of 40 journals in Fisheries), Reviews in Fish Biology and Fisheries; Aquaculture; Journal of Fish Biology; Aquatic Living resources.

It was decided to approach publishers one by one, starting with the journal ranked first in the list. In order to present the "Aquafunc journal issue" concept a brief outline of the objectives of Aquafunc was presented and a copy of the structure of the proposed journal issue was also prepared and presented (Annex 19). Dr Robert R. Stickney - Texas A & M University, College Station, Texas, the Editor in Chief of the Journal was extremely enthusiastic about the plan presented and immediately agreed to publish the manuscripts arising from Aquafunc. After some preliminary

negotiations and discussion by email a formal understanding was reached that the issue would be ready and handed in during September 2007 and would be published soon after.

Attainment of deliverables
D1 Provisional contract for the book/journal issue with interested publishers
Behind schedule – forecast for month 2 of the project. It was not possible to deliver on time as the elaboration of a list of possible reviews and authors required the close collaboration of recruited WG members. As the Faro meeting was only held 4 months after the start of the project a document outlining the "journal issue" contents was only available after this meeting. A publishing agreement was rapidly secured once an outline of the journal issue was available.

Deviations from the work programme:
No significant deviations from the work programme occurred and all the deliverables were achieved within the duration of the project, although they were slightly delayed in relation to the proposed planning schedule in the project technical annex.

Corrective actions taken:
No corrective actions were required.

WP 2.2. Publication plan

Contractors involved: UGOT and CCMAR

Progress towards objectives:
Having agreed on publishing conditions with the Editor-in-Chief of Reviews in Fisheries Science, documentation was prepared for circulation to manuscript coordinators. A letter was sent to each manuscript coordinator indicating the Journal in which the manuscripts would be published and also stipulating the timing for completion of the manuscripts (figure 9). No specific signed agreement was required by the Editor-in-Chief or the publisher of the Journal (Taylor & Francise) from either the WG members coordinating the action or the authors preparing the manuscripts and no formal contract was celebrated. As all coordinating authors had provided chapter plans and a brief synopsis prior to presentations of the "Aquafunc journal issue" concept to the Journal editors this pre-empted the need initially foreseen in the project plan of a one page review plan by WG members.
Practical information about the length of manuscripts and advice about coordinating the process was also provided in the letter to the coordinating authors. Moreover, coordinators were encouraged to include younger authors (post-docs) in the preparation of the manuscripts when possible.

Figure 9 – The letter sent to coordinating authors about the preparation of their manuscripts for Reviews in Fisheries Science.

11th October 2006

Dear Manuscript coordinator,

We have now completed our discussion with Dr Robert Stickney who is editor of Reviews in Fisheries Science. It has been agreed that they will publish a special journal issue dedicated to the manuscripts arising in the context of Aquafunc. Unfortunately, we are behind schedule as we were rather slow in getting all the outlines for the chapters proposed during the Faro meeting. In order to publish the Journal issue before the project finishes it will be important to set a strict schedule with clear deadlines which we urge you to respect.

In August all the chapter outlines had been received and were analysed. In order to comply with the "projects" objectives, to highlight the use of "*molecular technologies and a functional genomics to improve sustainability of European aquaculture*" we as editors (Profs. Kristina "Snuttan" Sundell and Deborah Power) have proposed some changes/recommendations and these are attached. The first deadline for sending the chapters to the Aquafunc coordinator (Snuttan Sundell) is the 15th January 2007. We are aware that this does not give you a lot of time but as most of the chapters are being co-written by between 2-7 authors with careful organisation and with each author playing a role we feel it should be feasible. Moreover, we would encourage the inclusion of younger authors (post-docs) in the preparation of the manuscripts when possible. Each manuscript should be 30 pages maximum in length and should include a summary, the main text including figures, tables, diagrams and bibliography. Information about format, style, journal requirements can be found in the "instructions to authors" provided in the attached file and also in the *.pdf file giving an example of a review recently published in Reviews in Fisheries Science as supplied by the Editor.

All communications/questions about manuscripts should be conducted directly with the project coordinator (Snuttan Sundell) who together with Prof Deborah Power will act as issue editors. Two printed versions of the completed manuscripts and an electronic copy should be sent to Snuttan, (see footer). After receipt of the manuscripts they will be sent out for reviewing by at least 2 independent experts. If you have any suggestions for potential reviewers, please let us know now so we can start to compile a list or reviewers.

Good luck with the writing.

Snuttan and Deborah

Attached files:- Overall and chapter specific recommendations
Review in Fish Sci-Instructions….
Example, Reviews in Fish……

In addition, to the covering letter, specific feedback was provided to each of the coordinating authors about the plan and synopsis they provided. In this document specific points were highlighted in relation to the manuscript plans provided and the coordinating authors were encouraged to take note and integrate the proposed modifications in their manuscript (Annex 20). The plan and synopsis had been studied by Profs. Sundell and Power during their WP meeting in Glasgow in August 2006 (see WP1.3) and during this meeting editorial changes to manuscript plans were

made. To facilitate the writing process explicit instructions were provided about the format of the manuscript, figures, tables and bibliography required by Reviews in Fisheries Science and an example of a review recently published in the journal was provided (Annex 21 – Instructions to authors).

Attainment of deliverable:
D6 Book/journal issue plan; manuscript titles and outline of manuscript content
Behind schedule – forecast for month 5 but attained at 9 months. Delay in this deliverable was explained in part by the need of chapter coordinators to contact and secure the collaboration of other authors. However, a greater problem was the incapacity of authors to respect deadlines and despite repeated requests a number of review plans and their synopsis were significantly delayed.

Deviations from the work programme:
No significant deviations from the work programme occurred and all the deliverables were achieved although later than initially proposed in the project technical annex. The reasons behind the delay in the attainment of the deliverable are outlined above. The one page manuscript plan per project was consolidated in WP1 and WP2.

Corrective actions taken:
Corrective actions taken involved frequent contact with manuscript coordinators via email or telephone in which they were reminded of deadlines established at the Faro meeting and urging to respect them.

WP 2.3. Editorial work

Contractors involved: UGOT and CCMAR

Progress towards objectives:
Professors Sundell and Power divided the responsibility of the various reviews between themselves (Table 4).

Table 4 – Division of the responsibility for the Aquafunc chapters between Profs Sundell and Power.

Title of Review	Manuscript coordinator	Editor
Genomic and stress	Dr Patrick Prunet	Prof Sundell
Development and genomics	Prof B. Th. Bjornsson	Prof Power
Reproduction and Genomics	Dr Geir Lasse Taranger	Prof Sundell
Comparative regulation of lipid metabolism in cultured fish	Dr Mike Leaver	Prof Sundell

Functional aspects of lipoproteins in fish	Dr Esther Lubzens	Prof Power
Disease and stress processes in Salmonids (Atlantic salmon and rainbow trout)	Prof. Chris Secombes	Prof Sundell
Disease and stress processes in Non salmonid fish species. (Turbot, Sole, Sea bass, Sea bream, Carp)	Dr A. Figueras	Prof Power
Disease and stress processes in Bivalve (M. edulis, M. galloprovincilis, C. Gigas, R. decussatus, R. Philipinarum)	Dr A. Figueras	Prof Power
Genomic tool box	Prof. Adelino Canario	Prof Power

The aim of the editorial task was to not only to receive and scrutinise the completed manuscripts but also to accompany the writing process, to resolve any problems in order to keep manuscripts on schedule as far as possible. A short introduction to the Aquafunc journal issue was prepared by Profs. Sundell and Power and presented the background as to why the Journal issue arose (Annex 22 – Journal Introduction). The editors received the manuscripts as a word file to facilitate editing. On receipt of completed manuscripts the editors read the manuscripts, conducted essential editing, identified failures or missing information and then manuscripts were returned to authors for correction when necessary. On receipt of a corrected version of the manuscripts they were again scrutinized carefully by the editors, the format was checked and corrected, the English was checked and corrected when necessary, the bibliography was checked and corrected.

A reviewer list was drawn up by the partners involved in the WP the choice of reviewers was based on recognised expertise and excellence in the field of the review. Reviewers were identified in several ways, either they were known to the MC members or they were identified via Web of Science searches which permitted senior scientists publishing in the area of the reviews to be identified. The editors followed Journal policy with regards to manuscript reviewing and 2 independent reviewers saw each manuscript in addition to the editors. Generally a list of 3-4 reviewers were identified and initially two were contacted with a request to review (figure 10), when necessary further reviewers on the list were contacted.

Figure 10 – Letter sent to request the assistance of manuscript reviewers.

Dear Dr put in referee,

In the context of a European project (Aquafunc - Integrated knowledge on functional genomics in sustainable aquaculture) we are editing a special issue of put in Journal. The journal issue will contain manuscripts reviewing progress in the application of functional genomics to European aquaculture. Each of the manuscripts submitted will be reviewed by 2 experts and as a well known expert in the area of (put in subject) we would like to ask for your assistance. Please let us know if you would be available to review the manuscript submitted by (put in authors) and entitled (put in title).

We are aware that you probably have a very busy schedule but would greatly appreciate your assistance in the reviewing process. The manuscript for reviewing would be emailed to you and then you would have 4 weeks to review and return the manuscript. We expect to send out the manuscripts for reviewing during October.

We thank you in advance for your collaboration and if you accept our invitation a small honorarium of a 250 EURO will be offered to you if you can meet the time limit.

We look forward to hearing from you.

Yours sincerely,

Issue Editors
Profs Snuttan Sundell and Deborah Power

When manuscripts were deemed suitable by the WP participants (Profs Sundell and Power) they were sent out for reviewing in a pdf format and reviewers were requested to give an overview of manuscripts and suggest modifications or improvements which could be made. It was decided by the WP participants that taking into consideration the work required in reviewing the manuscripts, the need to obtain the reviews quickly and the important contribution reviewers were making to the project that they would be offered a small honorarium.

The task of editing the Aquafunc journal issue was found to be extremely labour intensive and required many more person months than initially foreseen in the project plan. The work involved in accompanying each manuscript through the writing and editing process was considerable, particularly as this process was extended over a year. The time spent was aggravated by the failure of coordinating authors to respect the time plan organised for completion and delivery of their manuscript. Moreover, a further problem was the failure of coordinating authors to follow the instructions provided for the preparation of their reviews which meant that extensive editing was required in order to correct manuscripts. The WP participants found themselves impotent in the face of the persistent failure of authors to respect deadlines or to follow the instructions provided.

Nevertheless the production of the journal issue is on schedule and it will be delivered in the final report. However, the failure of the coordinating authors and co-authors to comply with deadlines has meant that the publishing date initially agreed with the publishers and Editor-in-Chief of Reviews in Fisheries Science has had to be

move into 2008. Although this does not impact on the planned project deliverables and Milestones it is disappointing that the journal issue will not be in final print form before the end of the project. The projected online appearance of the Aquafunc issue is May 2008 and the paper version October 2008. Taking into consideration the time to publication of most scientific manuscripts (6 -12 months) and that the Aquafunc journal concept was only finalised in August 2006 the appearance of the issue online in May 2008 is well within the normal timing for scientific publications.

Attainment of deliverables:
D10 Book/journal issue
On schedule – month 24

Deviations from the work programme:
No significant deviation from the work programme occurred and all contributors to the journal issue delivered their chapters during October 2007 and the manuscripts are currently in the reviewing and editing process. The Journal issue will be finalised for delivery to the publisher and for inclusion in the final report and an online publication date has been secured for May 2008 with the paper version in October 2008.

Corrective actions taken:
Corrective actions taken involved frequent contact with manuscript coordinators via email or telephone in which they were reminded of deadlines established at the Faro meeting and urging to respect them.

WP 3 Internet site
Objectives
1. Development of a website presenting projects working with a functional genomics approach to sustainable aquaculture and favourite contacts and exchanges between project partners.
2. Identification of the information that should be exchanged or shared for common analysis between projects.
3. Evaluation of the bioinformatics facilities and tools that should be developed in order to carry out the previous objective.

Commencement date: November 1st 2005

WP3.1. Gathering of information and test drive

Contractors involved: INRA and CSIC

Progress towards objectives:

During these last years, many European programs examining various aspects of fish and shellfish genomics have been funded. Most of the time, these EU-funded projects were aiming to answer/solve specific questions using genomic approaches. National projects in a number of member states have also supported programs aimed at developing genomic resources. For example, the AGENAE program in France has focussed on a range of farm animals including fish (trout) and has developed various genomic tools; in Norway the Salmon Genome Project has developed considerable resource for the salmon. Thus, a large variety of tools related to fish or shellfish have been generated in both European and National projects and include EST clone collections, microarrays, genetic maps, BAC libraries and radiation hybrid panels. Associated with these biological resources, bioinformatic tools necessary for the use of these biological resources have been generated. Although numerous bioinformatic resources exist, they are not collected or listed in a single site and this has meant that scientists are frequently unaware of the bioinformatics tools available and this has also complicated the integration and comparison of results generated by different projects. In this context, it appears fundamental that access to these resources should be shared within the scientific community working on fish and shellfish genomics.

The overall aims of the present task was to bring together European research laboratories that have developed genomic resources and knowledge to improve access to these tools and increase efficiency in these approaches. As a first step to the attainment of this aim an inventory of existing resources was generated, information was disseminated and new links have been developed between resources.

In order to start advancing with the strategy outlined for the present project, it was decided to start by test driving the approach using he EU-funded projects which had associated with Aquafunc through the working group (WP1) and to concentrate on salmonids species for a more in depth analysis as they are studied by a number of the projects.

To reach these objectives, the following actions were carried out:

- A webpage was designed and implemented which has been gradually improved over the duration of the project as a result
- of feedback from the management committee members and also from members of the project WG.
- A list of existing genomic resources was established, including information and platforms developed within Aquafunc associated project and available for the community. An important objective of this task was to analyze the accessibility, the quality and also the sustainability of these resources and identify potential bottlenecks for access by the scientific community in Europe.

The design and functionality of the Aquafunc webpage (www.aquafunc.com) was discussed during the two day long Aquafunc working group meeting which took place on the 27 – 28 February 2006, Faro, Portugal. In summary, the presentations revealed that there is a wide array of genomic tools present and under construction in the gathered projects. The survey of the different projects indicated that most functional approaches have delivered important results for the concept of sustainable aquaculture through cloning, characterization and search for candidate genes. These candidate genes have been identified as important in different key physiological processes and were thus chosen to illustrate specific physiological – functional questions in relation to aquaculture problems. In addition to this, several mapping projects both EC funded and national projects are more directed towards the creation of BAC-libraries, cDNA-libraries and EST collections – in order to provide tools for high through-put genomic analyses. Microarrays have also been developed for different species (salmon, trout, seabass, seabream) but conclusive results from these analyses are not yet available. The Aquafunc WEB-page was also discussed at the Faro WG and issues to be included on the WEB-page were identified.

Public domain:

3. An AQUAFUNC page which includes major information on the project, including objectives, major meetings, picture of the participants
4. A summary of the EC and national projects involved in AQUAFUNC (including contacts): projects and participant information which includes:

- Project information : summaries and presentations of the projects from the WG-meeting
- Contacts – e-mail addresses
- Links with other EC or national websites

Additional information:

- Description of tools available within the participating projects
- Tables on available genomic tools and contacts – in order to create a picture of the state-of-the-art in the area – and providing contact information to facilitate the exchange of currently available resources.

The gathering of information about Fp5 & 6 projects using genomic approaches was through mailing of questionnaires to project coordinators but also by collection of information available on project webpages or alternative sites. A scientific and technical summary of each project was collected and assembled.

It was also discussed the possibility to include:
Job opportunities
Training courses

Deviations from the workprogramme:

Although information was gathered from members of the WG during the meeting held in Faro, test driving of the website was delayed as a consequence of the delay in

design and activation of the website in part as a consequence of lack or personnel to conduct the task.

Corrective actions taken:
The collaboration of a web designer and bioinformatician was sought to help establish the aquafunc web page.

WP 3.2. Information on all projects and scientific areas - public and restricted

Contractors involved: INRA and CSIC

Progress towards objectives:
An inventory of the needs of the community working on fish and shellfish genomics was made through discussion at the WG meeting held in Faro (see WP1). These needs contemplated both tools and resources and also expertise and services. As highlighted before the amount of work required for this task was far greater than expected and a comprehensive review was only carried out for the trout which was selected to test drive the method.
This task achieved within the WP3 was aimed at the identification of existing genomic tools developed within Aquafunc associated projects and related to trout. For this purpose, all documentation available for each Aquafunc associated project (20 projects) was analysed, i.e. Power Point presentations, website, scientific reports.
The strategy developed to carry out this task was as follow:
- Interview of experts in trout genomic tools in order to draw the first outlines of such list of genomic tools. These discussions were initiated with scientists belonging to INRA SCRIBE research laboratory. These interviews were completed with discussion with other colleagues from the INRA Fish Genetic research laboratory (Jouy-en-Josas, France) with expertise in the trout genome and associated genetic resources which were also integrated into the reviewing process. Complementary infomation was also obtained in discussion with North-American colleagues (Drs C. Rexroad III and Y. Palti from USDA) about trout BAC and EST libraries available in the USA. An exchange protocol was organized between USDA and INRA and information about the condition of access to these resources.

- These information were summarized in tables and were used as support for expert interviews. A table contains information (Exist, Available, Tissue, Theme, Description, Biblio, Producer, Contact) on a list of commonly genomic tools which can be distributed within the following groups:
- (i) libraries (Complete genome sequence, BAC library, cDNA library, Radiation Hybrid Panel)
- (ii) genetic markers (SNP marker, Microsatellite marker, AFLP marker, Candidate gene marker)
- (iii) array (Microarray gene expression, Microarray genotyping)

- (iv) biological resources with specific genetic characteristics (Special genetic background, transgenic lines)
- (v) genetic map (Physical map, Genetic linkage map, Physical/genetic map integration, Radiation hybrid map, QTL detection)
- (vi) Bioinformatics resources (database, services, tool).

Interactions with scientific experts from relevant research group were necessary to fill in gaps in the tables and it was important each time to have direct contact with the person who organized the generation of the resource. Thus, we got not only the exact information on the available resources but also the exact information on access condition and sustainability of these resources. The name of a contact person appeared also necessary to be put in the table. Finally, for trout, we end up with a table presenting 59 identified different resources linked to 10 research project not necessarily funded by EC and 23 different scientists were associated with these resources for access.
The genomic tools information and experts contact information were structured and saved in a database which is available for the community through the Aquafunc website under registration (Annex 23).
Development of this survey of all genomic resources related to trout clearly indicated the complexity of this task. It was soon apparent that, to be efficient, the search should not be limited to Aquafunc associated research projects but should also consider all other projects carried out within Europe or outside of Europe if accessible for European researchers. Thus, this has also included local genomic resources (ex. Genetic biological resources) have been produced without support of large national or European funding. In this context, it appears also these resources are managed in very different ways which make a common management strategy impossible. At this stage, it seems more pertinent that the Aquafunc webpage should divulge these resources in order to improve their use but not to try and group all resources on one site. However, such strategy immediately raises other questions such as (i) how to support the cost of opening the access to these resources and (ii) how to make these resources sustainable. This last issue is particularly relevant for EU-funded project where the resources generated during the project have no guaranteed access to partners or even of maintenance through national or local funding after the projects end.

Deviations from the workprogramme:

The initial aim was to carry out the task for all fish and shellfish aquaculture species. However, the work involved in establishing the Aquafunc webpage and development of an inventory of trout resources and bioinformatics tools was much greater than expected and required significantly more person months than initially planned in the technical annex. Moreover, the time it took to establish and test the trout information in the context of Aquafunc could not be extended to the other species of fish and shellfish in Europe. The webpage contains an inventory of all the Fp5 & 6 projects associated with Aquafunc but it was not possible to extend the more comprehensive

approach taken with trout to all species. The news letter originally planned were not distributed.

Corrective actions taken:
No corrective action required.

WP 3.3. List of required bioinformatics tools to be developed

Contractors involved: INRA and CSIC

Progress towards objectives:
A list of existing genomic resources was established, including information and platforms developed within Aquafunc WG projects and available for the community. An important objective of this task was to analyze the accessibility, the quality and also the sustainability of these resources and identify potential bottlenecks for access by the scientific community in Europe.

- An inventory of the needs of the community working on fish and shellfish genomics. These needs will be related not only in terms of tools or resources but also expertise and services.

Deviations from the workprogramme:
The initial aim was to carry out the task for all fish and shellfish aquaculture species. However, the work involved in establishing the Aquafunc webpage and development of an inventory of trout resources and bioinformatics tools was much greater than expected and required significantly more person months than initially planned in the technical annex. Moreover, the time it took to establish and test the trout information in the context of Aquafunc could not be extended to the other species of fish and shellfish in Europe.

Corrective actions taken:
No corrective actions taken.

WP 4. Management of the consortium activities
Objectives

1. Management of scientific, financial and administrative coordination of the project
2. Management of the progress of the project
3. Reporting on general information for the public
4. Reporting of the results to the Commission

WP 4.1 Coordination of the project

Contractors involved: UGOT

Progress towards objectives:
The overall project coordination and the financial and administrative coordination has been the responsibility of the project coordinator Prof. Kristina Snuttan Sundell (UGOT). The Management Committee (MC) has consisted of the four project partners: Prof. Kristina Snuttan Sundell, Prof. Deborah Power, Dr Patrick Prunet and Dr Antonio Figueras.
Prof. Sundell and Prof. Power were responsible for the execution and finalising of work packages 1 and 2 while Dr Prunet and Dr Figueras were responsible for work package 3. The MC also assisted the coordinator in her responsibilities with regards to financial management of the project, in order to ensure the correct and effective use of funds provided.
After receiving the contract on December 23rd 2005, the co-ordinator distributed the contract to the contractors and collected the signed and stamped Form A's for subsequent delivery to the commission. Upon receipt of the initial payment (pre-financing, Annex 24) to UGOT; at 2nd of January, 2006, the funding was distributed to the Partners as indicated in table 5.

Table 5. Distribution of funding within Aquafunc partners

AQUAFUNC Distribution of funding

Partner nr	Partner name	Short name		%	
1	Göteborgs universitet	UGOT		43.3%	53 685.07 €
2	Centro de Ciencias do Mar do Algarve	CCMAR	Portugal	23.0%	28 516.32 €
3	Institut National de la Recherche Agronomique	INRA-1037	Frankrike	27.0%	33 475.68 €
4	Consejo Superior Investigaciones Cientificas	CSIC	Spanien	6.7%	8 306.93 €
				100.0%	123 984.00 €

The duration of the Aquafunc project was 24 months and the commencement date was November 1st, 2005. According to the contract, article 6 – the project has a single reporting period P1, which corresponds to month 1 to the last month of the project.

Throughout the duration of the project the co-ordinator was the leader of the management committee and organised the Agenda for MC meetings and also called meetings. A straight forward Project Management Structure was implemented to ensure correct and appropriate decision making throughout the project. The Management Committee (MC) consisted of the four partners: Prof. Kristina Sundell, Prof. Deborah Power, Dr Patrick Prunet and Dr Antonio Figueras. The four persons participated in the preparation of reports and other administrative questions. The four persons of the MC were all charged with the responsibility of reviewing progress, in their specific areas of responsibilities within the project, against the agreed milestones. Prof. Sundell and Prof. Power were responsible for the execution and finalising of work package 1 and 2 while Dr Prunet and Dr Figueras were responsible for work package 3. Three main MC meetings were planned and were carried out, a kick off meeting, a progress meeting and a final meeting. As most of the WP involved only 2 partners the coordinator encouraged a number of small ad hoc meetings between responsible members during which WP planning, progress and necessary corrective actions were carried out. In order to accompany the progress of the different WP in the project the coordinator maintained frequent contact with all MC members to request progress updates and to alert members of pending deliverables or Milestones for which they were responsible as registered in the project technical annex. When delays or problems were encountered by WP coordinators the coordinator aimed to provide a practical solution for corrective actions. The request for corrective actions by the coordinator was carried out formally by email or telephone to partner with the responsibility for deliverables who failed to deliver on schedule. When no response was forthcoming to requests for corrective action by the coordinator, repeat requests were made in which the importance of completing the deliverables to the good functioning of the project was highlighted. This procedure was judged to be adequate as most of the project deliverables and Milestones were attained in a timely manner.

In preparation for reporting to the commission, parts of the final MC meeting, held in Bergen September 18th, 2007, was devoted to information and organisation of the upcoming work with the reports. The project coordinator highlighted the reporting deadlines in a power point presentation (see Annex 17) and also provided information about how the periodic project report, final project report and management report should be prepared. Questions were taken from the MC members present and after responding to all questions a short discussion pursued.

The power point presentation and further information about outstanding deliverables and a request for corrective action were provided to all the MC members by the project coordinator in an email after the Bergen meeting.

The coordinator assumed responsibility for collecting and collating the periodic report, but highlighted the importance of the project partners in providing in a timely manner the report about the work for which they were responsible. The coordinator also collected the financial statements and all required tables from the contractors and then integrated and collated this material into a "Periodic activity report", a "Final activity report" and the "Management report".

All contacts between the EC administration; scientific officers, Dr. Mario Lopez dos Santos and Dr. Stamatios Varsamos as well as the financial officer Annemie Van Vaerenbergh and the Aquafunc project has been conducted by the co-ordinator mainly through e-mail communication but also through telephone calls and through personal communication at different scientific and aquaculture related meetings.

Deviations from the work programme:
No deviations from the work programme.

Corrective actions taken:
No corrective actions necessary.

WP 4.2 Management committee meetings

Contractors involved: UGOT, CCMAR, INRA, CSIC

Progress towards objectives:
As planned and stated in the technical annex, the MC of the Aquafunc project has had three scheduled meetings throughout the duration of the project.
Kick-off meeting: February 28th, 2006 -
Progress meeting: February 11th 2007
Final meeting: September 18th, 2007
The project coordinator Prof K Sundell called all meeting which were provisionally programmed at the start of the project and then several months before scheduled meetings, dates were agreed by the 4 MC members and meetings were formally called in an email invitation sent by the project coordinator. During the MC meetings all issues regarding the projects main achievements and possible failings in the context of the technical annex with reference to deliverables and milestones have been discussed and activity plans have been established in order to correct for delays in different activities. Minutes were taken for all MC meetings to ensure records of the proceedings existed so that decisions taken by the 4 MC members were recorded.
In addition to the scheduled MC meetings the coordinator and partner 2 has had several small meetings during which editorial issues as well as issues concerning the dissemination and divulgation of the project outcomes were extensively discussed and actions planned.

Deviations from the workprogramme:
No deviations from the work programme.

Corrective actions taken:
No corrective actions necessary.

WP 4.3 Flyer – project presentation

Contractors involved: UGOT

Progress towards objectives:
The project has been presented in several ways during its lifetime. At the very beginning of the project a summary of the project was published through the European Service Network (Annex 25). Two 4 page Flyers were prepared and printed by the co-ordinator. A scientific flyer (Annex 12) briefly divulging each of the main projects integrated in Aquafunc. This flyer contained general information about the work program, list of participants, project main goals, key issues expected achievements and exploitation strategy. Similarly, a scientific poster (Annex 11) was prepared containing the same information. The second flyer (Annex 15) contained the same type of information but formatted and written in a more popular style to be directed towards the non-specialist for a public divulgation of the Aquaculture related projects in Europe. Also this way of presenting the project information was approached with a poster (Annex 14). Power point presentations and running slide shows (Annex 13 and 18) have also been prepared presenting the projects main deliverables, the projects included as well as general information about the work program, list of participants, project main goals, key issues and expected achievements.

Deviations from the workprogramme:
No deviations from the work programme.

Corrective actions taken:
No corrective actions necessary.

Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D1	Provisional contract for the book/journal issue with interested publishers	2	2	5	1	1	2

D2	Working group members – from FP 5 & 6 projects and National representatives	1	3	3	1.5	2	1&2
D3	Publication strategy with role of different WG members	1	3	4	1.5	1.5	1&2
D4	Project Presentation	4	5	5	1	2.5	1
D5	A short report summarizing scientific and technical content of each project.	1	5	4	1	1.5	1&2
D6	Book/journal issue plan; manuscript titles and outline of manuscript content	2	5	9	1	1	1&2
D7	Internet accessible information on all projects and scientific areas within the project	3	6	12	2.5	3	1,3 &4
D8	Website with a public access	3	14	16	1	2	1,3& 4
D9	Website with restricted access	3	14	ND	1	0.5	3&4

D10	Book/journal issue.	2	24	24, Published 28	5	10	1&2
D11	News Letters	3	3, 12, 18, 24	ND	1	0	3&4
D12	List of required bioinformatics tools to be developed	3	24	24	5.5	6.5	3&4
D13	Final plan for using and disseminating knowledge	4	24	26	1	2	1,2,3,4
D14	Final report	4	24	26	1	1.5	1,2,3,4

***ND – not done**

Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
Milestone 1.1:	Date, location and list of participants of WG meeting	1.1	3	3	1,2
Milestone 1.2:	Organization of a working group meeting in Faro, Portugal, in January 2006.	1.2	3	4	2
Milestone 1.3:	Organization of a session, an open workshop, at Aquaculture Europe, in Trondheim, Norway, August 2007	1.3	21	21	1

Milestone 2.1:	Selection of Manuscript titles and authors and identification of publisher and choice of publication, book or journal issue	2.1	4	9	1,2
Milestone 2.2:	Book/journal issue dealing specifically with the application of molecular methodologies and comparative genomics to aquaculture.	2.2	24	24 Published 28	1,2
Milestone 3.1:	Collection of information to be put on the website.	3.1	6	12	1,3,4
Milestone 3.2:	Implementation of the website	3.2	14	16	1,3,4
Milestone 3.3:	Identification of the resources and information that projects would like to integrate or exchange.	3.3	24	24	3,4
Milestone 4.1:	Continuous assessment of the progress of the project to be able to perform necessary adjustments in order to fulfill the deliverables	4	24	24	1

Section 3 – Consortium management

Consortium management tasks and achievements

The Project Management Structure is described in the technical annex and was implemented to ensure correct and appropriate decision making throughout the project:

Coordination and administration

The overall project coordination as well as the financial and administrative coordination was the responsibility of the project coordinator Prof. Kristina Sundell (UGOT). The coordinator collated material for preparation of reports, arranged partner meetings and monitored and distributed funds. The coordinator was the contact person to the EC administration and thus function as the link between the EC and the project Partners. The coordinator was supported in this work from the management committee (MC).

Project management structure

A straight forward Project Management Structure was implemented to ensure correct and appropriate decision making throughout the project. The Management Committee (MC) consisted of the four partners: Prof. Kristina Sundell, Prof. Deborah Power, Prof. Patrick Prunet and Prof. Antonio Figueras. These four persons acted towards the Commission and participated in reports and other interaction at the administrative level. The coordinator headed the Management Committee (MC) which represented the decision making committee of the project and executed the decisions made by this group. The four persons of the MC were charged with the responsibility of reviewing progress, in their specific areas of responsibilities within the project, against the agreed deliverables and milestones. Prof. Sundell and Prof. Power were responsible for the execution and finalising of work package 1 and 2 while Prof. Prunet and Prof. Figueras were responsible for work package 3. The MC assisted the coordinator in her financial responsibilities, in order to ensure the correct and effective use of funds provided. The MC was contacted by e-mail or telephone when needed and met three times during the duration (24 months) of the project. This Project Management Structure allowed immediate corrective actions to be taken in order to produce the milestones and deliverables within the stipulated time scale. The only exception was the distribution of the newsletter that partner 3 and 4 tasked to deliver as defined in the TA.

	Management Committee Meetings																							
Month	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***	***10***	***11***	***12***
Start up meeting - In connection to the Working group meeting			**X**																					

Progress meeting											X											
Final meeting – In connection to the Open workshop at "Aquaculture Europe – 2007"																				X		

Deviations from the plan:
No deviations from the plan.

Corrective actions taken:
No corrective actions necessary.

Contractors tasks and achievements

No change in any of the partners or their responsibilities for the project WPs and attainment of deliverables and milestones occurred over the duration of the project.
UGOT – The project coordinator throughout the project was Prof. K Sundell.
CCMAR – Prof. DM Power was the participant from CCMAR over the duration of the project.
INRA - Dr P Prunet was the participant from INRA over the duration of the project.
CSIC - Dr A Figueras was the participant from CSIC over the duration of the project.

There were no changes in personnel or the responsibilities of the project partners over the duration of the project.
UGOT – Prof K Sundell led the participation of UGOT and was responsible for Management of the consortium activities (WP4). Additional responsibilities included attainment of deliverables (D2-D3, D5, D1, D6, D10) and milestones of WP1 (Establishment of Working group and joint meetings) & 2 (Joint publication of book/journal issue) over the duration of the project. As planned and indicated in the technical annex, partner one hired someone (L. Niklasson) to assist with the administration of the various WP.
CCMAR – Prof DM Power led the participation of CCMAR and was responsible together with partner 1 (UGOT) for attainment of deliverables (D2-D3, D5, D1, D6, D10) and milestones of WP1 (Establishment of Working group and joint meetings) & 2 (Joint publication of book/journal issue) over the duration of the project. As a consequence of the high workload generated by production of the Aquafunc journal issue and the fact that authors delivered manuscripts late much of the workload relating to the journal issue came at the end of the project. In order to keep to schedule it was necessary to hire someone (Dr I Morgado) to assist in the editorial work with the manuscripts (this had not been initially foreseen during project planning).
INRA - Dr P Prunet led the participation of INRA and was responsible for attainment of deliverables (D7-D9, D11-D12) and milestones of WP3 (Internet site) over the duration of the project.
CSIC – Dr A Figueras led the participation of CSIC and was responsible for attainment of

deliverables (D7-D9, D11-D12) and milestones of WP3 (Internet site) over the duration of the project.

Project timetable and status

	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
WP 1																							
Invitation of projects	x	x																					
Report on scientific and technical content of participating projects					x																		
Working group Meeting			x																				
Planning for Open workshop										x								x	x	x			
Open Workshop																					x*		
WP 2																							
Establishing publishing contract	x	x																					
Writing			x	x	x	x	x	x	x	x	x	x	x	x									
Editing/Review process												x	x	x	x	x	x	x	x				
Publishing																		x	x	x	x	x	x
WP 3																							
Gathering information		x	x	x	x	x	x																
Test drive								x	x	x													
Confirming use											x	x											
Publish/Presentation Web													x	x	x								
Newsletter				x				x				x				x				x			
WP 4																							
MC meetings			x								x										x		
Project presentation					x																		
Final plan for using and disseminating knowledge																							x
Financial audit																							x
Final report																							x

Co-ordination activities

The overall project coordination and the financial and administrative coordination has been the responsibility of the project coordinator Prof. Kristina Snuttan Sundell (UGOT). The Management Committee (MC) has consisted of the four project

partners: Prof. Kristina Snuttan Sundell, Prof. Deborah Power, Dr Patrick Prunet and Dr Antonio Figueras.
Prof. Sundell and Prof. Power were responsible for the execution and finalising of work packages 1 and 2 while Dr Prunet and Dr Figueras were responsible for work package 3. The MC also assisted the coordinator in her responsibilities with regards to financial management of the project, in order to ensure the correct and effective use of funds provided.
After receiving the contract on December 23rd 2005, the co-ordinator distributed the contract to the contractors and collected the signed and stamped Form A's for subsequent delivery to the commission. Upon receipt of the initial payment (pre-financing, Annex 24) to UGOT; at 2nd of January, 2006, the funding was distributed to the Partners.
The duration of the Aquafunc project was 24 months and the commencement date was November 1st, 2005. According to the contract, article 6 – the project has a single reporting period P1, which corresponds to month 1 to the last month of the project.
Throughout the duration of the project the co-ordinator was the leader of the management committee and organised the Agenda for MC meetings and also called meetings. A straight forward Project Management Structure was implemented to ensure correct and appropriate decision making throughout the project. The Management Committee (MC) consisted of the four partners: Prof. Kristina Sundell, Prof. Deborah Power, Dr Patrick Prunet and Dr Antonio Figueras. The four persons participated in the preparation of reports and other administrative questions. The four persons of the MC were all charged with the responsibility of reviewing progress, in their specific areas of responsibilities within the project, against the agreed milestones. Prof. Sundell and Prof. Power were responsible for the execution and finalising of work package 1 and 2 while Dr Prunet and Dr Figueras were responsible for work package 3. Three main MC meetings were planned and were carried out, a kick off meeting, a progress meeting and a final meeting. As most of the WP involved only 2 partners the coordinator encouraged a number of small ad hoc meetings between responsible members during which WP planning, progress and necessary corrective actions were carried out. In order to accompany the progress of the different WP in the project the coordinator maintained frequent contact with all MC members to request progress updates and to alert members of pending deliverables or Milestones for which they were responsible as registered in the project technical annex. When delays or problems were encountered by WP coordinators the coordinator aimed to provide a practical solution for corrective actions. The request for corrective actions by the coordinator was carried out formally by email or telephone to partner with the responsibility for deliverables who failed to deliver on schedule. When no response was forthcoming to requests for corrective action by the coordinator, repeat requests were made in which the importance of completing the deliverables to the good functioning of the project was highlighted. This procedure was judged to be adequate as most of the project deliverables and Milestones were attained in a timely manner.

In preparation for reporting to the commission, parts of the final MC meeting, held in Bergen September 18th, 2007, was devoted to information and organisation of the upcoming work with the reports. The project coordinator highlighted the reporting deadlines in a power point presentation (see Annex 17) and also provided information about how the periodic project report, final project report and management report should be prepared. Questions were taken from the MC members present and after responding to all questions a short discussion pursued.
The power point presentation and further information about outstanding deliverables and a request for corrective action were provided to all the MC members by the project coordinator in an email after the Bergen meeting.
The coordinator assumed responsibility for collecting and collating the periodic report, but highlighted the importance of the project partners in providing in a timely manner the report about the work for which they were responsible. The coordinator also collected the financial statements and all required tables from the contractors and then integrated and collated this material into a "Periodic activity report", a "Final activity report" and the "Management report".
All contacts between the EC administration; scientific officers, Dr. Mario Lopez dos Santos and Dr. Stamatios Varsamos as well as the financial officer Annemie Van Vaerenbergh and the Aquafunc project has been conducted by the co-ordinator mainly through e-mail communication but also through telephone calls and through personal communication at different scientific and aquaculture related meetings.

Meetings in the management committee

As planned and stated in the technical annex, the MC of the Aquafunc project has had three scheduled meetings throughout the duration of the project.
Kick-off meeting: February 28th, 2006 -
Progress meeting: February 11th 2007
Final meeting: September 18th, 2007
The project coordinator Prof K Sundell called all meeting which were provisionally programmed at the start of the project and then several months before scheduled meetings, dates were agreed by the 4 MC members and meetings were formally called in an email invitation sent by the project coordinator. During the MC meetings all issues regarding the projects main achievements and possible failings in the context of the technical annex with reference to deliverables and milestones have been discussed and activity plans have been established in order to correct for delays in different activities. Minutes were taken for all MC meetings to ensure records of the proceedings existed so that decisions taken by the 4 MC members were recorded.
In addition to the scheduled MC meetings the coordinator and partner 2 has had several small meetings during which editorial issues as well as issues concerning the dissemination and divulgation of the project outcomes were extensively discussed and actions planned.

Contacts established with other projects

The inclusion and exclusion of projects were planned for – and were discussed during the WG meeting in Faro. The projects "Sleeping beauty", Eurocarp and Fastfish were presented at the WG meeting and welcomes to join the Aquafunc WG. It was decided by the MC during the Faro meeting that new relevant projects willing to share information and take active part in the co-authoring of joint publications are welcome to join Aquafunc. Also the FP5 project RAFOA was actualized. In the context of broadening the contact with other complimentary projects, three national projects, AGENAE, France, Salmon genome project, Norway and BIVALGEN, Spain were welcome to the WG.

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