AQUA EXCEL

Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER - MFL)

Research Infrastructure Information

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1 IFREMER in AQUAEXCEL

1.1 Introduction

Operating institution:	IFREMER (Institut Français pour l'Exploitation de la Mer), http://wwz.ifremer.fr/institut
Type Operating Institution:	Research Institute
Research Infrastructure(s):	1. Marine Eco-tolerance section (MES) 2. Experimental facilities for marine fish larvae (MFL)

1.2 IFREMER Research Infrastructure: Experimental facilities for marine fish larvae (MFL)

Name of the infrastructure:	**Experimental facilities for marine fish larvae (MFL)**
Location:	Centre Ifremer de Brest 29280 Plouzané France
Web site address:	http://wwz.ifremer.fr/brest/Le-Centre-de-Brest/Presentation
Contact:	Zambonino, Jose-Luis E-mail: Jose.Luis.Zambonino@ifremer.fr Tel : +33 (0)2 98 22 40 90
AQUAEXCEL TNA facility:	Yes
Short description	The facilities are devoted to experimentations in marine fish physiology and nutrition, aiming at improving scientific knowledge in the field of determination of nutritional requirements of marine fish larvae. Experiments can be performed with a high degree of control of environment, water quality and feeding management. European Sea Bass and common sole are the target species. Skilled technicians operate these research infrastructures
Keywords	Marine fish, physiology, nutrition, feed diets.
Technical labs	The labs include an experimental feed manufacture room 220 m2, equipped with blenders, grinders, driers, sieves, which can produce diets from 60 µm (larval diet) to 8 mm diameter, and a stock of various raw materials. In addition, there are five laboratories with all necessary equipment for biochemical (hormones, protein, lipid, fatty acids, amino acids…) and molecular (gene expression) analyses. Spectrophotometers, centrifuges, Liquid and Gas Chromatographs, Thin Layer Chromatograph, RT-PCR apparatus, Quantitative Real Time PCR apparatus, electrophoresis, microscopes.
Processing labs	Feed processing lab
EU projects	FINEFISH: “Improving sustainability of European fish aquaculture by control of malformations” PROMICROBE: “Microbes as positive actors for more sustainable aquaculture” PROEEL: “Reproduction of European Eel: Towards a Self-sustained Aquaculture “
Number of researchers	4
Number of technicians	7

Lodging facilities	No
SERVICES - scientific support	Scientific advice, recommendations and/or explanations could be given by several of the seniors scientists on site.
SERVICES - electronic databases	Access to the La Pérouse- library: Archimer database and full text articles
SERVICES - quality assurance	Management of the animals as part of the authorization to experiment
Safety and ethical issues	The technical team has a strong background and interest in the ethical treatment of fish and is comprised of licence-holding members with the world's strictest requirements for the ethical use of animals. Any work carried out with fish will be undertaken with approval from local (e.g. university) or national ethical committees. All research, including that which requires anaesthetisation or euthanasia of fish will be carried out under the auspices of national licensing authorities. Legal requirements for reduction, refinement and replacement of the use of animals in experimentation will also help to ensure ethical and parsimonious experimental design.

1.2.1 Facility Unit 1 Information: Experimental facilities for marine fish larvae (MFL)

Name Facility Unit 1	**Experimental facilities for marine fish larvae (MFL)**
TNA	Yes
Contact (Researcher)	Zambonino Jose-Luis, E-mail: Jose.Luis.Zambonino@ifremer.fr Tel : +33 (0)2 98 22 40 90
URL	http://wwz.ifremer.fr/brest/Le-Centre-de-Brest/Presentation
Postal Address	Centre Ifremer de Brest BP 70 9280 Plouzané France
General description	The total area of the aquaculture research infrastructure is 800 m^2, explicitly for experimentations in marine fish physiology and nutrition. The experiments are conducted in separates units, including rooms for larval rearing, nutrition, growth, and physiology experiments for marine finfish, mainly sea bass, turbot, sea bream. Several laboratories are located beside the rearing rooms.
Technical description	Two rooms for larval rearing experiments each fitted with 24 circular tanks (48 in total) with conical bottoms (38l), all environmental factors controlled, with running UV treated water, specially fitted for studies on early nutrition of marine larvae with inert feed. The Ifremer group is the pioneer in the use of inert feed during larval nutrition from mouth opening, and this experimental facility is unique in the world.
Remote monitoring & control	None
Water and environmental conditions	Sea water is sand-filtered at 15 *m, UV sterilised, heated or cooled and degassed in a packed column. Seawater is provided

	to tanks by gravity from a header tank with small overflow. This system guarantees a very stable water pressure for long periods at the inlet valve. Water temperature can be maintained at a range from 10 to 25°C. Water flow-rate per tank ranges from 10% per hour to 250% per hour. Seawater can be enriched with oxygen or other gas by injecting an adequate flow in a bi-cone running under pressure.
Flowrate	Flow rate per confinement unit: 0.1 to 1.5 M^3/h manually monitored.
Temperature	10 to 25°C, monitored manually and controlled automatically
Salinity	Stabilized in a range 10 °/oo to seawater salinity, parameter manually monitored and controlled.
Oxygen	Stabilized in a range 5 to 15 ppm, parameter manually monitored and controlled.
pH	Range 6.8 to 7.9, manually controlled.
Light intensity and wavelength	Light intensity (from 0 to 500 lux at the water surface) and the photoperiod including an artificial dawn and dusk can be automatically controlled.
Photoperiod	Controlled automatically in a wide range 0 to 24h/d light
Fish measurements	Sizes (various measurements), weight, tag number and fat content are manually monitored and automatically recorded on a dedicated laptop.
Pictures/ Videos	 Larvae experimental Facility (Room1)  Juvenile experimental Facility (Room 3)

1.3 Modality of access

The access will comprise the use of the high-quality facilities and access to the laboratories. Fish will be available at various mean weight (2, 10, 50 or 150g) originated from strains genetically identified and reared in Palavas research station or from commercial farms located not far away. The duration of the experiment can last up to 2 months (3 months including the preparation time before experimentation and put back in service). Usually, trained and experienced staff will carry out the standard procedures and the general maintenance. Nevertheless, the external user will be strongly integrated in all processes.

Support offered under this proposal: The unit of access is defined as 1 tank/week, equalling the occupation of 1 standard fish holding unit (1m3) for 7 days. One trial is expected to comprise 12 tanks during 8 weeks. The access will comprise the use of tanks including fish supply, maintenance, water supply, daily feeding, handling, sampling and husbandry of fish. On request, access to laboratories facilities on site (water quality measurements and biometry) and other infrastructural, logistical, technical and scientific support to external users is offered. Scientific support will include advice on experimental design and methodology, documentation of results for all experiments conducted during the project, and appropriate sampling and conservation of samples.

Outreach of new users: Potential new users will be informed about the access possibilities to Ifremer facilities of Palavas through calls for proposals targeting a specialised scientific audience. Finally, several teams will meet each other during the stay in Ifremer aquaculture research stations and can thus elaborate together a list of common interest research issues, making the Ifremer infrastructure as a place for the exchange of aquaculture scientific ideas.

1.4 Unit of access

The access will comprise the use of the high-quality facilities and include 3H/day technician support for larval experiments. Fish will be available from larval stages, originated from commercial farms. The experiments on larvae will generally last 45 days. The external user will be supervised by trained and experienced staff that will carry out the standard procedures and the general maintenance.

Support offered under this proposal: The access will comprise the use of tanks including fish supply, maintenance, water supply, daily feeding, handling, sampling and husbandry of fish. On request, access to all laboratory facilities and other infrastructural, logistical, technical and scientific support to external users are offered. Scientific support will include advice on experimental design and methodology, documentation of results for all experiments conducted during the project, and appropriate sampling and conservation of samples. The unit of access is defined as 1 tank/week, equalling the occupation of 1 standard fish holding unit (1m3) for 7 days. One trial is expected to comprise 12 tanks during 8 weeks.