

JAPAN-SPAIN JOINT COMMITTEE  
ON SCIENCE AND TECHNOLOGY COOPERATION  
Tokyo, 17 September 2014



AQUACULTURE  
Spanish Institute of Oceanography (IEO)  
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An important component of the collaboration between Japan and Spain is effectively, as stated before, the Aquaculture of bluefin tuna, a research area in which IEO has been working over the last 12 years, leading, among others, several European projects.



## INTRODUCTION



## INTRODUCTION

The development of the farming of this species and its industrial production using aquaculture techniques is a strategic research line of first order in Japan where the consumption of this species is very high, overcoming the demand enormously to the offer.





IEO is finishing the construction of a great infrastructure for the control of the reproduction of the bluefin tuna (ICRA), consisting of a building that contains 4 tanks of great size (the major one of them of 22 m of diameter and 10 m of depth).





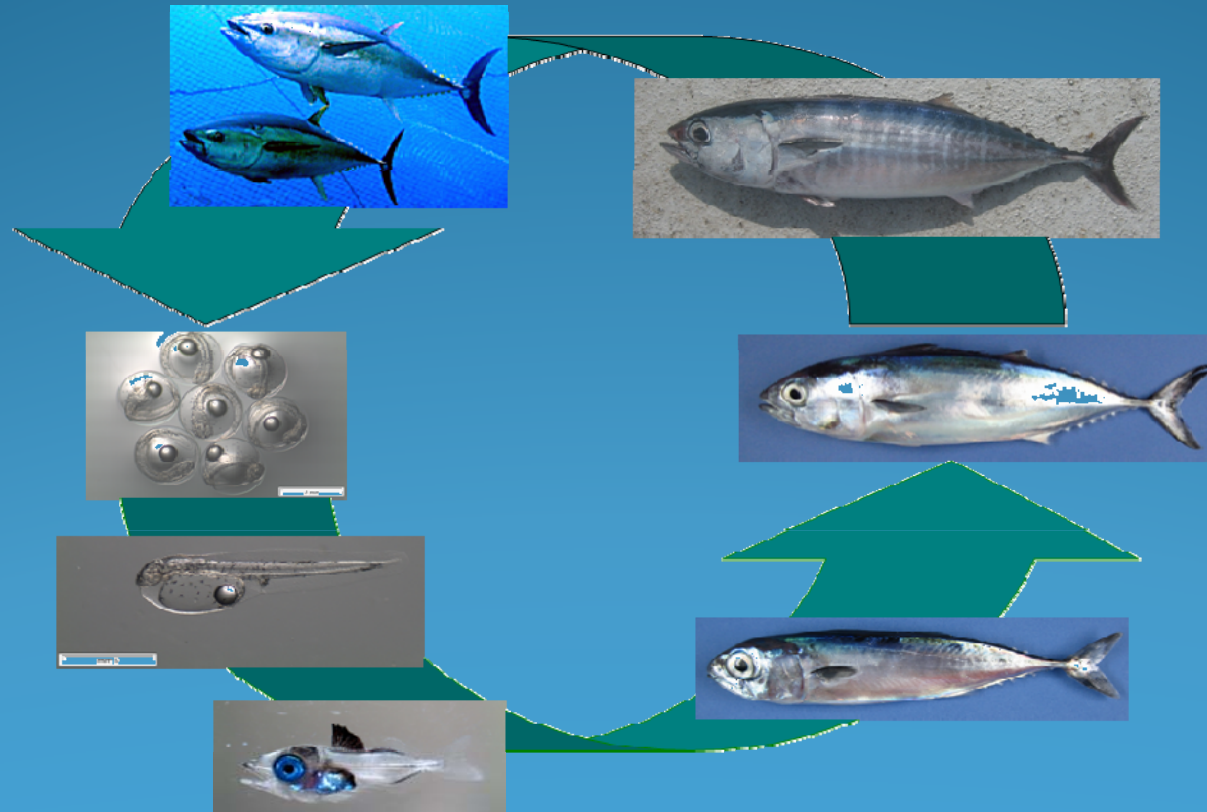
The aim of this installation (that will be completed at the end of this year) is sheltering breeding animals of bluefin tuna to obtain spawns of viable eggs in periods of time higher than the natural ones by means of the control of the reproduction. To collaborate in the maintenance of this infrastructure, **contacts have begun with companies and institutions.**

## INTRODUCTION



## PREVIOUS CONTACTS

In the year 2009 contacts began with the **Dr. Yoshifumi Sawada** of the Japanese University of Kinki, also Director of Oshima's Experimental Station, in order to open lines of collaboration in the aquaculture of bluefin tuna.







## PREVIOUS CONTACTS

From June 2010 until December 2012, the former lecturer of the University of Kinki in Japan, **Dr. Manabu Seoka**, collaborated, thanks to an external Chair created by the Technical University of Cartagena, with the project SELFDOTT financed jointly for 7th Framework Programme of the EU and coordinated by the IEO.

At this moment this Japanese researcher is working for the Japanese subsidiary of the multinational Skretting (leader in the production of fish food), with whom the IEO has a research contract in order to develop an artificial food supply for the bluefin tuna

## PREVIOUS CONTACTS

In 2012, preliminary contacts have existed with the **Dr. Tsutomu Takagi**, of the Faculty of Agriculture of Kinki's University, for the exchange of students between both Institutions in the area of the aquaculture of the bluefin tuna.



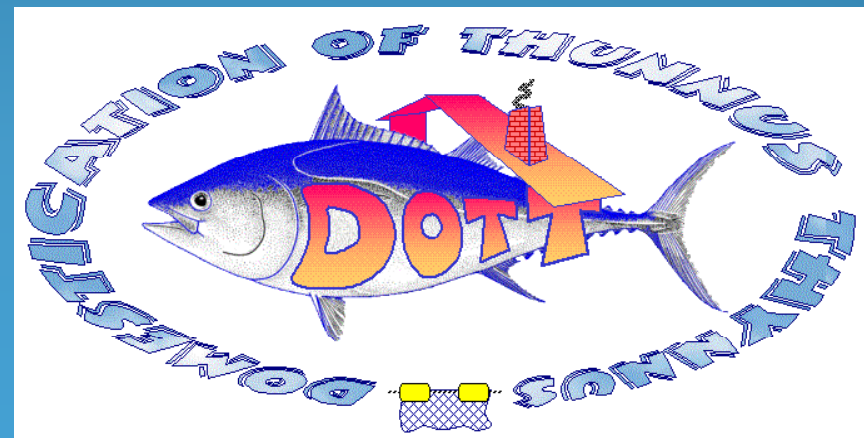




## Kinki University Global COE Program

International education and research center for aquaculture science of bluefin tuna and other cultured fish

In the annual meetings of the SELFDOTT project, the participants included the lecturers of the University of Kinki Dr. Keitaro Kato and Manabu Seoka, who showed their interest to collaborate on this topic. The latter one, as stated before, collaborated with the project SELFDOTT during the year 2010 to 2012.



## PREVIOUS CONTACTS

In October, 2010, the IEO researcher Fernando de la Gándara, coordinator of the SELFDOTT project, was invited by Dr. Kato to the Joint Symposium "Towards the Sustainable Aquaculture of Bluefin Tuna " in Amami island (Japan), where he presented the last advances of the above mentioned project.



Joint International Symposium of Kinki University and Setouchi Town  
on The 40<sup>th</sup> Anniversary of Pacific Bluefin Tuna Aquaculture

*“Towards the Sustainable Aquaculture of Pacific Bluefin Tuna”*

14:30~14:50 Seedling production of Atlantic bluefin tuna (ABFT) *Thunnus thynnus*: The SELFDOTT Project.....Fernando de la Gándara (IEO, Spain)





## PREVIOUS CONTACTS

There have been several meetings between IEO and the Japanese multinational company **Mitsubishi Corporation**, world leader in the commercialization of bluefin tuna, and associated to the Spanish company Ricardo Fuentes e Hijos (with whom the IEO has an agreement of collaboration in the aquaculture of this species.)

The Mitsubishi Corporation has shown interest in our advances in the production of juveniles of this species, as well as his intention in taking part in future projects of the new installation. In this regard, **in July, 2013** we have received for the second time the visit of the President of Mitsubishi's subsidiary company dedicated to the bluefin tuna, **Mr Tsuboi Toshio**.



The fundamental use of the **NEW INSTALLATION** will be the maintenance of a stock of breeding animals of bluefin tuna in optimum conditions, in order to obtain fecundated eggs that will develop later into larvae and juveniles.





## IEO NEW INSTALLATION



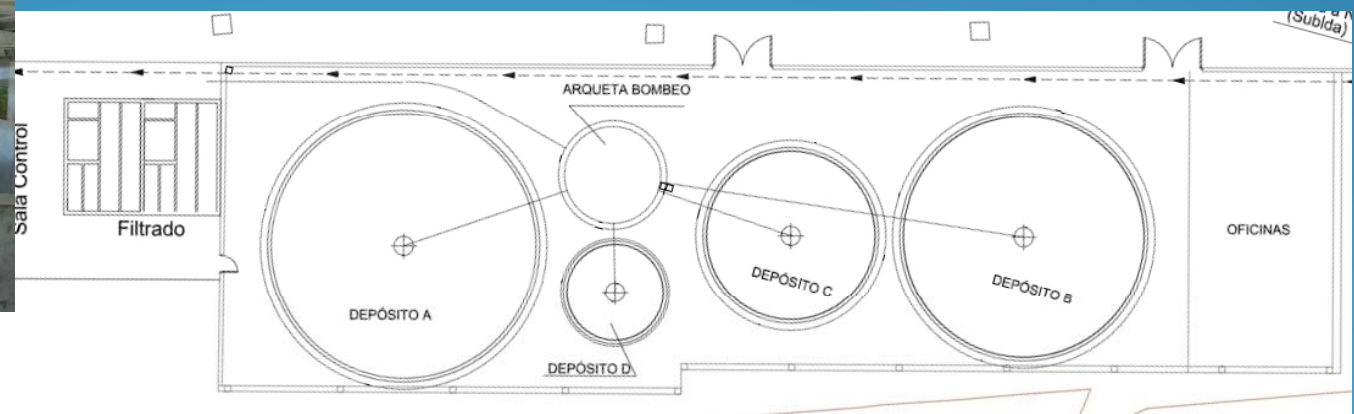
The **IEO infrastructure** consists of a building with a approximate dimensions of 2,660 m<sup>2</sup>, corresponding 1,960 m<sup>2</sup> to the area including the tanks, 300 m<sup>2</sup> to the laboratory and 400 m<sup>2</sup> to water recycling and treatment.

## IEO NEW INSTALLATION

The installation consists, as mentioned before, of four tanks with a total volume of more than 7,000 m<sup>3</sup>.

Two tanks are used to shelter the breeding animals (broodstock) and have a dimensions of 20 and 22 meters of diameter, and a depth of 9 and 10 meters. Each broodstock tank has on a independent system for the control of the photoperiod and water temperature

The other two smaller tanks are devoted to adaptation and growth of the juveniles.

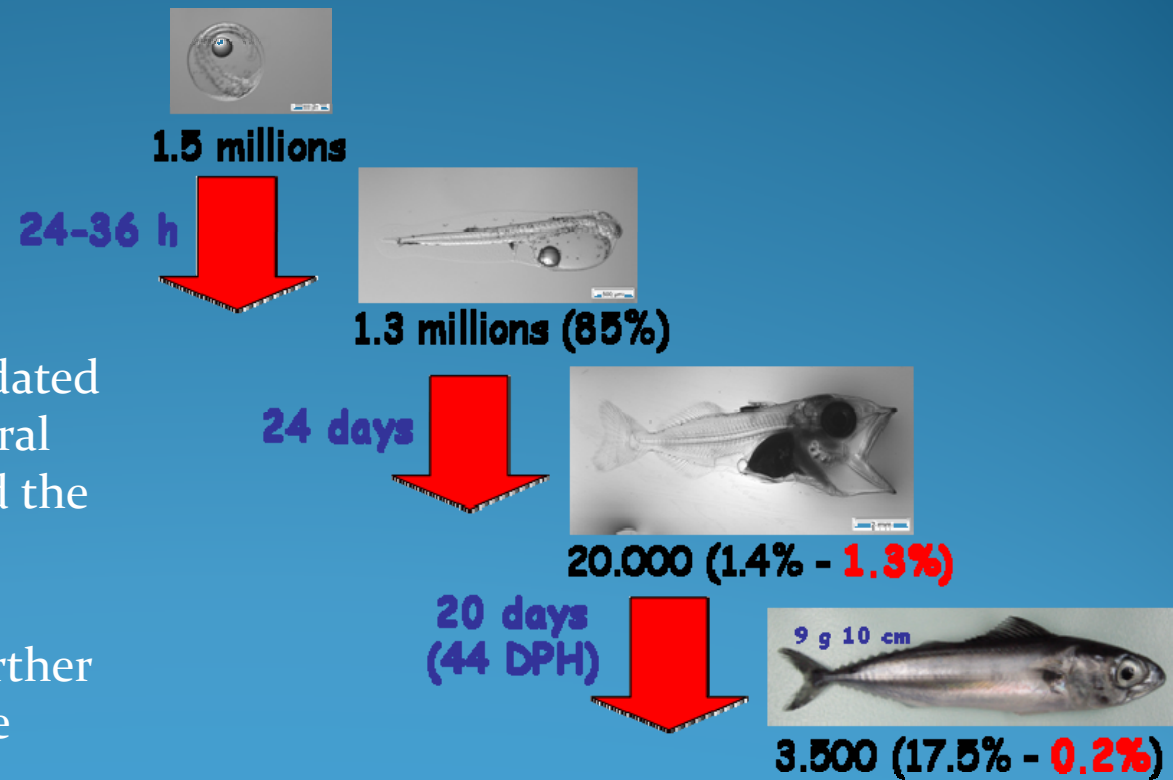




## IEO NEW INSTALLATION

The FINAL OBJECTIVE is to obtain the necessary knowledge for the production in an industrial scale of juveniles of bluefin tuna.

The higher availability of fecundated eggs (independently of any natural environmental contingency) and the amplification in the time of the breeding station (by means of photoperiod techniques) will further promote the investigation on the development of the species.



It is known that the **Fisheries Research Agency (FRA) of Japan** has recently built a similar land-based facility for the control of the reproduction of the Pacific bluefin tuna in Nagasaki.

Given that both facilities are similar and they share most of their objectives and ambitions, it is obvious that it would be important to establish a collaboration between both Institutions, looking for a common benefit.



FRA JAPAN





Such collaboration, as initially offered, could include

(i) to hold periodical meetings for presenting the results and to deal with common problems,

(ii) the interchange of researchers and technicians,

(iii) to establish joint research and development programs

and any other activity, project or idea contributing to the better achievement of the objectives of both facilities.

FRA JAPAN





FRA JAPAN



**WE GREATLY THANK** to the President of the Fisheries Research Agency for his rapid and positive response in March of this year to our offer of collaboration that we confirm in the agreed terms. Our researchers will contact soon the researchers from FRA to share information, and to advance in the preparation a future workshop on the aquaculture of bluefin tuna.

**WE ALSO INVITE** the President of the FRA and these researchers from FRA to come to the inauguration at the end of this year of our new installations for aquaculture of bluefin tuna. This can be a very appropriate moment to initiate these interchanges.





FRA JAPAN



The aquaculture research by IEO is not only limited to the bluefin tuna but also include other fish species for which we offer our collaboration to the Fisheries Research Agency of Japan. These species are the greater amberjack (*Seriola dumerili*), the octopus (*Octopus vulgaris*), the hake (*Merluccius merluccius*), the grouper (*Polyprimum americanum*) and the senegalese sole (*Solea senegalensis*).



FRA JAPAN



The IEO also counts with a unique installation for aquaculture of macroalgae of semi-industrial scale that we offer for joint investigations in this field.

The agreement between NEDO and CDTI makes possible the incorporation of companies of both countries in all these potential joint investigations.





Allow me to express, to finish, the hope that the collaboration between FRA and IEO that begins here, framed in a bigger collaboration between Japan and Spain, will provide mutual benefits in our common objectives.

THANK YOU VERY MUCH FOR YOUR ATTENTION

あなたの注意を大変ありがとうございます