

SERVICES

Services currently offered by the infrastructure:

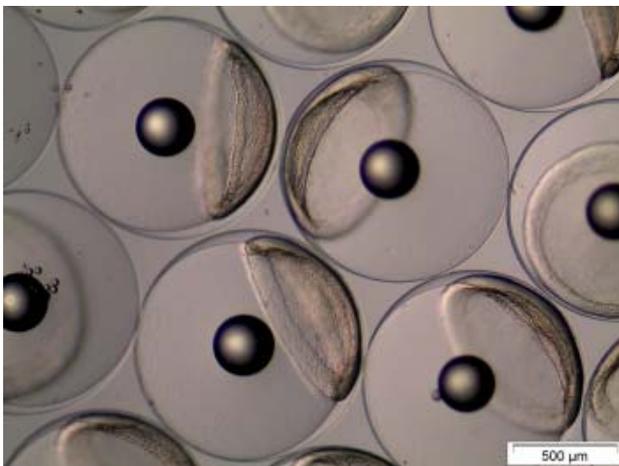
ICAR is devoted to the bluefin tuna full cycle aquaculture, including broodstock management, egg collection, larval rearing, and juvenile's production and growing.

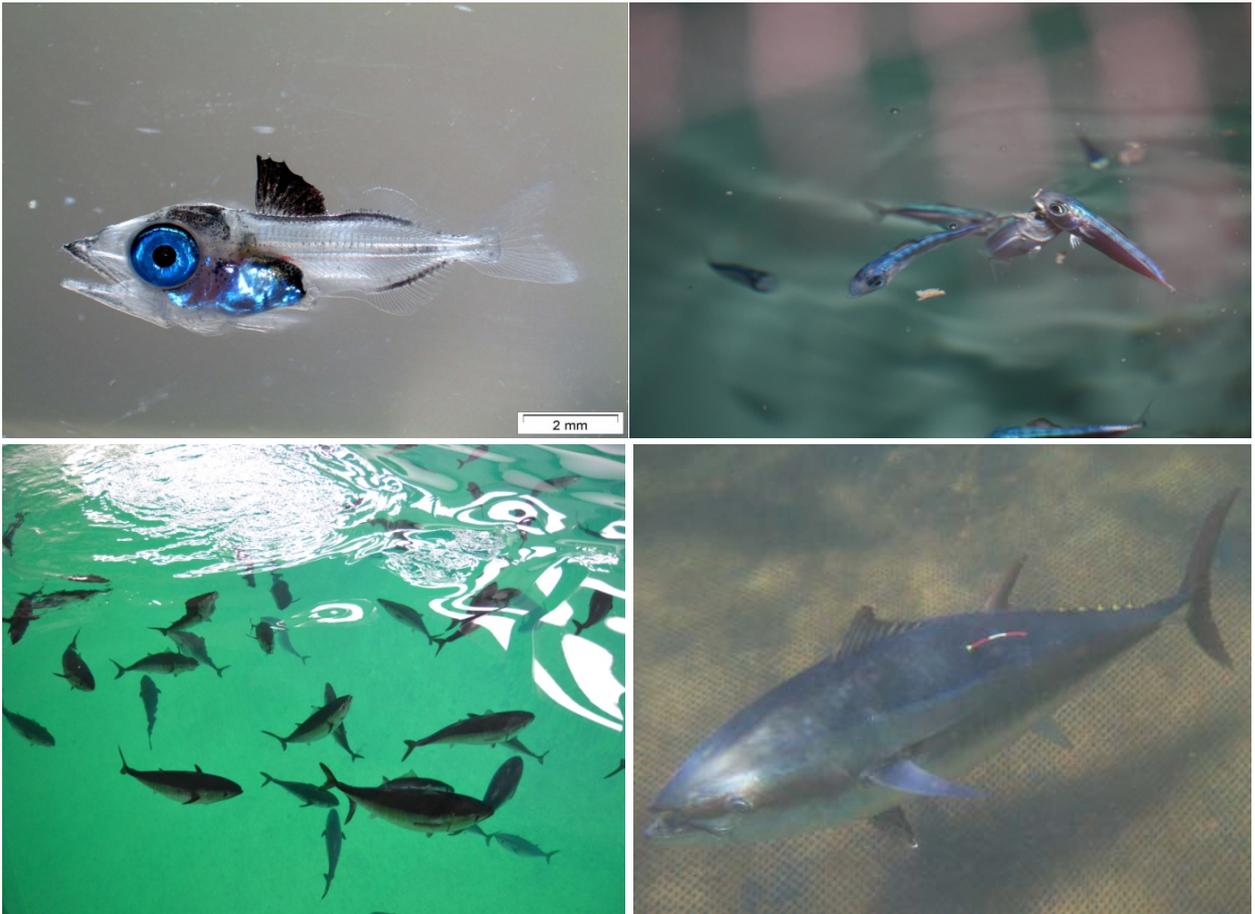
ICAR is currently used as a research infrastructure by IEO scientific staff and other Spanish and international institutes and universities. It has also hosted many experiments from private companies.

Technical support for daily experimental work and technical help for samplings will be provided to all users. For specific needs, IEO scientists using the infrastructures will assist users for experimental design and data interpretation.

Main services are related to:

- Handling and management of bluefin tuna eggs.
- Massive production of seabream eggs for feeding bluefin tuna larvae in piscivory phase, from delayed spawning season by means of photoperiod and temperature control.
- Assessment for eggs incubation, larval rearing and weaning of bluefin tuna
- Design, application and production of living prey for feeding bluefin tuna larvae: rotifer, Artemia, copepods (Acartia) .
- Prophylactic treatments for eggs and larvae.
- Chemical water analyses (pH, [O₂], nitrogen metabolites) and body composition (moisture, protein, lipids, ash)
- Assessment on installation and use of pumping, recycling, filtration, sterilization, heating and chilling systems.
- Assessment on non-invasive sizing bluefin tuna by means of the VICASS (Video Image Capturing and Sizing System).
- Sampling of eggs, larvae and fingerlings and conservation of sampling if required
- Formation and training of technicians on bluefin tuna rearing.





Another related services that also can be offered by ICAR are:

- Bioaccumulation of contaminants
- Nutrition and food: Feeding strategies and diets specifically adapted to the species, Study of the physiological processes involved in the regulation of feeding behaviour, food intake and food selection, using food products and developing alternative sources of feed.
- Recirculation systems (RAS)
- Animal health and
- Vaccines development: DNA and recombinant vaccines. Routes of administration
- Immunoreproduction: Pathogen diagnosis in gametes, eggs and larvae

In brief, R & D & I services offered in OPEN ACCESS will deal with:

- a) Noninvasive studies on the behavior of bluefin tuna broods

Management studies of large individuals. Study of behavior of captive bluefin tuna by optical and acoustic methods. Determination of ideal conditions for reproduction, studies of fertility and reproductive behavior.

- b) Studies of incubation, embryonic development and hatching of bluefin tuna eggs under different water conditions (temperature, salinity, pH, etc.)

Experiments to study the different stages of embryo development and the hatching of bluefin tuna eggs under different conditions of temperature, salinity, pH (climate change effects) as well as pollutants and toxic substances.

- c) Development of experiments on larval rearing of bluefin tuna

Experiments to study the physiology, anatomy and / or development of the bluefin tuna larval rearing against different conditions of temperature, salinity, pH (climate change)

- d) Development of weaning experiments - bluefin tuna

Conducting experiments to study the behavior in the weaning phase - bluefin tuna as well as nutritional requirement and feeding research. These trials can also cover first phases of preongrowing and eventually some ongrowing non invasive experiments. Development of weaning and preongrowing experiments.

- e) Studies of diverse nature in the bluefin tuna development

Under special request, genetic studies, proteomics, metabolomics, isotopic imprint, anatomy, physiology, etc., in all stages from the production of eggs to the pre-weaning stage of tuna could be offered, but this is out of a typical access unit.

