

## Design and start-up of a seabass and seabream farm in Turkey - ILKNAK

**Akvaplan-niva undertook the design, supervision of construction and start-up of a fish hatchery and cage farm for seabass and seabream in Denizköy, Turkey.**

### Hatchery

Akvaplan-niva undertook the design, supervision of construction and start-up of a marine fish hatchery with target production of 10 million fry per year at a green field site 1.5 hours north of Izmir. It prepared outline designs, and working together with local engineers it prepared complete construction drawings, specification of equipment. Akvaplan-niva then sourced local suppliers, placed orders for equipment, organised customs clearance of imported equipment. Akvaplan-niva supervised the contractors during construction. It then provided technical assistance during start-up and training to local staff.

Construction of the first phase of the hatchery started in January 1998: The first larvae were stocked in April 1998. Production was 1 million seabass fry. 1100 broodstock were placed under advanced and delayed photoperiod regimes.



### Algae production

A small laboratory was set up for storing algal master cultures and growing started cultures.



The algae was cultured in 300 liter sacs on a large scale for growing and enriching rotifers and greening tanks



Artemia was cultured and enriched in cyliandroconical tanks.



Fish larvae were stocked in larval tanks for 30 days before being moved to larger weaning tanks for a further 30 days.



Fully weaned fry were transferred to nursery tanks until they reached the size of 2 grams, suitable for transferring to the cages.

## Cage farm

Akvaplan-niva installed the moorings and cages in early 1997. Installation of 20 nursery cages (5 x 5m) and moorings and stocking with 340,000 fry was done between July and September 1997.



Cost effective wooden grow-out cages based on a Norwegian design were selected and installed. 20 octagonal grow-out cages with a diameter of 12 m were stocked with fish from the nursery cages.



The first harvest of fish was made in September 1998.

## Sorting and packing station

A sorting and packing station was designed and constructed to EU standards.

Harvested fish from the cages were transferred to the facility where fish were sorted and graded into different size groups. The fish were then packed in polystyrene boxes and weighed, covered with ice and then the boxes taped and labelled.

The majority of production was exported to the European Union.



The hatchery and farm was sold by Akvaplan-niva in 2000 to the Fjord Marine group who developed it further and added more hatcheries and farms in Turkey. Fjord Marine has later merged with the Greek aquaculture group Selonda to become the largest producers of fish in the Mediterranean.

## Akvaplan-niva's competence

Akvaplan-niva can assist with all aspects of setting up a marine fish hatchery from initial site survey to operation of the hatchery. Akvaplan-niva's staff has been involved with setting up and operating hatcheries for the last 20 years including three of the largest hatcheries in Greece, one of the largest hatcheries in Turkey and a fish and shrimp hatchery in Saudi Arabia.

They can assist in the following;

- Site location survey. Identifying a suitable site for the hatchery
- Pre-investment study. Estimate approximate cost and profitability
- Feasibility study and outline design
- Detailed design study, specification of equipment, preparation of construction drawings
- Evaluation of equipment offers, selecting contractors, sourcing local suppliers
- Supervision of construction and installation of equipment
- Commissioning and testing
- Start-up of operation
- sourcing inoculations of suitable algae and rotifers
- sourcing suppliers of Artemia, enrichments and starter feeds
- collection of broodstock, photoperiod control of broodstock
- training of local workers
- preparation of operation manuals