



A SCIENCE AND TECHNOLOGY NEWSLETTER

## RESEARCH UPDATE

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## PROMISING TECHNOLOGIES

### Green snapper *Lethrinus nebulosus* in captivity with RAS technology

Vizhinjam, Kerala. Broodstock development, volitional spawning and seed production of spangled emperor, *Lethrinus nebulosus* under captive conditions in Recirculating Aquaculture System (RAS) was achieved for the first time in Vizhinjam Regional Centre, ICAR-CMFRI and is a global first. This work carried out under the All India Network Project on mariculture, is a breakthrough that can enable larval rearing and hatchery seed production of the green snapper, a prized marine food fish commodity in global markets.

Broodstock development was accomplished in a 10-tonne RAS system with wild caught fish after suitable quarantine procedures. Fishes spawned naturally in the RAS without any hormone application. Hatching of larvae occurred 16-18 hours after spawning, with larvae measuring  $1583.945 \pm 42.95\mu$ . A green water medium with a combination of algal species was used for larval rearing. Copepod nauplii were used as the first feed, and in later stages, rotifer and artemia were given followed by weaning to artificial diet. Squamation began by 25-27 days post hatch (DPH). Metamorphosis of larvae started by 30 DPH at a total length of 2.3 cm and was completed by 40 DPH. A Flow-through system adopted for further rearing improved the survival at the metamorphosis stage.

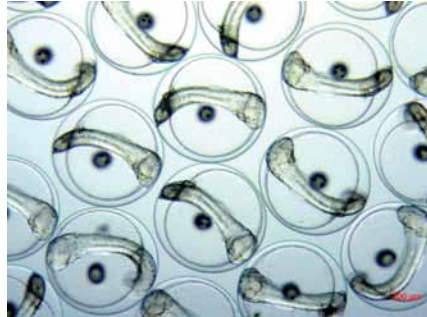
The current achievement of natural spawning in captivity, rearing upto seed of 45 DPH, combined with a higher survival rate of 5-7% in different trials is a significant achievement that paves the way for developing continuous seed production protocols for hatcheries, which can in turn support farming ventures. The female spawners are highly fecund and capable of releasing 1.25 to 2.20 lakh eggs per spawning. Earlier reports on captive breeding of this fish in the Abu Al Abyad Island of UAE in year

**Indian Council of Agricultural Research**

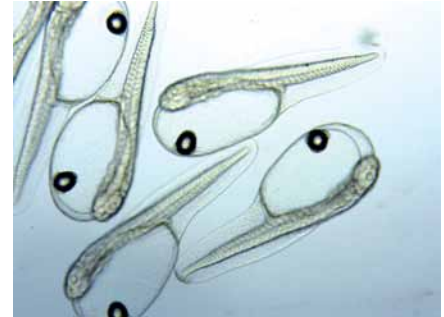
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# PROMISING TECHNOLOGIES



Developing eggs



Hatchling



14 DPH larvae



21 DPH larvae



*L. nebulosus* seed

2009 mention the use of hormone manipulations for inducing spawning with very low survival rates when larvae were 30 DPH.

Belonging to the family Lethrinidae and commonly called spangled emperor, green snapper, or yellow sweet lip it can grow upto 80 cm in length and weigh around 8 kg. It forms a commercial important fishery in many countries of the Indo-West Pacific, including Red Sea, Persian Gulf and East Africa to southern Japan and Samoa. *L. nebulosus* is also one among

the Prioritized List of Species for Mariculture in India, which were identified by ICAR-CMFRI based on their biological traits, good market and hence of potential interest to mariculturists.

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