

White teatfish at Kiribati sea cucumber hatchery “Local technicians getting them out again”

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The following short communication was written by Kim Friedman following a visit to the sea cucumber hatchery in Tarawa while on EU/SPC PROCFish work in Kiribati. The information was gathered during an interview with the leader of the facility, Michael Tekanene.

Mr Tekanene and his team at Kiribati Fisheries on Tarawa are having great success in rearing juvenile teatfish. To date, 20,000 juvenile *Holothuria fuscogilva* have been placed on the reefs around Tarawa and neighbouring Abaiang Atoll, and another 10–15,000, are being readied for release following successful spawnings in 2004. The sea cucumber hatchery on the capital island of the Republic of Kiribati has for the last three years been maintained by local expertise after originally being established with overseas assistance.

The Overseas Fishery Cooperation Foundation (OFCF) project began in 1995 by assessing sea cucumber stocks in Kiribati's atoll systems. After the hatchery was built, spawnings commenced in 1997 and numerous small batches of white teatfish and prickly redfish (*Thelenota ananas*) were produced before the funding came to an end in 2001. Despite the closure of the project, the team continued their work, using available equipment and relying on ongoing support of Kiribati Fisheries to produce a further 7–8 batches of *H. fuscogilva* within the facility (Fig. 1). The majority of the approximately 20,000 small juveniles have been released locally, but some have also been sent to neighbouring Abaiang Atoll.

Spawnings of white teatfish are conducted with wild broodstock collected in Tarawa and neigh-

bouring atolls (Fig. 2). Mr Tekanene said that the ratio of males to females in their collections was usually skewed (5 males to 1 female), and that spawning females yielded more than 5 million eggs. The team stress-induces the broodstock around the time of a full moon during two periods of the year: March–June and August–September. Frozen sperm have also been added to tanks to stimulate spawning. The larval rearing phase lasts 14–21 days before settlement and Mr Tekanene said his team tended to have more success when handling fewer larvae; the management of 2 million has proven to be more feasible than trying to manage over 5 million.

Settled juveniles are held on plates seeded with pennate algal diatoms (*Navicula* sp.) with some addition of “Livic” powder before moving them to sand-bottomed raceways. Juveniles being held on plates, as of November 2004, averaged 4 and 8 mm from two spawnings, one in late August and a second in late September (the largest juveniles are 6 mm and 17 mm from each batch, respectively) (Table 1). New substrate from local fishponds containing milkfish (*Chanos chanos*), is regularly added. Faeces are also collected from nearby raceways holding trochus, *Trochus niloticus*. “Livic” powder can also be added as a supplement three times a week.

Table 1. Spawning experiments

| Spawning run | Relation to lunar cycle | Sizes (mid November 2004) | |
|-------------------|--|--|-----------------|
| | | Av. length (mm) | Max length (mm) |
| 27 August 2004 | 3 days before full moon | 7.7 | 16.8 |
| 28 September 2004 | 1 day before the full moon | 4.1 | 6.2 |
| Spawning run | Size at release (Hatchery/May 2003) | Size at recapture (Abaiang Atoll/Feb.–March 2004) | |
| May 2002 | 60 mm | 120–130 mm | |

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At present juveniles 1–2 cm long are placed out in rocky areas at approximately 10 m depth. There have been inadequate resources for carefully following these releases, or to design and assess the efficacy of release techniques. Michael is confident that the team is now able to produce juveniles, and stated that if there was any area where they could use further assistance it was in re-seeding. As stated, release and the post release monitoring process has been somewhat haphazard to date, although anecdotal evidence points towards recovery of stocks in the passages that have been stocked. Records of small numbers of white teat that have been followed more closely after release for about six months give a hint of the kind of data

that could be gained for fishery and aquaculture needs of this species (Table 1, see Figs. 3 and 4). It is hoped that more careful monitoring of the present batch of juveniles will yield more answers on growth and survival of hatchery reared white teat after release in the wild.

Kiribati Fisheries is also producing juvenile trochus (approximately 20,000 10–40 mm re-seeded to date) and blacklip pearl oysters *Pinctada margaritifera* (>10,000 seeded to date). This success suggests that Kiribati Fisheries is building a critical mass of local expertise suitable for spawning and enhancement programs. Their progress will be watched with great interest.



Figure 1. Hatchery raceways with plates.



Figure 3. Juvenile specimen of *Holothuria fuscogilva*

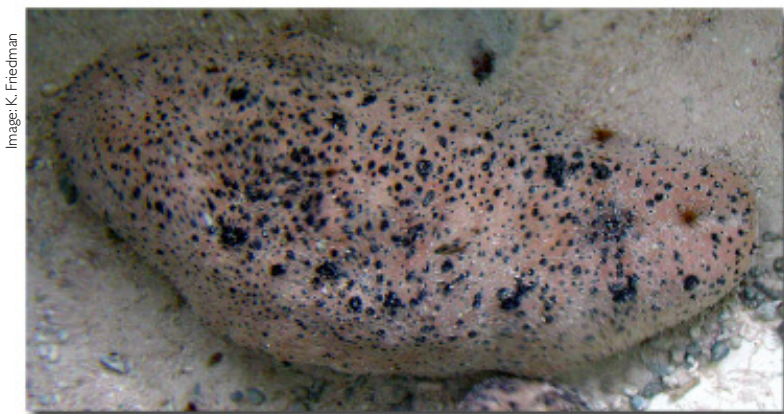


Figure 2. Adult specimen of *Holothuria fuscogilva* kept at the hatchery



Figure 4. Juvenile specimens of *Holothuria fuscogilva* at Abaiang Atoll (100–130 mm in length)