

MILKFISH CAPTURE ON CHRISTMAS ISLAND, KIRIBATI

Christmas Island, or Kiritimati as it is officially called, is in the Line Islands, one of the four island groups that make up the Republic of Kiribati. It has the distinction of being the world's largest island of purely coral formation and for the most part it is flat and somewhat featureless, the highest point being only a few metres above sea level. The shallow lagoon is heavily loaded with sediment and has a single, wide passage in the west: water in this area is exchanged fairly regularly and is of normal salinity, but water temperatures, salinity and turbidity progressively rise the further one goes away from the pass, due to the high rate of evaporation and low rate of water exchange.

These features make the lagoon a very favourable habitat for two related fish species: bonefish (*Albula* spp.) which attract game fishermen from Hawaii and the mainland USA to Christmas Island for what is widely acknowledged to be some of the finest bonefishing in the world; and milkfish

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(*Chanos chanos*), which are prized as food by Gilbertese people and are netted fairly in-

themselves and their families, they also pointed out that fishing-related tourism was practically the only industry bringing money into the Kiritimati economy at that time. There was much talk that 'something should be done', although no-one seemed sure exactly what.

Much of the eastern part of the atoll is covered in enclosed or semi-enclosed hypersaline ponds which only refill on the



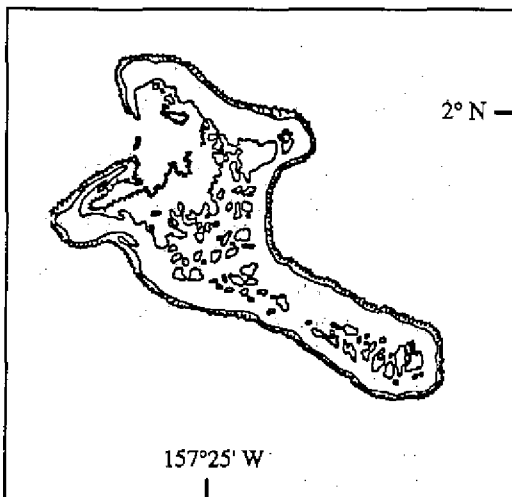
Photo: Garry Preston

Christmas Island lagoon

tensively by local fishermen using monofilament gillnets.

In fact, since gillnetting also captures bonefish, something of a conflict was arising in late 1989, when I visited the island in connection with a survey of pearl oyster resources. Those local people who acted as guides for visiting game-fishermen were becoming increasingly upset at net fishermen targeting more and more on bonefish. While they recognised the need of subsistence fishermen to feed

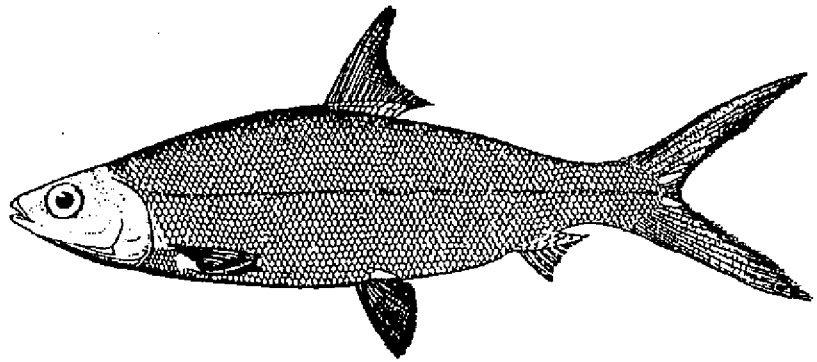
spring tides. Some of these are used for commercial salt production, while others have in the past been successfully used to cultivate brine shrimps, whose 'eggs' (they are actually not eggs but cysts) are a valuable product used as food for aquarium fish. More recently, quite a number of the saline ponds have been linked in a complex network of man-made canals equipped with simple wooden sluice gates or other forms of barriers. By opening and closing the sluices at appropriate times of the tide, water-flow through the canal/pond system can be controlled and this has led to the development of an interesting fishery, which is perhaps unique in the Pacific.



Map of Kiritimati (Christmas Island)

Juvenile milkfish naturally follow the tide, swimming up the beach, for instance, as the tide rises. This behavioural feature is widely known and allows the capture, by dip-netting or trapping, of fry for milkfish farming in many South-East Asian countries. This feature also causes juvenile milkfish to enter the Kiritimati salt ponds at high tides, where they then remain and grow in a semi-captive state, their escape being prevented at first by their tide-following instincts. As the fish grow older, they lose the tendency to swim with the tide, but by this stage they are too large to escape from the ponds through or over the sluice boards.

Removing sluice boards in the canals on an incoming tide lets a flow of less saline water into the hypersaline ponds. This attracts the milkfish, which aggregate around those sluices that have been opened. The staff of Kiritimati's Fisheries Division then gill-net the fish in



their aggregations and sell them to the Marine Export Division (MED), a government-run company which is charged with commercial development of Kiritimati's fisheries and exports locally-caught fish to Hawaii.

Although some of MED's export fish is caught troll fishing (Kiritimati is also one of the richest wahoo grounds in the Pacific) and deep-bottom fishing (SPC Master Fisherman Pale Taumaia helped carry out the first bottom-fishing trials in Kiritimati in 1984, and achieved excellent catch rates), milkfish is the mainstay of the MED operation.

During one visit to one sluice gate, about 20 good-size milkfish (1—2 kg each) were taken in 5—10 minutes. The Fisheries staff say they get anything from 250—500 kg a day when they are fishing seriously. Serious days are Monday and Tuesday, since the fish are exported fresh to Hawaii on the weekly Wednesday flight to Honolulu. Milkfish are very bony, but are nevertheless much loved by Hawaii's large Filipino community, who are the principal consumers, as well as by the Kiritimati Islanders (including the Fisheries staff) themselves.

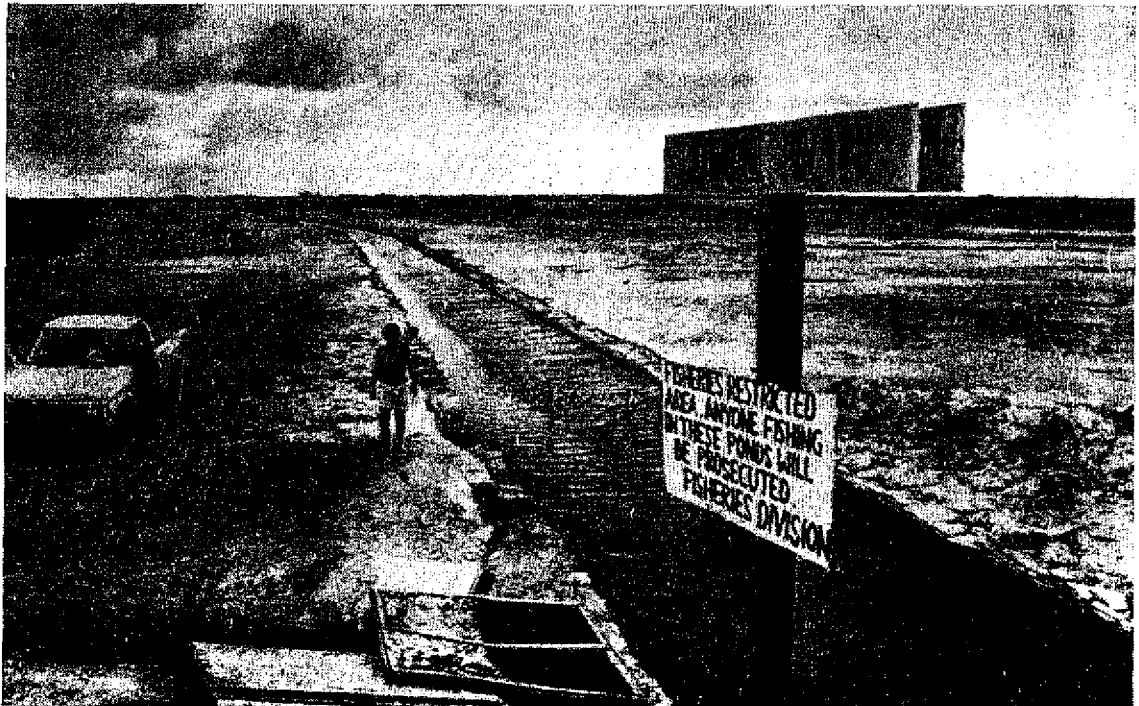


Photo: Garry Preston

Man-made channels such as these criss-cross parts of Kiritimati, linking salt ponds and the main body of the lagoon.

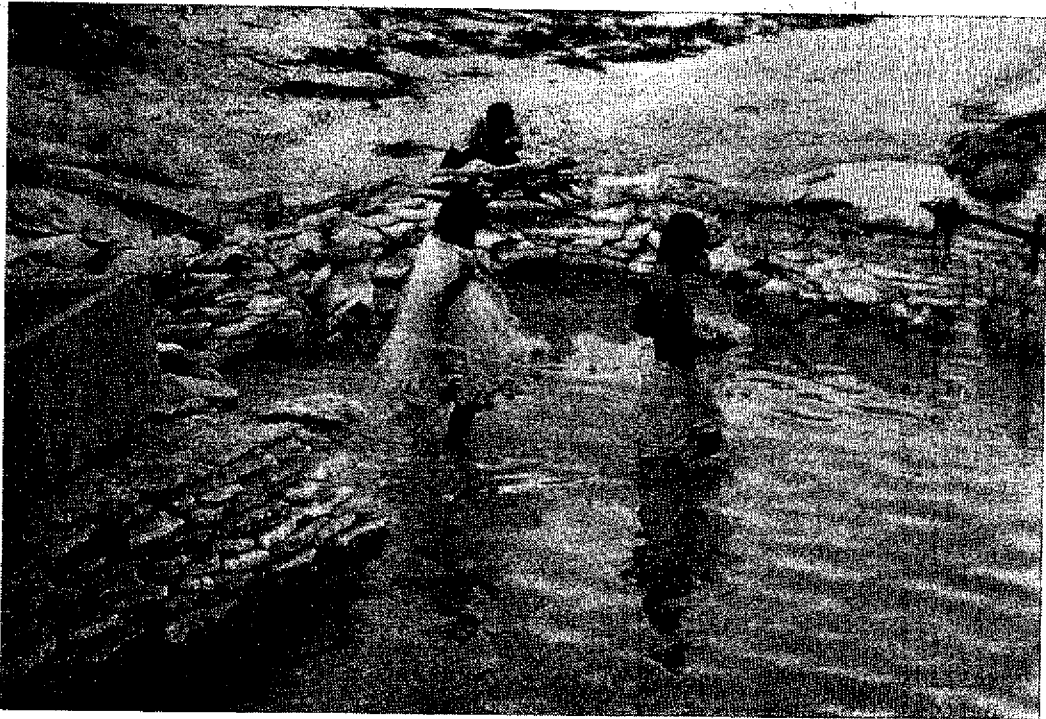


Photo: Garry Preston

Gill nets are set in a circle in the enclosure in front of the gate. Splashing and noise-making by the fishermen help scare the fish into the net, from which they are immediately removed.

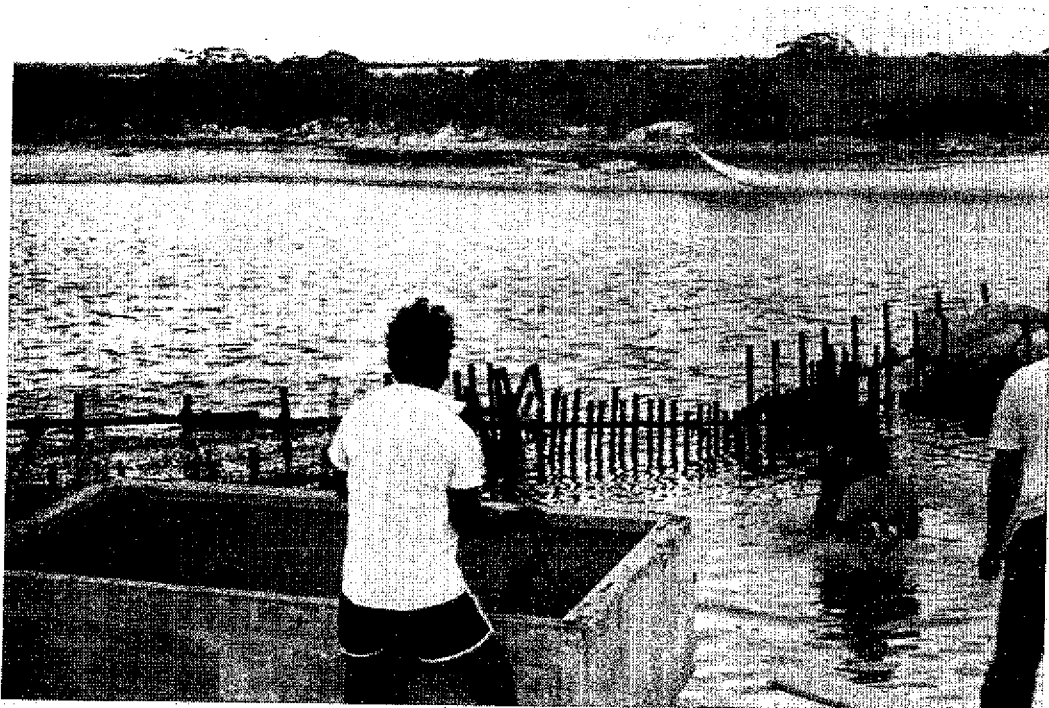


Photo: Garry Preston

Boxed fish are transported rapidly to Marine Export Division, which will send them fresh on ice to Hawaii within two days of capture