

## LIVEBAIT FISHES OF THE MALDIVES

Tuna fishing is a vital industry in the Maldives. It provides a major source of employment, a major source of food, and a major source of export earnings. Most tuna caught is taken by the pole and line method. This requires copious supplies of small live fish which can be used as bait. When a tuna school is spotted handfuls of livebait fish are thrown into the water (or 'chummed') to attract the tuna within range of the fishermen's poles. Hundreds of tonnes of livebait are used in catching the 20-25,000 tonnes of tuna taken annually by pole and line fishermen.

Fishermen look for a number of qualities in a potential baitfish. First, it should be relatively easy to catch. An ideal species in this respect would be one which is common and forms large schools in shallow water close enough to reef edges to allow easy anchoring, but does not take refuge among the corals when disturbed. Since the tuna sought are relatively small (30-70 cm in length) the bait used are also relatively small: most are in the range 4-8 cm standard length. Some of the bait varieties used are juveniles of species which grow quite large as adults, while others never grow particularly large. Another practical reason for this size factor is that smaller fish are more abundant than larger ones. A further quality of a potential baitfish is that it should be hardy enough to survive captivity for several days. Finally, it should be a good chummer, that is, when thrown into the sea it should headback towards the shadow under the boat swimming in such a way as to draw the tuna after it. Bright, particularly silvery, colouration is also believed to be an asset in chumming. In practice no livebait species is perfect in all respects, most suffering somewhat by either being relatively delicate or difficult to catch. However, a species which does not chum well will never be a popular bait.

The Maldives is fortunate in having a variety of species which make useful livebait. The beautiful coral reefs provide abundant food and shelter for many small fishes. There are literally scores of species that are used as live bait, but only about a dozen are used commonly. Of the others, they may be used occasionally either because they are temporarily abundant or, more commonly, because they are taken incidentally while fishing for one of the major bait species. Almost any type of fish may be taken in this manner. In order to find out more about the vital livebait resources of the Maldives the Ministry of Fisheries initiated a preliminary survey in June 1983. In their travels about the country Ministry officials took time to interview experienced chummers on a number of islands in atolls between Raa and Meemu. It was from these interviews that the material for this article was drawn. However, with livebait pole and line fishing being conducted from nearly 200 islands spread over the length and breadth of the country, each with its own local reef systems and fishing preferences, only a very generalized account of the commonest species can be given here. Scientific identification of baitfish species requires that specimens are secured; in a few cases this has not been possible, and so only tentative identifications are given.

## Rehi and Hondeli

Rehi is the Divehi name for the silver sprat *Spratelloides gracilis* (family Dussumeriidae). Seen from above this fish appears dull green, but it has a broad reflective silver stripe on each side. A moving swarm of rehi in shallow water scintillates as different fish turn and catch the sunlight. Rehi can be found all year round but it is most abundant during the southwest monsoon. It is widely considered to be a very good baitfish, and on some islands to be the best. In season it is common, occurs in large schools in relatively shallow water, and so is quite easy to catch, and makes good chum. The only major problem with rehi is that it is very delicate, the fish tending to die very quickly in captivity. Rehi cannot be stored overnight, and indeed greater numbers of this species must be caught each morning than is necessary for most other baitfishes to offset this rapid loss.

Hondeli is the blue sprat *Spratelloides delicatulus*. It is closely related to rehi and very similar in many respects. Its general appearance is very much like that of rehi, but it is dark blue dorsally and though its sides are silvery like most sprat-like fishes, it lacks the broad reflective stripes. It is found most often during the southwest monsoon, although it is not as common as rehi. When present, hondeli is found in large schools in shallow water, often even shallower than rehi, and is relatively easy to catch. It makes good chum and is overall considered to be a good baitfish. However, like rehi hondeli suffers from high mortality in captivity.

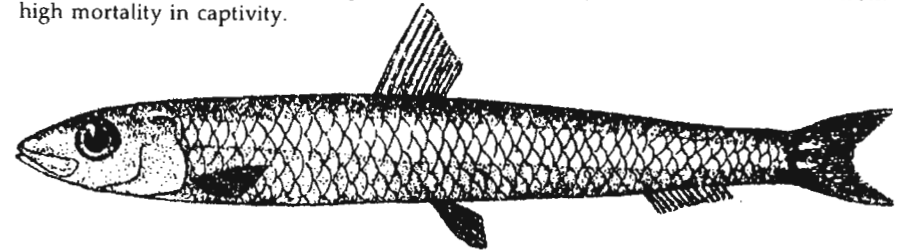


FIG. 1. REHI (*SPRATELLOIDES GRACILIS*)

## Muguraan

There are several species of muguraan. Most chummers recognize between four and six types, each type frequently being given a different name in different atolls, and sometimes on adjacent islands, thereby creating much confusion. Most types of muguraan are juvenile fusiliers (Caesiodinae, Family Lutjanidae). The species involved appear to be *Gymnocaesio gymnoptera*, *Pterocaesio pisang* and *Caesio coeruleureus* as well as *Caesio chrysozona* and *Pterocaesio tile*. The superficially similar *Dipterygonotus leucogrammicus* (F. Emmelichthyidae) is also called muguraan by Maldivian fishermen.

Muguraan are widely considered to be very good baitfish. In areas where rehi and hondeli are usually unavailable, muguraan are often considered the best bait. In the Northern atolls they appear to be most commonly available during the northeast monsoon, but in the southern atolls it is reported that they are most abundant during the southwest. To capture muguraan scraped fish fillets must be used to lure them over the

lift net, and swimmers are often employed as well to drive them into position. While the bait net is usually deployed with long poles tied to at least the outermost two corners, in fishing for muguraan the net is sometimes suspended by four ropes beneath a floating frame constructed of poles and the sailing boom.

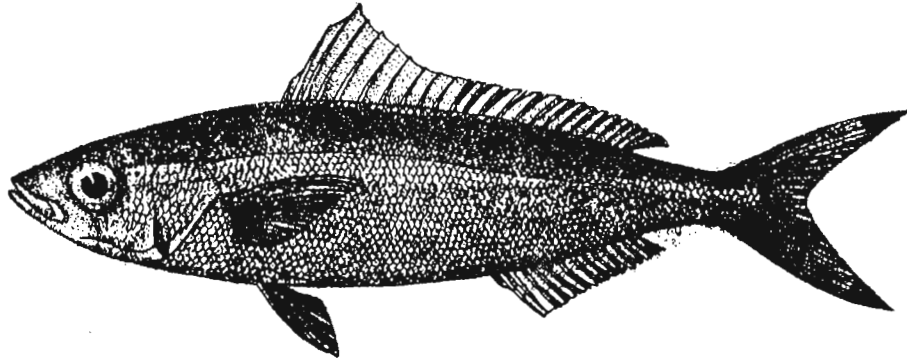


FIG. 2. MUGURAAN (SUBFAMILY CAESIONIDAE)

### Boadhi and Fathaa

There are several species of boadhi and fathaa. All are cardinal fishes of the family Apogonidae, species of the genera Archamia, Apogon and Paramja being the most important as livebait. As a broad generalization, red coloured species which live on coral reefs are called boadhi, while pale coloured cardinal fishes which live in lagoons are called fathaa. Boadhi are widely used as livebait, and on some islands are considered to be the best available. On a few islands, however, boadhi are either unavailable or are considered to be poor chummers, and so are not taken. In different atolls boadhi are commonest in different seasons depending on the particular species caught. They are usually very difficult to catch because they tend to live in deep water and shelter under or inside corals.

In Lhaviyani atoll boadhi have always formed a major part of the bait catch, and the fishermen there are renowned for their deep diving skills. In some other areas, boadhi have only become important as livebait since the introduction of diving masks. The collection of boadhi is often a very destructive procedure, in which the fishermen break the corals in which the fish are hiding, thereby forcing them out into a waiting net. Fathaa are similar to boadhi in many respects, but tend to be rarer and so they are not used very often.

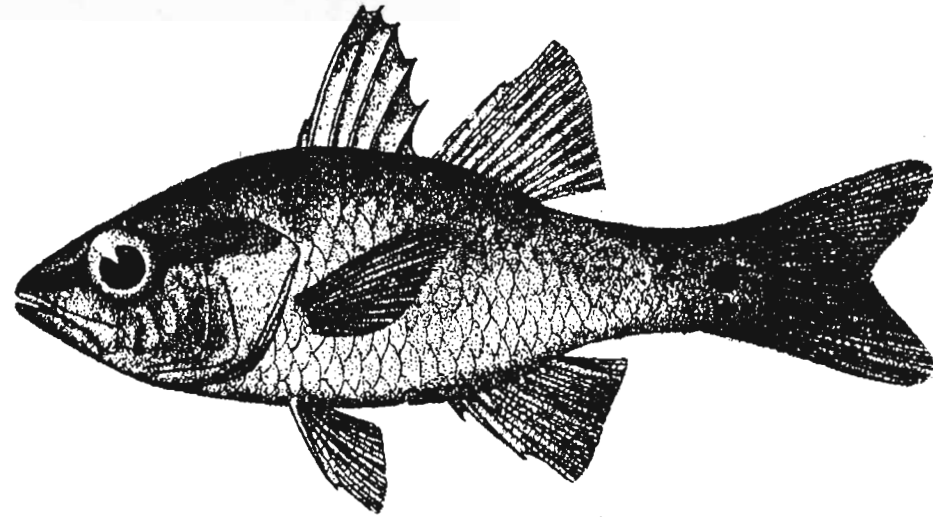


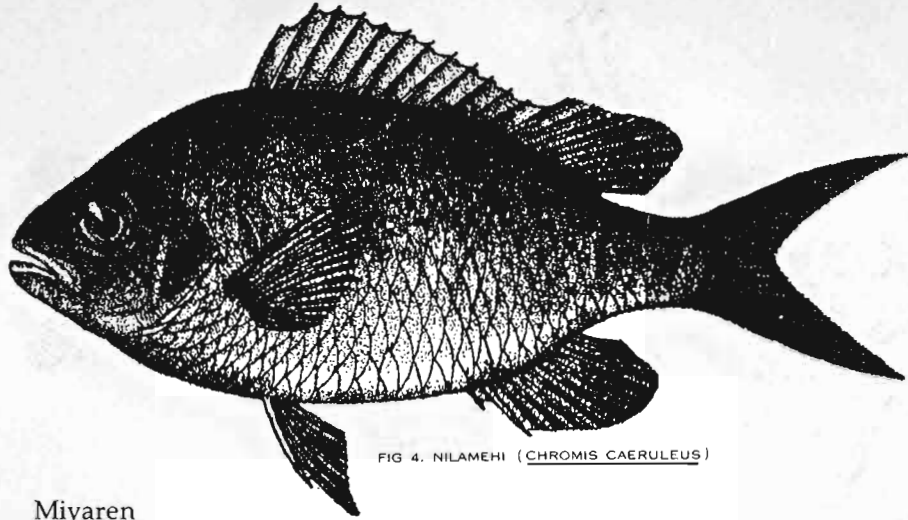
FIG. 3. BOADHI (F. APOGONIDAE)

### Bureki

There are two types of bureki: The name most commonly refers to Lepidozygous tapeinosoma (F. Pomacentridae). It is also used to refer to the butterfly perches of the Family Anthiidae. L. tapeinosoma is rare or absent from the reefs around many islands. Where it is present it can be found all year round, although it seems to be caught most frequently during the northeast monsoon in the northern atolls. It is a very hardy fish, surviving long periods in the baitwell and lasting over two weeks if kept in a baitbox or net enclosure. Bureki make very good chum, but if fresh and too active may be squeezed by the chummer before being thrown into the sea in order to slow them down.

### Nilamehi

Nilamehi is the Divehi name for the blue puller Chromis caeruleus (F. Pomacentridae). Nilamehi is generally considered to be a baitfish of secondary importance. The main reason for this is that it is difficult to catch in large quantities, for although it occurs in shallow water it is usually only present in relatively small numbers and once disturbed quickly takes cover amongst the corals. On some islands special small-sized nets are used to catch nilamehi between the coral outcrops. In most cases fish paste will be used to lure them into position, or the corals around which they are sheltering will be broken in order to drive them out into the waiting net. Although relatively few fishermen bother to catch nilamehi because of the effort involved, those that do find it a very hardy and useful bait.

FIG 4. NILAMEHI (CHROMIS CAERULEUS)

### Miyaren

According to Munch-Petersen (A preliminary survey of the Fisheries in the Maldives 1978) miyaren is the dhivehi name for the Indian anchovy Stolephorus indicus (F. Engraulidae). It has a localized distribution, being unavailable near many islands, and even in those areas where it is found it is usually only common for a period during the northeast monsoon. Furthermore, it is a delicate fish and cannot be kept for any length of time. For these reasons it cannot be considered a baitfish of major importance. Nevertheless, when it is available it is often present in huge numbers, allowing baiting to be completed very rapidly, and it is acknowledged to be an excellent baitfish for attracting tuna.

### Gumbalha and Thaavalha

Gumbalha (Sardinella, F. Clupeidae) and thaavalha (F. Atherinidae) are baitfish of minor importance. Gumbalha seems to be found only in the northern atolls, while thaavalha is more widespread. They are not particularly good baitfish for often when used they cause the tuna to stop feeding. Most fishermen believe this is because, with their hard scales, they are relatively undigestible. A few fishermen think that they are poor bait because they do not swim back to the boat when chummed, or because of local hydrographic peculiarities. Despite their poor chumming characteristics many fishermen will use these baitfish, especially thaavalha, during periods of the northeast monsoon when other bait are unavailable and fishing is concentrated on drifting logs. The tuna congregated under such 'drifts' are often ravenously hungry and will eat anything, including these relatively unpalatable species.

Charles Anderson and Ahmed Hafiz  
Marine Research Section  
Ministry of Fisheries

