Democratic Yemen Fisheries: Cuttlefish and Sea Cucumber

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Cuttlefish form the largest fishery in the coastal waters of Democratic Yemen, especially in parts of the eastern coast called Ras Fartak about 1,200 km from Aden. Of the nine occurring species of cuttlefish, *Sepia pharonis* is the commercial variety, found in waters ranging in depths of 10 to 80 m.

Cuttlefish bring in the most revenue to Democratic Yemen because of the enormous stock estimated at 100,000 t, which can yield an annual supply of about 10,000 t valued at US$2,700/t export value.

Fishing Season

The fishing season for cuttlefish is during May to November. High catches per unit effort have been realized from May to June and again from September to November, the latter season yielding cuttlefish of a large size.

Overfishing

The average length and weight of cuttlefish landed in Democratic Yemen during 1970 to 1976 were 24 cm and 1,420 g, respectively. Owing to overfishing of this species in recent years, the cuttlefish have become smaller; for example in 1983 the average length and weight were 18 cm and 600 g, respectively. Also the quantity of cuttlefish landed decreased considerably. From a peak of over 15,000 t in 1977, catches have declined to less than 3,000 t (see table).

Total catch of cuttlefish in Democratic Yemen during 1967-1983.

Year	Catch	Year	Catch
1967	3,800	1975	6,190
1968	5,600	1976	15,160
1969	5,690	1977	15,500
1970	3,830	1978	5,090
1971	5,820	1979	8,820
1972	9,190	1980	8,330
1973	6,360	1981	2,692
1974	8,170	1982	2,100
		1983	2,700

Foreign Collaboration

Cuttlefish were first spotted in Democratic Yemen in 1966 by the Japanese trawlers of Nichiro Gyogyo Kaisha Ltd. Company. The production began with 3,800 t in 1967 and the Nichiro Company entered into a special agreement with the Government of Democratic Yemen in 1969. From 1972 onwards cuttlefish were also harvested by local trawlers and those of the Yemen-Soviet Company. By 1977, when the maximum harvest was reached, twenty vessels operated compared with only eleven vessels in 1972. In 1978 the Taiyo Company from Japan joined in the harvest of cuttlefish. Over the three years 1979 to 1981, the number of vessels increased to 35 and the catch decreased dramatically.

The decrease in catch can be explained by the following:

1. The fishing grounds for cuttlefish in Democratic Yemen are limited.

2. Too many vessels put into operation cause damage to the seabed.

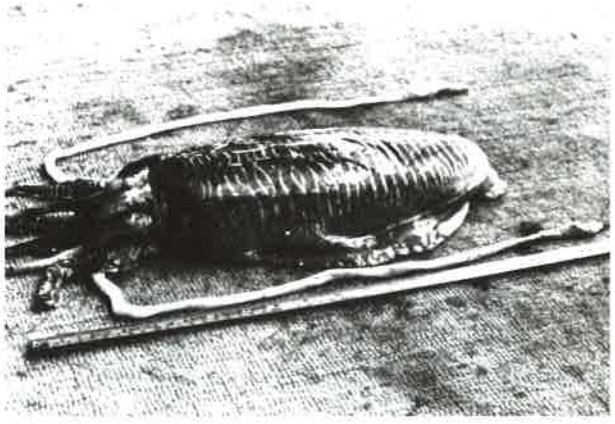
3. Cuttlefish carrying eggs were caught in large numbers.

4. Small cuttlefish were also caught because of the small cod net size of 85 mm.

Towards the end of 1981, the Ministry of Fish Wealth passed the following resolution to preserve the valuable species:

1. Not more than 18 vessels should operate at a time.

2. During the period when cuttlefish carry eggs, there should be no fishing.



(Left): Cuttlefish. *(Below):* Modern vessels for fishing cuttlefish in PDR Yemen.

3. Well before the fishing season starts, the annual catch for the year should be decided on, and overfishing should be avoided at all costs.

Difficult Days Ahead

Japan seems to be the best market for cuttlefish in the world; all the cuttlefish produced in Democratic Yemen are exported to Japan. Now that some other countries, such as Argentina, New Zealand, Canada, Thailand and Japan, have begun harvesting cuttlefish, Democratic Yemen has to compete successfully with them in the export of this product, which is a valuable resource for the Yemen economy.

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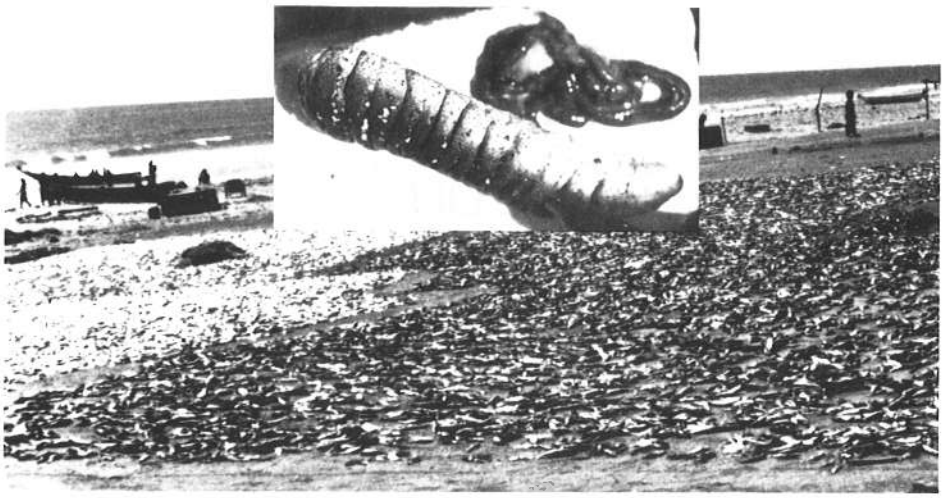

Above: Drying sea cucumber in fishing villages of PDR Yemen. *Inset: Holothuria scabra,* the most abundant variety of sea cucumber in PDR Yemen.

Boiling sea cucumber.

Sea cucumbers, otherwise known as *bêche-de-mer, trepang* or *kadal attai,* are a delicacy of the Chinese people. Aden was one of the major centers of this trade, buying from the Red Sea areas and East Africa and selling to Singapore, Hong Kong and China. Yemeni fishermen diving for sea cucumbers all along the Yemeni coastline contributed to this trade in the past.

The sea cucumber *Holothuria scabra* is the most abundant variety in the People's Democratic Republic of Yemen, being found mostly in the coastal waters of the Gulf of Aden including that of the Island of Socotra. These animals are collected by skindivers in their outboard-fitted *huri* or boats. Previous catches of sea cucumber averaged 200 t/year until 1970. Recently, however catches declined to an average of 30 t/year.

The Yemeni Ministry of Fish Wealth has initiated a program to revive this age-old fishery. FAO came to the assistance by allocating US$85,000 under their technical cooperation program to conduct a resource survey, provide a model processing unit and conduct marketing trials in Singapore and Hong Kong.

A consultant with a diver came to Democratic Yemen under this project and a short survey was made. This survey indicated the need for further extensive surveys in selected areas and the assessment of the stocks of commercially important species of sea cucumber.

Now Democratic Yemen is striving to enter the Singapore market with its quality product. The news that India has temporarily banned the export of this product due to conservation measures has given extra impetus to Democratic Yemen to develop the Singapore market. •

The Second International Symposium on Genetics in Aquaculture

University of California, Davis
24-28 June 1985

The Second International Symposium on Genetics in Aquaculture was attended by about 175 people. The University of California, Davis, organized things very successfully. The meeting lacked some of the "spark" of its predecessor, held in Galway in 1982, but this was probably because the interactions between research groups at Galway were the first of their kind. The various groups have now "staked their claims" to various research areas and many are engaged on long-term programs.

The bulk of the papers presented and the posters displayed concerned mainly coldwater species; only 10 out of 87 contributions could be said to be really warmwater aquaculture genetics. There were seven general papers (principles/methodologies), 12 on bivalves, three on crustaceans, two on algae, nine on miscellaneous finfish, four on carps, six on tilapias, and 34 on salmonids. There were only five developing-country participants.

The coldwater bias did not detract from the value of the meeting as much as might be assumed. The salmonid, catfish, and carp data continue to provide a strong case for research support for genetic improvement in aquaculture and good working models for breeding programs. However, it is high time that tilapia and other warmwater fish breeders made a stronger showing, especially as their fish generation times are much shorter.

The general conclusion was that family selection programs can be very successful for fish. The advances in chromosome manipulation techniques were also impressive. Triploid and all-female trout ova are now routine in seed supply in the UK trout industry. For gene banks, the techniques of androgenesis (destroying the genetic material in an egg; fertilizing with a normal haploid sperm and then suppressing nuclear division at first cleavage) was hailed as a possible means of retrieving diploid genotypes from cryopreserved sperm banks. In general, high levels of heterozygosity and high proportions of polymorphic loci were felt to be positively correlated with high growth performance.

At the business meeting of the symposium, an International Association for Genetics in Aquaculture (IAGA) was formed, which many duly joined (US$10 fee) to "seed" future meetings.

Dr. Trygve Gjedrem was elected President and the next meeting will be in Trondheim, Norway, in 1988. The warmwater Association Board Member is Dr. Gideon Hulata and the coldwater one Dr. Gary Newkirk. **R.S.V. Pullin**