The squid fishery in crisis

Eastern Cape fishermen have reported some of the lowest squid catches on record.
Claire Attwood investigates . . .

Low catch years are nothing new to the squid fishery. Indeed, the low catches in the 2001 fishing season come as no surprise to many fishers who have participated in the industry for several years.

According to Jim Tucker, chairman of the South African Squid Industrial Association (SASMIA), 2001 has been “an incredibly bad year, probably the worst ever.” But, he says, fishing is like farming and people who have been in the business for as long as he has are used to bad catches.

Veteran squid fisher Greg Christy, concurs, saying that the squid industry appears to be suffering from a severe case of memory loss. “We are facing a typical phenomenon in the squid fishery,” says Christy. “The squid have just disappeared. This has been happening in this fishery since it started in the early eighties.”

Christy cites several examples, saying that in 1990 catches went from an all-time high of 9,500 tons to 2,187 tons. In 1992 catches once again plummeted to 1,970 tons and in 1997 catches fell to 2,378 tons.

According to oceanographer, Mike Roberts of Marine and Coastal Management (M&CM), it is still too early to declare 2001 a low catch year because most of the annual catch is caught in the second half of the year. However, analysis of environmental data and catch trends points towards sub-average catches for 2001. These low catches come after three years of good, stable catches with an annual catch of between 6,500 and 7,000 tons.

“Attitudes of fishermen and boat owners have adjusted to these levels,” says Roberts, partially explaining the alleged memory loss on the part of the fishing industry.

But if the squid fishery is known to be susceptible to highly erratic fluctuations in catch, why is the plight of squid fishers hitting the headlines of Eastern Cape newspapers and why are fishers themselves talking about a “crisis” in the fishery?

Overhasty transformation

Tucker puts it bluntly when he says that the redistribution of squid licenses since 1998 has hurt the industry’s ability to withstand low catch periods.

Tucker is referring to the shake-up that occurred in the squid fishery between 1998 and 2000, when the number of permits that were allocated to existing companies was cut by between 30 and 40 percent in a government initiative to open new opportunities for black-owned businesses.

What followed was a scramble for joint venture partners, a brisk trade in licenses and, in many cases, smaller businesses taking on bigger debt burdens in order to make their businesses pay.

A simple example of the impact of what is being described as the “overhasty transformation” of the squid fishery is that of a small squid boat with 14 licenses.

In 1998 when four of these licenses would have been issued to new entrants, the established boat-owner would have had to buy an additional four licenses, probably at high cost because many boat-owners would have been in this predicament. This would probably have meant that the boat-owner would have had to incur a debt, in all likelihood on top of existing debts.

Financial difficulties

Christy explains. “Over the years the industry has changed from a small ski-boat fishery to a fishery consisting of freezer vessels with a price tag of between R1.7 million and R3.5 million. This change was the result of the strict quality control imposed by the European Union.

In 2001 there is large investment in vessels and participants are feeling the financial strain as banks are (threatening to) repossess.”

He adds that the poor season has impacted heavily on new entrants, many of whom have bought shares in vessels or companies and are not going to see any return on their investment.

“Many new entrants who received rights in 1998 and 1999 have not applied for rights during this round of allocations and have instead focused their resources on the more lucrative species,” Christy concludes.

There is no question that the low catches are hitting the industry hard. Financial institutions report that credit has begun to be restructured as boat owners struggle to make repayments and require finance to maintain livelihood and vessel operations.

Harbour masters report that payment for fuel accounts is falling behind. And, unhappily, the crisis comes at a bad time, with fishers uncertain about the outcome of the current round of rights allocations. Tucker captures the current mood in the squid industry when he says: “everyone’s feeling very fragile at the moment.”

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Scientists link poor squid catches to El Niño

The squid fishing industry and fisheries scientists are divided over the reasons behind the low catches of squid that are being made on the East Coast.

Both parties agree that prevailing winds and water temperatures over the past few months have played a central role in the depressed fishery. Oceanographer, Mike Roberts, offers a global perspective on the fishery, saying that it is well known that the life cycle of squid is strongly influenced by the environment, and more importantly, changes in the environment. He says that numerous studies on squid species around the world have demonstrated the direct relationship between squid availability and weather conditions. And, he adds, there are several aspects of the environment on the Agulhas Bank that influence the lifecycle of Loligo vulgaris reynaudii, and thereby impact on catches.

**Water temperature**

The most prominent factor is water temperature and Roberts is able to show, very convincingly, that poor catches in the squid fishery tend to coincide with warm water events. Although this relationship has not been statistically tested and there have been some exceptions — notably the good catches of squid that were made in 1991. Roberts’ oceanographic research shows the correlation between warm water and poor catches very clearly.

Why this relationship should exist is difficult to say. In terms of eggs, it means cooler temperatures on the inshore spawning grounds and slower embryonic development. Lower monthly mean temperatures also imply more coastal upwelling events. It has been shown that squid spawning off the Tsitsikamma coast are triggered by the sudden drop in bottom temperatures from 19°C to 14°C. It seems that, given minimal levels of turbidity on the seabed, upwelling events may be a cue for initiating spawning aggregations — and therefore catches, since the best catches are made above spawning aggregations.

The cyclical nature of warm and cold phases suggest that the eastern Agulhas Bank should be going into a warm phase, with an associated period of poor catches. This is supported by the Climate Prediction Centre, which predicts that the tropical Pacific will move into a warm El Niño phase that could last through to early 2002.

And although El Niño is a Pacific Ocean phenomenon, Roberts has demonstrated that the effects of warm and cold phases in the Pacific region can be seen on the regional marine climate of southern Africa. El Niño events typically depress the summer easterly wind dominance and therefore coastal upwelling.

**Over-fishing**

Environmental conditions aside, Roberts is equally certain that an increase in fishing effort over the past three years has also impacted on the resource. Although this hypothesis is disputed by fishers, it is strongly supported by Rhodes University researcher, Dr Warwick Sauer. Dr Sauer lists several factors that he believes have combined to increase the fishing effort in the squid industry. These include:

- the illegal over-manning of squid boats to the order of between 25 and 50 percent;
- an increase in the size of the squid fishing fleet owing to the commissioning of new vessels;
- improved fishing methods — including the deployment of “parachutes” as drogues to reduce vessel drift and lights to attract squid in the surface layer, which allow fishers to fish more efficiently in deep water.

**Over-manning**

The over-manning of vessels is probably the single biggest threat to the resource. Fishers are quick to point out that the government’s transformation drive — which resulted in many established
SQUID RESEARCH IS BACK ON TRACK

Criticism around a lack of scientific research into the squid resource appears to be exaggerated, although scientists concede that the lack of a squid biomass index over the past four years (including autumn 2001) has proved problematic for the industry.

A leading figure in the squid fishery, Greg Christy, says that researchers can only speculate about what is causing the current low catches because they lack vital biomass data.

Research cruises have been limited by the non-availability of the Marine and Coastal Management (M&CM) research vessel, Africana.

The Africana suffered a number of serious engine breakdowns between 1998 and 2001, but a recent overhaul of the vessel has seen her restored to her position as flagship in the M&CM fleet.

“It is very convenient to say that the resource has been overfished but unfortunately the scientific research over the last four years has been sadly lacking and any decisions regarding this resource would be wild speculation (and) cannot be substantiated,” said Christy.

Dr Warwick Sauer of Rhodes University agreed that no squid biomass estimates had been calculated in recent years, but says that biomass estimates were only one tool that scientists used to gain a better understanding of the status of the resource.

He said that, in fact, there are several studies into the resource being conducted by both Rhodes University and M&CM. These include:

- studies on spawning concentrations of squid;
- a GIS study which aims to provide a better understanding of squid movement patterns;
- a genetic study of squid to be carried out by researchers from London University.

Dr Sauer added that the Africana was conducting a south coast hake survey at the time of going to press and researchers on board the vessel would gain a fair idea of the status of squid biomass during the cruise.

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