



The Plight of the Osfish, or Why Quantitative Sophistication is No Substitute for Asking the Right Questions

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Recently a marine biologist named Bert visited a small group of tropical islands to interview traditional fishers. He had been asked to find out what they knew that might be of value to marine resource managers.

Bert was lucky to have as his interpreter a highly motivated and capable local fisheries biologist named Ing, who had worked as a researcher in the islands' Fisheries Department for some years.

Ing was skeptical about what could be learned from such interviews; his Department had already systematically interviewed large numbers of the islands' fishers. Nevertheless, the two biologists set to work, Ing skillfully translating Bert's questions and the fishers' answers. And to Ing's surprise and pleasure, he soon found he was learning new things from the fishers about his islands' fish and fisheries. As his interest in the interviews grew he gradually assumed the role of

co-interviewer, rather than just interpreter.

Mixed with the satisfaction Bert and Ing were getting from their work, however, was a growing feeling of unease as they progressed from island to island. A disturbing pattern was emerging from the information fishers volunteered concerning osfish.

Fisheries Department catch data gathered several years earlier showed that osfish were the single most important food fish in the islands, accounting for about 20

per cent of the total catch of shallow water fish. And for centuries the islands' fishers had known that every full moon, osfish migrated from the big central lagoon, across the shallow reef flats at certain specific locations, and along the outer reef drop-off where they would spawn. Several days later the fish migrated back into the lagoon.

But as Bert and Ing interviewed fishers near each location where the osfish schools crossed the reef flat on these migrations, they were told a similar depressing story. Sometime within the past thirty years, each spawning run had dwindled, then ceased altogether.

In some cases solid causeways built across reef flats to link islands had blocked migration routes. But two of the biggest and most famous runs had been destroyed by fishers who flocked at full moon to the spots where migrating osfish moved through narrow shallow passes between islands. They had placed gillnets, which had been introduced to the islands in the 1960s, across these passes decimating and finally completely destroying the runs.*

By the time Bert and Ing had reached the last of the inhabited islands in the group, fishers had told them about six different spawning migration pathways for osfish, and that all six runs had ceased completely.

The last island they visited was the furthest one from the main population center where the bulk of the islands' fishers were concentrated. Bert and Ing learned from fishers living on the last islands that a seventh spawning migration pathway for osfish existed nearby and that this spawning run had not yet disappeared.

According to the fishers, however, the behavior of the migrating osfish was

*This would almost certainly have been prevented if customary marine tenure had still operated in the islands; local owners of the reef flats over which the spawning migrations passed would have prevented other fishers from depleting the runs. But the customary marine tenure system that once governed all fishing activities in the islands had been destroyed. Many years ago the islands' colonial rulers had decided that the system was primitive and not in keeping with the western principle of Freedom of the Seas. Although the country was now independent, the Fisheries Department had not seen it fit to try to persuade government leaders to restore the customary marine tenure system. So the local fishers watched helplessly as the local spawning runs dwindled and disappeared.

changing in the same way it had changed at the other six migration sites shortly prior to their disappearance. In the old days the fish had migrated unfailingly each month in two or three huge schools. Now they were migrating past in a larger number of much smaller schools, and sometimes the runs did not come for several months in a row.

Since fishing was carried out throughout these heavily populated islands, it was highly unlikely that any other spawning runs of osfish persisted unknown to fishers. Thus it appeared almost certain that the spawning run of osfish was on the verge of vanishing, and that what had been the most important single food fish in the islands was thus possibly on the edge of local extinction.

Ing and Bert promptly reported their findings and a plan was soon put together to work with local fishers to try to save the last remaining run of osfish. It remains to be seen whether these efforts, which began only recently, will succeed. But there are already some useful lessons to be learned from these events.

Before Bert and Ing's interviews, the Fisheries Department had been vaguely aware that certain spawning runs of osfish had been depleted. However, the Department had no idea of the seriousness of the problem, despite extended interviews with many times as many fishers as Bert and Ing had interviewed. The reasons for this are instructive.

The Fisheries Department interviews, following standard fisheries research methodology, were conducted with randomly selected fishers. The problem with this approach was that the great majority of the fishers in this developing country, with a population age structure skewed strongly to the left, were very young. Consequently, they had scant knowledge of the past history of the fishery in which they were engaged.

The most knowledgeable fishers about such things were, naturally, the old ones, many of whom did not even fish anymore and did not qualify for the Fisheries Department interviews. Bert had insisted on seeking out and interviewing older fishers, especially those with local reputations as experts. His selection of fishers was anything but random.

Thus, Ing learned that random sampling

of fishers for interviews has serious shortcomings as a means of investigating the history of undocumented fisheries.

Another point that Ing noticed was the way in which the Fisheries Department interviews were carried out. They were based on questionnaires. Such an approach is fine for obtaining information on predetermined subjects. But it is a very poor device for uncovering information on important subjects concerning which the questionnaire-maker is unaware. (Such subjects often abound in poorly documented, small-scale multispecies fisheries.) Even if some fishers interviewed by the Department had been able to comment on the plight of the osfish, it is doubtful if they would have done so because there was no appropriate question in the questionnaire to elicit such information.

Ing concluded that if you want to uncover valuable local knowledge from fishers, conduct the interviews flexibly so that the fishers are allowed to take the interviewer in whatever direction their particular knowledge and concerns lead.

The final overall lesson that Ing learned from this is that rigorous quantitative research methodologies, albeit powerful tools, are the wrong tools for collecting certain important types of information. A fisheries research program that relies entirely on such approaches runs a high risk of cutting itself off from such information.

Postscript

For some time Ing had been planning to return to graduate school overseas to do his Ph. D. thesis on - by pure coincidence - the biology of osfish, a species which is found in tropical waters throughout the world. After the events related above, Ing decided to alter the focus of his thesis research to the ethnobiology of osfish, with research to discover and test traditional fishers' knowledge about it.



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