Importance of understanding fishery dynamics

There used to be a Fishing Technology Specialist Working Group (FTSWG) in the Scientific Committee of the WCPFC (Midwest Tuna Conservation Commission) that collected information and conducted research on fishing gear and methods, but it disappeared before we knew it. The objective of this division was to understand the actual state of fisheries, and ultimately to conduct stock assessments that reflected the changing state of fisheries. While the development of resource assessment models and analysis methods has progressed, there are fewer opportunities for researchers to experience the actual fishing industry. For example, there are fewer opportunities to go out for local markets research or to board a commercial fishing vessel and experience the actual situation. FTSWG was a unique group that was not found in other international tuna resources conservation organizations, and I felt sorry that it was disappeared, providing valuable information even for researchers who have fewer opportunities to directly interact with the actual state of fisheries. Fisheries industry has changed significantly, for example, the spread of deep-line fishing, in which hooks are set deeper than before in long-line fishing for bigeye, and the spread of FADs (artificial fish aggregation devices) in purse seine fishing. With these new fishing methods, fishing efficiency has increased significantly. However, bigeye tuna resources, which are caught by longline fishing for adults and purse seine fishing for immature fish, have been the most affected and have been a major challenge in resource management. Since new fishing methods spread rapidly in a short period of time, resource assessment and management tend to follow suit, which makes the problem worse, so it is necessary to grasp accurate information as soon as possible. This article touches on the reasons for the delay in grasping accurate information and countermeasures.

Why accurate information is grasped late

The reason can be briefly explained as follows. Since new fishing methods are more cost-effective than conventional ones, the fishermen who came up with them share information only among themselves and rarely disseminate information to the outside, so it takes time to grasp the information. In addition to such circumstances, resource researchers who have few opportunities to see the fishing site have difficulty grasping the qualitative and quantitative characteristics of the new fishing method. Furthermore, if the analysis takes time or the research on it is not a high priority, the initiative is put off. Since the government obtains information from fishermen and researchers, the response is even slower, and it also takes time to coordinate the intentions of the relevant parties regarding the response to the new fishing method. Looking at the examples of the ban on large-scale drift nets in

the high seas, one of the major factors that led to the ban was that information on bycatch organisms such as seabirds, sea turtles, and dolphins caught in drift nets was not obtained through drift net fishermen, and effective measures could not be implemented in a timely manner. However, before the drift net problem occurred, it was known to some that bycatch of sea turtles and other creatures was sometimes recorded in the tuna longline operation records of fisheries research stations and training ships of fisheries high schools. If the collection of information and research on bycatch organisms in tuna and billfish fisheries had started at that time, the situation might have been different.

Unfortunately, it was only after the ban on large-scale drift nets in the high seas that specialized laboratories on bycatch organisms were established. It is regrettable that efforts on this issue were delayed, as excellent research is being conducted in laboratories on bycatch organisms.

Ensuring transparency of scientific observers

There is a way to utilize scientific observer information to improve the situation described above. Scientific observers are people with specialized knowledge who board fishing vessels to collect detailed information on fishing methods and catches. Scientific observers are mainly on board longline and purse seine, which are the main tuna fishing methods. For example, the WCPFC (Midwest Tuna Conservation Commission) has WCPFC-certified observers on board all large oceangoing purse seine vessels. On the other hand, for longline fishing vessels, which have a large number of fishing vessels and include many small vessels, the coverage rate is quite low, and observers selected

vessels, the coverage rate is quite low, and observers selected according to Japan's own standards (which meet the WCPFC data submission standards) are on board. However, in order to obtain accurate and transparent information, it is important to have as many observers on board as possible, even on longline vessels, and to strictly check whether the observers are performing their duties correctly.

Utilizing video recording at the time of landing

Currently, there is a method called EM (Electronic Monitoring), which records video at the time of landing, which is being attempted and tried in some areas of longline fishing. This initiative is mainly used for two purposes, one is to reduce manpower when small boats or small-scale fisheries do not have the space to accommodate scientific observers, and the other is to assist scientific observers who tend to be overworked With EM. Cameras are attached to several places on the boat and automatically record the situation at the time of

landing, and later, analysts on land can use the images to identify the species of the catch and bycatch and measure their size. However, there are many issues to be addressed in the future regarding the introduction of EM, such as who will manage and analyze the obtained data and how, and issues regarding the installation and maintenance of the equipment. And although it may become a powerful method in the future, it will likely take some time before it is generalized.

Information exchange and sharing of awareness of problems among stakeholders

The two methods mentioned so far (scientific observers on board and EM) both have several problems, and it seems difficult to solve them quickly. One possible solution is to make a steady effort to understand the actual situation by sharing information about the fishery among stakeholders and take measures. In relation to this, meetings of fishermen, researchers, the Fisheries Agency, etc. have been held before each international conference of Regional Tuna Management Organizations (RFMOs) to exchange information and discuss necessary measures.

However, at these types of conferences, discussions tend to be limited to responses to the conference at hand, and issues related to the entire fishery are not necessarily addressed. In the past, there were opportunities for stakeholders to gather together and discuss issues and measures related to the entire fishery, not just for specific conferences. Why not create such an opportunity again to exchange information among stakeholders, raise issues and freely discuss solutions? For example, in the case of Pacific bluefin tuna, the introduction of TAC and IQ has changed the existing fishery, making it impossible to use the resource abundance index that has traditionally been used for resource assessment, and facing new problems such as estimating the amount of discarded fish. There have also been lawsuits over the falsification of catches and quotas. However, such problems inevitably arise to some extent whenever new fishery management is introduced, and they have been overcome in resources that have been successfully managed. Although the management of this resource faces these problems, the resource is currently recovering at a faster pace than expected. With the recovery of the resource now almost certain, I believe that it is time to act now for the government, fisheries industry, and researchers to build even greater mutual trust and respond appropriately to the current issues.