SOUTHEAST ASIAN BLACK TIGER BROODSTOCK FISHERIES IMPROVEMENT SUMMARY

This project resulted in:

- Introducing the ASIC Fish protocol to key producers of Black Tiger Prawn broodstock in western Indonesia and southern Vietnam
- The collection of information about the two fisheries, which seem to have limited local documentation
- Engagement with fishermen in western Indonesia resulted in them, along with their local departmental fisheries officials, committing to a new improvement strategy, catch documentation program, and the establishment of regular meetings between industry and government
- Engagement with fishermen in southern Vietnam resulted in greater understanding of the status of the fishery and the identification of a FIP candidate. Meetings should continue in order to more towards the generation of an improvement plan.
Broodstock fisheries are aimed at capturing live, adult animals to be transferred to hatcheries for use in the production of larvae for grow out in extensive shrimp aquaculture farms. The animals are highly valuable and need to be subject to low levels of stress in order to reduce post capture mortality.

Figure 1 Black Tiger Prawns stored in coolers

Black Tiger Prawn are sought after as a premium shrimp product and the industry relies on wild caught broodstock to produce seeds for culture. Currently, some shrimp fisheries are considered “Overfished” by the FAO but very little actual sustainability assessment information is available for Black Tiger Prawns, especially at the local level.

Wild caught broodstock have some advantages over farmed animals in that they carry the local genetic diversity that increases resistance to disease and other issues associated with farming. In addition, wild harvest is subject to the influences of environmental variability on supply and also the influence of poorly managed fisheries acting on the same stocks. In contrast, selective breeding results in the production of animals with desirable and controllable traits suitable for farming.
GOALS AND OBJECTIVES

The Asian Seafood Improvement Collaborative (ASIC) has been building an improvement standard that would help innovative Black Tiger Prawn farmers be recognized as a Seafood Watch (SFW) “Good Alternative” (Yellow) or "Best Choice" (Green). One of the critical pieces required to realize this goal for extensive Black Tiger Prawn farming is to ensure that the sustainability performance of the fisheries they use for broodstock is known.

Whilst the number of animals taken in broodstock fisheries is far smaller than the number taken in fisheries directed at higher volumes for human food, there is little doubt that uncontrolled exploitation will have consequences at the local level. Attention to monitoring and catch controls is good practice to ensure the sustainability and future of this fishery.

STRATEGY & METHODS

ASIC conducted several field visits to record preliminary information using the ASIC fish protocol to gain an understanding of the sustainability status of the broodstock fishery. Reports were generated from two visits to eastern Aceh, Indonesia (see Map 1) in 2017 and 2018 and from visits to the Ca Mau and Bac Lieu provinces of Vietnam between 2017 and 2019.

Map 1 Location of Lhokseumawe and Langsa in Aceh Province, Indonesia
Interviews with buyers, fishermen, middlemen, and officers as well as visits to holding facilities and a literature review informed ASIC’s deliverables and proposed strategy. The strategy, when implemented, will help these fishermen improve their ASIC Fish performance.

**RESULTS**

The Vietnamese Black Tiger Prawn fishery started about 15 to 20 years ago. Most of the fishing takes place about 25 to 30 km offshore on a sand/mud bottom near the Hon Khoa island group. The fishing vessels are about 15m long or less and crewed by 2 to 3 fishermen. These service the larger vessels (25m) which do the catching and stay out for 6 months or so. There are approximately 40 vessels in the fleet. 60% of the catch value goes to the vessel owner and the remaining 40% is distributed amongst the crew.

Through this field research, we were also able to understand some of the needs and attributes of the Black Tiger Prawn broodstock fisheries in Indonesia. According to fisherman we spoke to, who had been fishing for about 30 years, catches have declined over the last few decades and some species (sharks and red grouper) have all but disappeared. Thai trawlers were once frequent (illegal) visitors but action by the current national minister for fisheries have made a big difference.
These field visits resulted in a few main takeaways:

- Fishermen use trammel nets to catch Black Tiger Prawns, setting them according to the tides, winds, and season. In Vietnam, net mesh size is regulated but length of net is not.

- On average, fishermen catch 10 large (200 g) shrimp per day in Indonesia, or 150,000 females (180-200 g) a year in Vietnam.

- Safety at sea is a big focus and checks are made prior to vessels leaving port.

- Live shrimp are used as broodstock, dead shrimp, surplus shrimp, and bycatch are sold to local market, middlemen, neighbors, or brought home for consumption. Bycatch rates range from 25% to 75% of the total catch weight.

- The catch and shipment process includes removing broodstock shrimp from the net (cut out if necessary to avoid stress) and placed in a foam box with an aerator. They are then brought to the landing site, where the shrimp are transferred to a box with other shrimp according to orders and then transferred to the broodstock dealer prior to transfer to the hatchery.
In Vietnam there have been 4 visits made to date and significant progress. At a meeting in October 2017 ASIC met with departmental officials and one of the owners of a carrier boat which brings the live shrimp from the catcher vessels to the shore. A more recent meeting in March 2019 resulted in a discussion with one of the owners of a catcher vessel. However, we have not been able to meet with fishermen nor their association and we do not yet have sufficient information nor sufficient support to prepare a Fishery Action Plan.

ASIC has proposed that meetings should continue to build trust and make more progress to move forward with an Improvement Plan. The fishery is not large, nor overly complicated, and would be a good FIP candidate. ASIC will continue to explore how to deepen its engagement with this fishery and push for further understanding and improvement.
INDONESIA: FISHERY ACTION PLAN

By implementing and aligning with the ASIC Fish Improvement Tool, ASIC has created an improvement plan for the Indonesia Black Tiger Prawn broodstock fishery. This Fishery Action Plan outlines the data capture, impact evaluation, stakeholder consultation, managements and traceability systems recommended for this fishery to improve.

This plan was discussed at a meeting with the Indonesian fishermen in September 2018. According to this meeting, we were informed that the fishermen and the government had agreed to begin collecting catch data in 2019 and to meet on a regular basis. This is a promising first step and needs to be followed up.

CONCLUSIONS

A major challenge associated with this work is that building trust is an important part of the FIP process. Parachuting foreigners into local fisheries for short term meetings and asking for fishery improvements may not generate the desired progress as it may take a year or more of regular meetings and the establishment of some local capacity before suitable progress is made.

In addition, the ASIC Fish protocol is an entry level improvement system that gets fishermen and others thinking about the need for management. A useful outcome to aim for is the development of a formal fisheries management plan which enables stakeholders to set out the

Figure 4 Bac Lieu harbor
objectives for their fishery, the management measures needed to control catches and other impacts, monitoring/research needs, and licensing rules for access to the fishery.

ASIC is excited to continue to work with these fisheries to ensure the long term sustainability of the broodstock. This will enable Black Tiger Prawns farmers to be recognized as a Seafood Watch (SFW) “Good Alternative” (Yellow) or "Best Choice" (Green), allowing for greater market access, wellbeing, and secured livelihoods.