

## **Myanmar: Making connections and maximising opportunity in aquaculture**

AwF Mission report from Dr Jennifer Cobcroft

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Funding: US Soybean Export Council, Australian Fisheries Research and Development Corporation, and personal

### **Summary**

Myanmar (formerly Burma) was the destination of an AwF mission for Dr Jennifer Cobcroft for 3 months in 2014. She focussed on marine fish larval rearing and hatchery management, and delivered presentations on aspects of Australian research to four universities and to industry groups. Her work included encouraging links between industry and universities, and establishing a framework for the Myanmar Fisheries Federation to develop their first industry aquaculture development plan. Read more...

### **Objective**

The mission objectives were to help the Aquaculture industry in Myanmar through technical assistance in an Asian Seabass hatchery, and in any other way possible, and to learn more about aquaculture production in a SE Asian developing country.

### **Background**

Myanmar (formerly Burma) is ranked third highest globally for inland capture fisheries and tenth highest in the world for farmed fish and marine capture fisheries production (total fisheries over 4.4 million metric tonnes in 2012; FAO, 2014). A substantial 20% of production is from aquaculture, and most of that is in freshwater fish species and crustaceans (shrimp, prawns and soft-shell crab) (Fig.1A). The consumption of fish in Myanmar, 51kg/year per person, is a vital contributor to the nutrition of the local people (van der Pijl and van Duijn, 2012). Census data released in 2014 reports the population of Myanmar is 51 million. There is a high level of acute poverty in Myanmar with an estimated 15 million people affected (30% of the population). Fisheries and aquaculture production are particularly important to provide staple protein for the country as seafood comprises 22% of protein consumed (FAO, 2014), and small-scale aquaculture is an opportunity to improve household nutrition and livelihood.

Motivated by colleagues in Aquaculture without Frontier (AwF), particularly May Myat Noe Lwin, known as Noe Noe (Myanmar Fisheries Federation (MFF), International Network Coordinator) and Prof Kevin Fitzsimmons (University of Arizona), it was a natural choice to spend a 3 month volunteer mission in Myanmar.

### **Activities**

Meeting key contacts and visiting aquaculture production regions was the focus of my first week in Myanmar. Travelling with a delegation from Winrock International (WI) provided introductory insights to the industry, from small-scale to large businesses. Winrock administers the USAID Farmer-to-Farmer Program in Myanmar and Bangladesh. The delegation included Dr Shamsul Kabir

(WI, Asia Farmer-to-Farmer Regional Director), Dr Ai Thanda Kyaw (WI, Asia Farmer-to-Farmer Program, Country Director), Dr Pe Tin (Consultant Nutritionist and Technical Advisor, Htoo Thit Co. Ltd; MFF), U Soe Tun (Myanmar Shrimp Association, MFF), Noe Noe (AwF and MFF), Haim Avioz (Tiran Shipping Ltd, Managing Partner) and Kevin Fitzsimmons (University of Arizona). We visited fish pond farms, a feed mill and processing facility in Shwebo in the Central Dry Zone (CDZ), about 2 hours' drive north-west of Mandalay, small-scale pond culture in Labutta in the Ayeyarwady Delta region (AD), and soft-shell crab and *Pangasius* farms in the Yangon region. In meetings with farmers and business managers, I shared information about aquaculture in Australia with a focus on Barramundi (*Lates calcarifer* aka Asian Seabass). The knowledge shared was appreciated by farmers, who are keen to add another species to freshwater production, particularly one that receives a good price in the Yangon market.

Matching the needs of industry and university sectors to identify areas for increased cooperation was a core thread of my activities in Myanmar. While at Patheingyi University during the first week, interested staff or students were invited to accompany me on the next phase of my mission to work with an Asian Seabass hatchery in Myeik. An enthusiastic Demonstrator, Daw Zin Me Me Nyo volunteered for the challenge immediately. With all of the university approvals in place, Zin Me met me in Yangon four days later, and Noe Noe and Aubrey Winbaw (Technical Manager- Aquaculture, Myanmar, US Soybean Export Council, USSEC) accompanied us to Myeik, in the Tanintharyi Division (Fig.1B).

Manoeuvring between larval tanks in the hatchery, and among the rural traffic (motorbikes, trucks, buses, cars, walking children, road works, convoys and bicycles) on the 4WD journey to and from work, became routine for the next three weeks. United KMK were outstanding hosts. Growout Manager, Shar Nyo, collected us for breakfast each morning, and ensured we had all of the equipment we needed for observing larvae and monitoring hatchery performance. During the three weeks, I conducted training and we ran a trial of alternative feeding approaches for weaning Asian Seabass in cooperation with the Hatchery Manager, Soe San. In addition, we encouraged the acquisition of a water quality meter, a microscope, installation of a handwashing station and footbath to increase biosecurity, and established a whiteboard system for day-to-day tracking of the larval tanks. A full report from the Asian Seabass hatchery technical placement was provided to United KMK and USSEC. United KMK is currently the only hatchery producing Asian Seabass in Myanmar, with production of ~800,000 fingerlings (5 cm) annually. There is strong demand for the seed stock in other parts of the country, and USSEC sponsored my travel to Myeik to assist with technical issues in the hatchery, with a view to increasing Asian Seabass production in Myanmar. United KMK Managing Director, U Khin Maung Kyaw, has been awarded by the President for his company's success in Asian Seabass production.

Marine finfish hatchery research from Australia was presented at Yangon University (9 July), Myeik University (18 July), University of Veterinary Science (Yezin, Nay Pyi Taw; 22 August), and Patheingyi University (1 September), with an average of 100 faculty and students in attendance at each event. In a country with such a large fisheries and aquaculture sector, the tertiary teaching and learning in this field is limited, especially in relation to aquatic animal health and nutrition. The recently announced USAID project "Developing a Sustainable Seafood Industry Infrastructure in Burma (Myanmar)" will go a long way to addressing the gap in aquatic animal health and other tertiary training needs (contact Prof Kevin Fitzsimmons).

Members of the Myanmar Fisheries Federation were my hosts from August to early October. In those two months, I continued to visit farms and hatcheries, providing advice on fish hatchery practices. Dr Pe Tin, U Hla Win, Dr Kyaw Tun Myint, U Soe Tun, and Dr Ai Thanda Kyaw were key contacts in this time, helping make connections between local industry and the assistance I could offer. One very memorable journey was the 12km 4WD challenge from Chaung Tha to Ma Gye to visit the Patheingyi University research station (Fig.2). It will be a great achievement if Mr Min Oo, Head of Marine Science in Patheingyi, can see his vision to re-establish the research station as a teaching and training centre in shrimp and marine fish culture come to fruition. Another project built on the earlier efforts of Lukas Manomaitis to work with MFF to construct an industry Aquaculture Development Plan for Myanmar. With MFF colleagues, we created a framework for the industry to guide this strategic planning process, and anticipate ongoing input from stakeholders to see the plan established.

### **Future Opportunities**

Many opportunities exist for the aquaculture sector in Myanmar, and AwF volunteers can play a vital role;

- engaging with small communities in livelihood projects (for example, US\$3000 can maintain mangrove friendly aquaculture projects in the Ayeyarwady Delta to support 25 families),
- in training small and medium-scale pond farmers in water quality management, feeding regimes and record keeping,
- helping larger companies develop systems for implementing sustainable aquaculture practises with a view to certification,
- working with farmers to understand business accounts,
- providing specialised training in universities,
- supervising or hosting students at an international university,
- providing resources, such as text books or laboratory consumables,
- US\$25,000 to get a research facility back up and running to train local students, address industry research needs, and potentially host international collaborative projects,
- Providing financial support to mobilise more volunteers in Myanmar and beyond.

### **Acknowledgements**

I am very thankful to all of my hosts and colleagues in Myanmar, many of their names are mentioned above (apologies to any I have missed). People from these organisations made this AwF mission a success; the Myanmar Fisheries Federation, Winrock International, United KMK Myeik, Patheingyi University, Myeik University, Yangon University, Veterinary Science University, MyFish (ACIAR-funded project operated by WorldFish and Myanmar Department of Fisheries), USSEC, and USAID. Many thanks to Kevin Fitzsimmons and Noe Noe for encouraging this mission and for sharing your connections with me. Contributions were made to my travel expenses by USSEC and a Professional Development Award from the Australian Fisheries Research and Development Corporation (FRDC).

More 'm' words from Myanmar... market, mildew, mystify, mohinga (delicious), mud, motorcycle, maximise, mist, metamorphose, monsoon, mosquitoes, magnificent colleagues and mates.

## References

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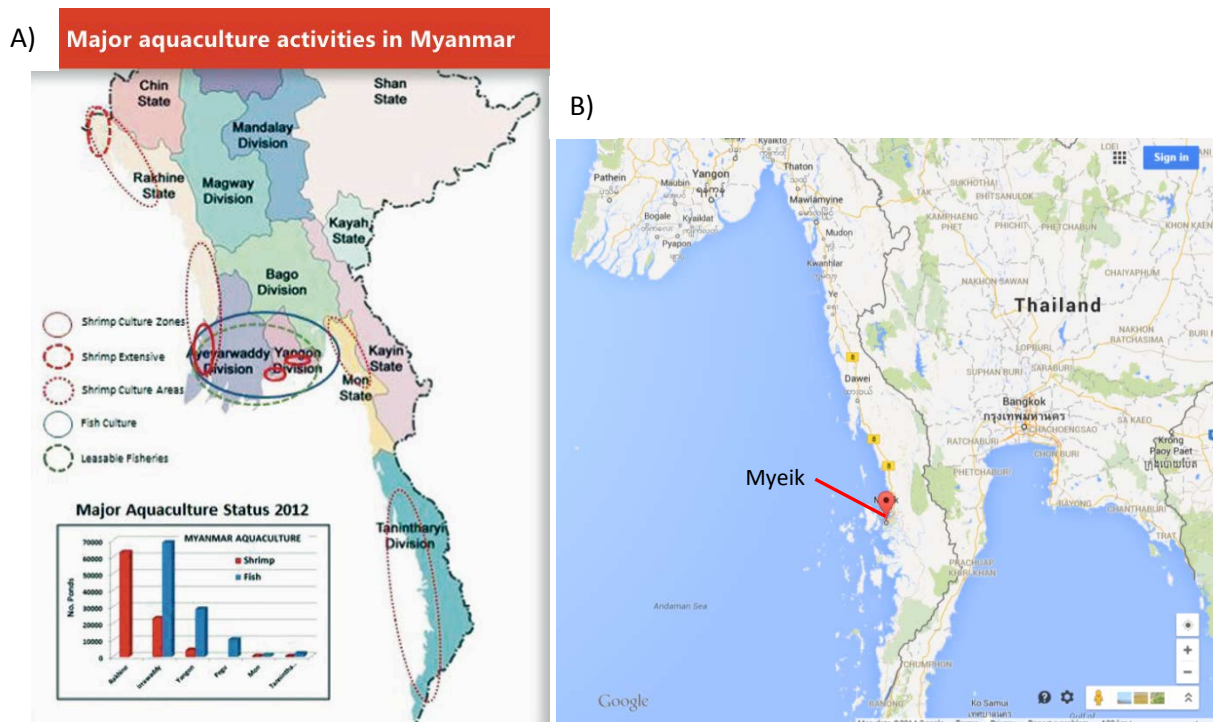


Fig 1. A) Location of aquaculture activities in Myanmar (Taw et al, 2014), and B) Myeik, the location of the Asian Seabass hatchery.

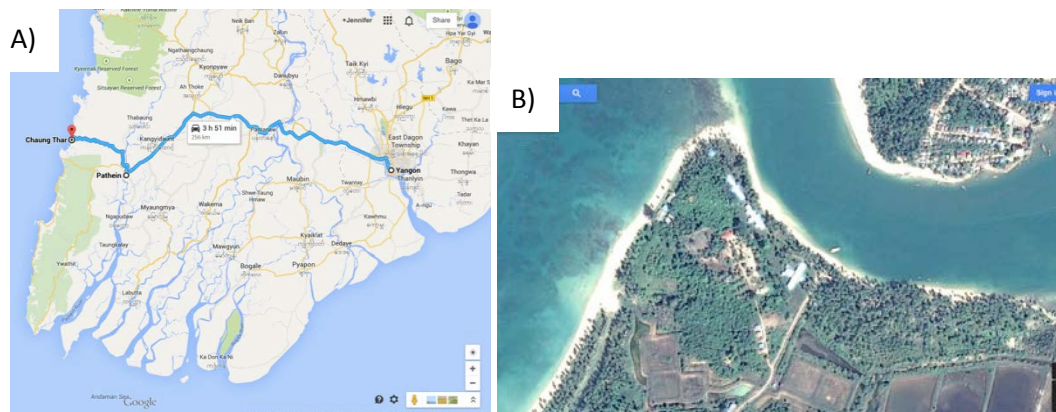


Fig 2. A) Location of Patheingyi and Chaung Thar relative to Yangon, and B) Satellite view of Patheingyi University's research station.