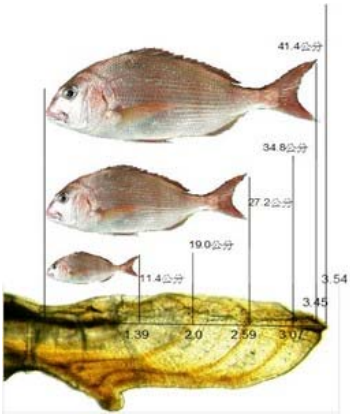
Research Interests

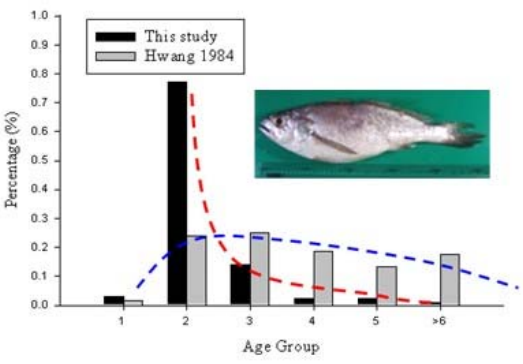
My research interests are mainly in the population dynamics and the management of coastal and offshore fisheries.

Current research topics including:

I. Fishery Biology and Population Dynamics of Marine Fish stocks

Understanding the fishery biology and the dynamics of fish stocks is essential for the effective management of any fisheries. Thus, we have conducted research on several perspectives of fishery biology including stock structure, age and growth, reproductive biology, and feeding ecology of abundant fish stocks in coastal and offshore waters of Taiwan. We also evaluate the long-term impacts of fishing on several commercial important fish stocks such as Butterfish *Psenopsis anomala*, black croaker *Atrobucca nibe*, white croaker *Pennahia argentata*, etc., and explore how the heavy fishing pressure has affected their life history, reproductive traits, and population structure, etc.

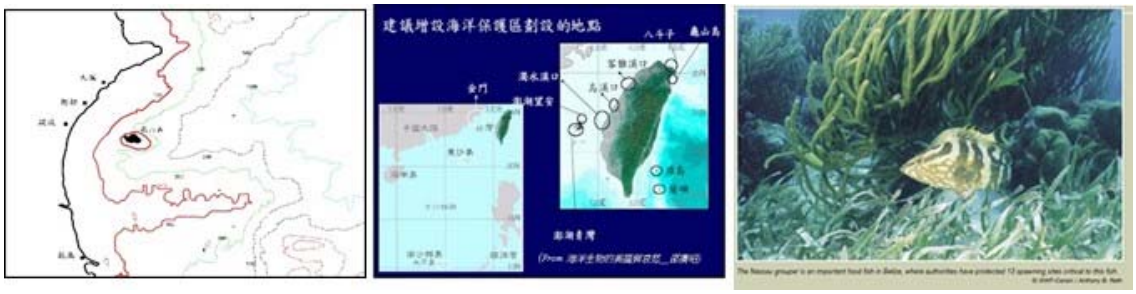




We are also involved in the long-term monitoring and study of a very unique fishery, the flyingfish roe fishery in Taiwan. The fishery specifically targets the eggs of flyingfish (instead of the adults). We try to understand the fluctuations of its catch, and how this catch may relate to the socio-economic, and environmental conditions of the region or the large-scale climatic variability.

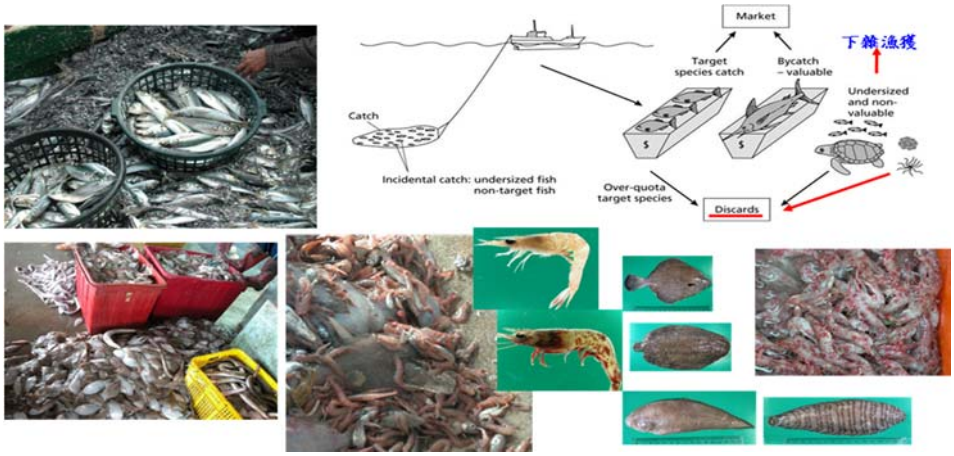
II. Marine Protective Area (MPA) and Resource Conservation

Marine protected areas (MPAs) are often established as a conservation tool, allowing the protection of species sensitive to fishing and thus preserving intact ecosystems, their processes, and biodiversity. One of my research interests is the biological perspectives of the MPA. We try to examine the biological characteristics including the occurrence and abundance of juvenile fishes, seasonal cycles of spawning, feeding, and body condition of abundant fish species caught by major fisheries operated in waters off the Guei-Shan Island, and to identify habitats, or seasons may be critical for conservation purpose, and to provide guideline and suggestions for setting up an effective MPA of the region. We also conducted surveys on fishers for understanding their perceptions of the MPA-related issues, and try to find a possible solution between the government agency and them for future compliance with MPA management and regulations.



III. Community Structure of Demersal Fishes, Bycatch and Discards Practices of Bottom Trawlers

Trawl fishery is one of the most important coastal fisheries in Taiwan. The total catch of this fishery reached about 60,000 mt in recent years. However, after several decades of exploitation, the coastal fishery resources were found significantly changed not only in abundance but also in species composition. Large and commercially important species were replaced with small-sized fishes. We have tried to understand how the community structure and diversity of demersal fishery resources change in relation to the temporal and spatial environmental or habitat conditions, and how the “trash fish” (i.e., the low valued or undersized fish) and/or discards were generated by bottom trawlers. We also tried to identify the critical habitats for juvenile fishes, and develop management strategies for sustainable use of these resources.



IV. Coastal Fisheries Management

Landings by small-scale fisheries (SSF) are thought to comprise about 25 to 33% of the worldwide catch (Chuenpagdee et al., 2006) but the contribution often remains unclear due to a lack of information in many countries (Chuenpagdee et al., 2006; Salas et al., 2007). This paucity of information, together with the complex socio-economic conditions of communities involved in this sector could result in poor management and threatens the sustainability of coastal fishery resources. Thus, one of my research interests is aimed to understand the nature and dynamics of these fisheries and quantify how the operational scale of these fisheries may influence

the sustainability of coastal fishery resources or coastal ecosystems of Taiwan.

V. Abandoned/lost fishing gears and their potential threats to coastal fishery resources through the ghost fishing

The abandoned, lost, and discarded fishing gears or “ghost fishing gears” are especially lethal to marine life. These gears could exert significant impacts on the marine environment, species conservation, human health, tourism, and local economy. We try to evaluate both gear and economical losses of crab trap and gillnet fisheries operating in the offshore and coastal waters of northwestern Taiwan. Based on these results, the development of fishery-specific countermeasures, a clean-up program to rejuvenate the habitats, and a gear loss self-reporting and recovery systems, as well as research and educational propaganda were proposed and recommended to fulfill the need for future management of these fisheries in Taiwan.