动物学报 52(Supplement): 535, 2006
Acta Zoologica Sinica

Symposium 30 Interactions between coastal aquaculture, fisheries and birds

Introduction

Gudrun HILGERLOH[1], Llewellyn YOUNG[2]
1. Institut für Zoologie, Abt. V, Joh. Gutenberg-Universität Mainz, Becherweg 13, D-55099 Mainz, Germany; gudrun.hilgerloh@t-online.de
2. Mai Po Nature Reserve, World Wildlife Fund Hong Kong, GPO Box 12721, Hong Kong, China; lyoung@wwf.org.hk

Coastal aquaculture and fisheries are expanding industries, and their further development is accepted by society. With increasing industrialization of the landscape, it has also become important to protect ecologically important habitats from further human impact. Therefore, international directives have been set up with the objective of protecting areas that are especially valuable for their habitat and wildlife, including birds. Aquaculture and fisheries are conducted in many such areas along coasts, and thus have potential to impact on wildlife and contravene the international directives. This symposium canvassed these issues.

The important question posed was: can coastal aquaculture and fisheries operate compatibly with the habitat requirements of birds and other wildlife? The answer depends on a number of factors. First, the form of aquaculture and the manner in which it is executed, whether extensively or intensively, needs to be defined. For example, shrimp aquaculture, such as the intensive system identified in southeast India by R. Nagarajan and K. Thiyagesan in this symposium, probably has a negative impact, whereas traditional, extensive systems may have either no impact, or even an indirect beneficial one (Young, 1997).

In order to achieve economic yields without compromising the conservation status of protected areas, information on the interactions between aquaculture, fisheries and birds are needed. Such information, and the studies providing it, are missing for most parts of the world except Europe (Hilgerloh et al., 2001). Effects of different modes of exploitation and production in different areas of the world have to be identified and quantified in order to develop guidelines for sustainable exploitation without damage to the environment. Coastal sites and habitats where birds are especially vulnerable have to be identified, with modeling to predict the impacts of three particular effects: (1) habitat loss, including bird exclosures, (2) competition for food between humans and birds, and (3) disturbance , as addressed by R. Stillman and J.D. Goss-Custard in this symposium. Behavior-based models employing optimal decision rules are needed to make predictions on the fitness of birds, quantified in terms of survival rate and body condition.

In areas where large areas of valuable habitat have been destroyed by intensive aquaculture, and monitoring and effect data are lacking, awareness has to be increased and politicians advised on how to limit the damage to the natural environment while sustaining local industry. If land reclamation is severe, as in Hong Kong, extensively managed fishponds may even act as a buffer zone against further urbanization and help to maintain bird populations.

In this symposium, papers given by Llewellyn Young and Yun-Jin Wang on the interaction between coastal fisheries and bird conservation in southern China, and by Kenneth Norris on competition between fisheries and oystercatchers for cockles in English estuaries, were presented as orals only. Abstracts of their papers are published in the Abstract volume for the Congress.

References

Hilgerloh G, O'Halloran J, Kelly T, Burnell G, 2001. A preliminary study on the effects of oyster culturing structures on birds in a sheltered Irish estuary. Hydrobiologia 465: 175–180.

Young L, 1997. Mai Po. In: Katz M ed. Biodiversity and Wetland Conservation. Gland: Ramsar Convention Bureau.