

Tilapias as alien aquatics in Asia and the Pacific: a review



Preparation of this document

This document reviews and analyses published literature, grey literature, and personal communications on the social, economic and environmental impacts of tilapias in the Asia and the Pacific. Tilapias play a significant role in global aquatic production through aquaculture, culture-based fisheries and capture fisheries. Although native to Africa, since their introduction to Asia, tilapias have been established in many countries and have contributed to increased aquatic food production, economic development and rural livelihoods. However, concerns that tilapias adversely impact native aquatic biodiversity have been expressed in literature and policy documents. Considering the importance of this group of fish as a significant contributor to aquatic production and the concerns raised regarding their negative impacts, particularly in Asia, this document was prepared as a review of the status of tilapias in the region, and to address the above issues. The aim is to provide a usable reference on the status of tilapias in Asia and the Pacific and stimulate rigorous examination of the benefits and risks of using this group of alien species in fisheries and aquaculture.

Distribution:

Regional Fishery Bodies and Arrangements

FAO Fisheries Officers

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Abstract

Tilapias are not native to Asia but have been a significant component of inland fisheries and aquaculture in the region for over half a century. They have been introduced into over 90 countries worldwide, with a global distribution second only to common carp. The contribution of tilapias to global aquaculture production has increased over the past three decades with production in 2002 exceeding 1.5 million tonnes with an estimated value of US\$1.8 billion. The average annual growth rate in aquaculture and capture fisheries production of tilapias from 1970 to 2002 has been 13.2 percent and 3.5 percent, respectively. In the present context of development, success of a species is determined not only by its contribution to production *per se*, but also by its social, cultural, economic and environmental impacts. Although tilapia has been associated with adverse environmental impacts, detailed analysis of the literature suggested that other factors, such as overfishing, environmental degradation from land-based activities, and changes in hydrological regime have probably been more responsible for adverse impacts. It is clear that numerous factors working together can impact biodiversity. It is also clear that tilapias, as a group of alien species, have made a significant contribution to food production, poverty alleviation and livelihoods support in Asia and the Pacific. In spite of the wide-scale introduction into Asian waters, there is scant explicit evidence to indicate that tilapias have been overly destructive environmentally.

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Contents

Preparation of this document	iii
Abstract	iv
Acknowledgements	vi
Introduction	1
The introduction and distribution of tilapias in Asia and the Pacific	3
Capture fisheries of tilapias	11
Production	11
Sri Lanka	13
India	15
Indonesia	17
Papua New Guinea	17
Philippines	18
Thailand	19
Other countries	20
Australia	21
Marketing	22
Employment and other social impacts	23
General considerations	24
Controversies	26
Aquaculture of tilapias	31
Production	31
Culture practices	36
Notable phases in the development of tilapia culture	39
Genetically improved tilapias: the case of Nile tilapia	42
Possible implications of genetically improved strains	44
Marketing	45
Future prospects	46
Culture-based fisheries	48
Potential constraints	49
Conclusion	51
References	55

Acknowledgements

The world population is growing, as is the demand for aquatic food products. Production from capture fisheries at a global level is levelling off and most of the main fishing areas have reached their maximum potential. Aquaculture and culture-based fisheries appear to have strong potential to meet the increasing demands for aquatic products in most regions of the world. Potential contributions from these sectors to local food security and livelihoods are highly significant, especially in many remote and resource-poor rural areas. The challenge is to develop approaches to manage responsibly capture fisheries and to increase the contribution of aquaculture and culture-based fisheries, which are realistic and achievable, within the context of current social, economic, environmental and political circumstances. Such approaches should not focus only on increasing production; they should also focus on producing a product which is affordable, acceptable and accessible to all sectors of society.

Native to Africa, tilapias are an important group of fish because of their contribution to food supplies in many areas of the world. Some members of this group have been improved genetically through research and selection, while others have lost genetic diversity through poor fishery and farm management and therefore have much lower values as farmed or wild populations. While there has been a significant increase in global tilapia production over the past two decades, there also exist controversies concerning possible environmental and biodiversity damage caused by introductions of tilapia. It is important to understand both the negative and positive impacts of this group of fish.

This paper presents a broad analysis of the overall contribution that tilapias have made and their impacts in Asia and the Pacific. We believe it will be a good reference point to which additional information and insight can be added and we welcome such additions, whether in agreement or disagreement with what is presented here. Our ultimate goals are to help increase the quality of life for rural populations and conserve the aquatic environment. The responsible use of alien species such as tilapias will help in the attainment of these goals.

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