Captive Breeding Programmes and their role in fish conservation

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18.1 INTRODUCTION

According to Le Cren (1990), the biology of the vast majority of the 22,000 or so known fish species (which comprise 50% of all living vertebrates) is virtually unknown. Since available information suggests that in some parts of the world about one-third of the local fish species may be threatened, their conservation presents a massive challenge. The greatest number and variety of fish occur in the oldest freshwater lakes, wetlands and river systems of the tropics and subtropics, and in the waters surrounding coral reefs. Therefore single-species conservation is less relevant than the conservation of fish communities and their habitats, and the conservation of whole ecosystems must be the long-term goal of fish conservationists. This paper briefly summarizes information

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Importance

on the importance and status of fish populations on a global basis, and also outlines the threats they face and their current conservation needs, particularly in relation to captive propagation efforts by zoos and aquaria.

18.2 IMPORTANCE

Since many fish live in a largely unknown and unseen environment their importance to humans is often overlooked. There are two overlapping justifications for the long-term conservation of fish (Nyman, 1991): economic factors and intrinsic factors.

18.2.1 Economic factors

Of the 90 million tonnes of fish which make up the annual global fisheries catch, 85% comes from the harvest of wild populations (the remainder is supplied by aquaculture), and fish are our only major food supply which is obtained principally from wild sources. In some areas, particularly certain tropical countries, fish are a vitally important source of available and/or inexpensive protein for the local populace.

Angling and ornamental fishkeeping are two popular pastimes enjoyed by many millions of people across the world; these hobbies promote a better understanding of the importance of aquatic ecosystems and have significant economic implications for the countries involved. Scuba-diving, snorkeling and similar water sports are also popular recreational activities, and are an important part of the tourist industry – on which some countries are heavily dependent.

Fish are the dominant aquatic vertebrates in the world’s rivers, lakes and oceans, and as they vanish the integrity of whole ecosystems (and all of the ancillary resources they represent) are threatened. Fish are also used for ecological monitoring, as experimental animals and for pest control, and have contributed in a major way to the understanding of ecological principles and population genetics. Potential anti-cancer drugs have been identified from sharks, stingrays and various aquatic invertebrates. Therefore, as science advances (and as cultural values change), the potential value of all aquatic species must be emphasized.

18.2.2 Intrinsic factors

For centuries fish have played a significant part in art, in several religions and in our general appreciation of the natural world. As discussed by Nyman (1991), there is a need to move away from the dominant ethic in the developed world, which requires that species are commercially valuable before attracting significant conservation atten-