

NONINDIGENOUS FRESHWATER ORGANISMS

Vectors, Biology, and Impacts

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2 Annotated Checklist of Introduced Invasive Fishes in Mexico, with Examples of Some Recent Introductions

Salvador Contreras-Balderas

INTRODUCTION

As of 1984, the so-called exotic (introduced) fish species in Mexico numbered 55. In 1997, such introductions numbered 90, with many known as secondary colonizers taking advantage of the changing environment. The last couple of decades have seen growing interest in nonindigenous species. Successively they have been called exotic, foreign, transcontinental, non-native, transplants, transfaunal, exogenous and more recently, invasive. An important reference work on most of the concepts behind these names is that supported by the American Fisheries Society Committee on Introduced Species (1987).

For the purposes of this paper, we will classify the introduced species by the main vector of original introductions in the following categories:

- aquaculture — cultivated for any reason: sports, prey, or forage for larger species
- commercial — food or sale
- ornamental — kept for aesthetics
- pest control — to keep down pest organisms
- bait releases — surplus bait from sport fishing
- species protection — introduced to prevent extinction in native areas
- accidental and invasive not purposefully introduced, which may have invaded from a different environment, often as a result of human impacts
- unknown — purpose, situation, or points of introduction are not known to the writer.

Worldwide, international introductions of inland aquatic species have been described by Welcomme (1988); he also summarized the different purposes of introductions, and the reasons why some species may become successful, useful, or pests. In Mexico, information on exotic fishes, originating both outside and within the country, was summarized by Contreras and Escalante (1984). Additional reports of introduced fish appear from time to time, frequently as "new records" (e.g., Gaspar, 1988; Díaz and Páramo, 1984) in numerous faunistic surveys, and unusually as "new species" (Hernández-Rolón, 1990). Some have appeared as reports on physiology, genetics, aquaculture, fisheries and others. It has been observed that changes in the environment, besides human impacts, generally favor the invasive characteristics of introduced species (Contreras, 1975b; Welcomme, 1988; Edwards and Contreras, 1991; Contreras and Lozano, 1994).

