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## RIVER DAM EFFECTS ON CUBAN FISHERIES AND AQUACULTURE DEVELOPMENT WITH RECOMMENDATIONS FOR MITIGATION

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### Abstract

Dam construction in Cuba and their use for freshwater aquaculture development are explained. Some of the environmental impacts of Cuban freshwater reservoirs, particularly in fisheries, the salinization of coastal lands, and effects on marine fisheries, are reviewed and analyzed. Some argumentation and explanations given are in response to remarks on the impact of Cuban dams on species composition of reservoir fishery landings and on coastal marine fisheries. The main impacts of dams are on estuarine and adjacent coastal lagoons. The reduction (85%) of freshwater flow over coastal lagoons had increase salinity in more than 15‰, temperature (about 4-5°C), sedimentation (50-60%), and has decreased nutrient inputs. However, the nutrient concentrations of coastal waters are still at the mesotrophic level and the influence of underground water and increased urban and industrial effluents to more than 160,000 tons/year are suggested as possible additional nutrient sources. The main impact of dams on coastal waters are on coastal lagoons and river deltas, with negative consequences for the fishery of several euryhaline species, although is not the principal cause of the decrease of marine fishery landings. River dams have also accelerated the natural ageing process of coastal lagoons, especially because their sediments are not removed in the absence of river floods. Several practical actions are recommended to mitigate the negative effects of dams and to increase fish production in freshwater reservoirs and coastal lagoons. A polyculture program is recommended, based on the integrated “Vallicoltura” system principles to rehabilitate coastal lagoons, including the use of mechanization to remove bottom sediments.

**Keywords:** aquaculture, coastal lagoons, dams, environmental impacts, “Vallicoltura”

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