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Sustainable Aquaculture for a Secure Future

Title: Impacts of the Introduction of Alien Tilapias (*Oreochromis spp.*) on the Fisheries and Biodiversity of Indigenous Species in Tri An Reservoir, Vietnam

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Abstract: This study was conducted at Tri An Reservoir of Vietnam from November 2007 to June 2009 to determine the impact of tilapias (*Oreochromis spp.*) on the fisheries and biodiversity of indigenous species in the reservoir. Historical and currently data on fish caught and fish species composition was collected. There are currently 19 different types of fishing gears in use at the reservoir, of which 14 fishing gears caught tilapias. Of the five fishing gears with highest total catches, only two caught tilapias. There were only 4.62% and 5.09% of tilapias in fishermen harvest and landing point records, respectively. However, tilapias (*Oreochromis spp.*) were 6th of 40 fish species caught from fishermen data, indicating the rather low productivity of most other fish species in the reservoir. Among the six species with highest biomass, the only economically valuable species recorded were the silver barb (*Barbonymus gonionotus*) and tilapias. The species with little or no economic value that are abundant in the reservoir (glass fish *Parambassis siamensis*, river sprat *Corica soborna*, repassan *Cyclocheilichthys repasson* and wrestling halfbeak *Dermogenys pusillus*), accounted for 64% of estimated total fish harvest (3823 tons) in the reservoir in 2008. The high production of low value species is also evidenced by their abundance at landing points, with glass fish and river sprat accounting for 355.91 and 243.68 of the total of 1661 tons landed in 2008. These indicated that the abundance of low economic value fishes may affect fisheries and fish biodiversity much more than the impact of alien tilapias species.

By using gill nets instead of seining, fish species composition was composed of more species with high economic value. Estimated tilapia catches and landing records show that tilapia species are abundant (84.62 of the total 1661 tons at landing points), second most only to silver barb (147.59 of 1661 total tons). This pattern holds despite the fact that tilapia

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haven't been stocked regularly as silver barb and other cultured fish species, indicating a favorable development of tilapia species in the reservoir. During the peak catches of tilapias in August in 2008, the other top five most commonly caught fishes are not at their peak catches, indicating a likely impact of tilapias on other economically important fish species such as silver barb, common carp (*Cyprinus carpio*), repassan and *Labiobarbus spilopleura*.

This abstract was excerpted from the original paper, which was published in Better Science, Better Fish, Better Life: Proceedings of the Ninth International Symposium on Tilapia in Aquaculture (2011) [Edited By: Liu Liping and Kevin Fitzsimmons] pg: 75-85

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