Increasing fish production in Brazilian reservoirs: A multidisciplinary approach aimed to identify suitable areas for cage fish farms.

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Considering the environmental risks of an uncontrolled expansion fish cage farms in Brazilian large reservoirs, the federal government launched a program aimed to identify suitable areas for deploying fish cage farms in these reservoirs. This contribution presents two study cases: Furnas and Três Marias Reservoirs. The study began with the ecological raking of each single arm in both reservoirs. A large data bank of different limnological and socio-economical variables was constructed. A GIS system was used to produce thematic charts aimed to identify the potential areas (target areas). The second step was the estimation of the carrying capacity of the selected target areas. A hydro-dynamical model was used to calculate the residence time for each lake compartment. The carrying capacity of each target area was estimated. The third step was the delimitation of fish cage polygons. This was done with a series of high precision bathymetric charts, with a sub-metric accuracy. The study produced five and sixteen cage polygons in Três Marias and Furnas, respectively. These polygons amount up to 380.7 ha and 811.9 ha in these reservoirs, respectively. The estimated carrying capacities for fish production are 55,875 and 79,269 tons of fish per year for T. Marias and Furnas, respectively.