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Full Length Research Paper

Trophic analysis and fishing simulation of the biggest Amazonian catfish

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Abstract

Currently, it is unanimous the fact that the ecosystem approach gives important insights to support fisheries stock assessment and management and healthy sustain aquatic ecosystems. This work aims at the quantification of energy flows at várzea (Amazon floodplain) and the simulation of increase in the fishing effort regarding the biggest predators, the catfish, and decrease of flooded forest cover. It was used the Ecopath with Ecosim software to build BAGRES model, which could allow inferences on ecosystem stability. Results showed that: i) BAGRES model has high overhead (69.7%) and Production/Respiration rate very close to 1, showing that this floodplain system is sufficiently mature and capable to support disturbance; ii) Finn's cycling index for BAGRES (14.6%) is high when compared to other worldwide system; iii) increasing the effort of the catch of three species of *Brachyplatystoma* (catfish) have positive effects on biomass and consequently catch and landing of their main preys; iv) in the simulation of deforestation of Floodplain Forest (with no natural regeneration), all species are prejudiced (no exception), including *Brachyplatystoma* groups that do not use flooded environment. Therefore, the indirect consequence of the deforestation is more intense over fish stocks than increasing fishing effort. The BAGRES model results have important implications for the current policy-making for inland fishing in Brazil, currently mostly based on "defeso" (fishing restriction season), suggesting the necessity of incorporate the impacts which drive the deforestation in Amazon Floodplain.

Key words: *Brachyplatystoma* sp; várzea, Amazon floodplain; fisheries; Ecopath with Ecosim

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