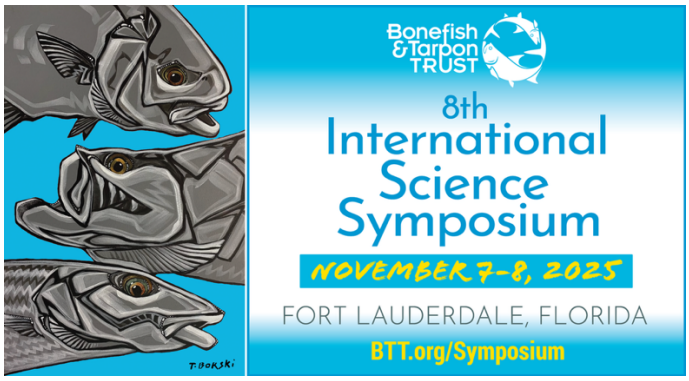


Boat Carrying Capacity in Recreational Flats Fishing: A Spatial Conservation Approach

Leopoldo Palmo[1], Addiel Perez[2]

[1] Universidad Marista de Mérida, Periférico norte No. 13941, Mérida, Yucatán, México 97302

[2] Bonefish & Tarpon Trust, 2937 SW 27th Ave, Suite 203, Miami, Florida, USA 33133

The sustainable management of recreational fishing in Caribbean flats is essential to ensure the conservation of coastal ecosystems, increasingly threatened by urban development and the recreational and commercial use of coastal waters. Addressing these challenges requires a spatial conservation approach that integrates landscape management while maintaining high-quality services and involving local stakeholders. This study estimated the carrying capacity of flats fishing boats in the Río Lagartos Biosphere Reserve, Yucatán, Mexico. The fishery in this area has target tarpon (*Megalops atlanticus*) for more than 16 years, covering a fishing area of 15 – 20 km along the coast. This activity is highly valued by local guides, primarily due to its low environmental impact and strong focus on conservation. Based on empirical data and the knowledge of local fishing guides, we employed classic models such as the Optimum Boating Density (OBD) model and the Effective Carrying Capacity (ECC) model proposed by Cifuentes. Additionally, a spatial simulation model using Monte Carlo was applied. This model represented the variability in fishing quality and the minimum distance between boats, simulating realistic scenarios based on empirical and local information. The results indicate that the optimal number of boats to maintain high-quality fishing while minimizing environmental impact ranges from 9 to 13, with a 95% confidence interval. Furthermore, maintaining a minimum distance between boats of 600 to 1200 meters ensures better fishing quality and reduces conflicts among users. This tool is especially effective when information about flats fishing dynamics is limited. By integrating applied science and collaborative scientific tools, this methodology contributes to the development of spatial planning policies to enhance the sustainability of marine-coastal activities.

Format preference: Oral

Presenter: Leopoldo Palomo