

Recommendation on addressing the decline of herbivorous fish populations for improved coral community health throughout the Tropical Eastern Pacific, the Eastern and Western Atlantic, and the Greater Caribbean Region

adopted on December 2019, at the 34th ICRI General Meeting (Australia)

Recent studies have shown that coral-algal phase shifts, in which coral cover declines to low levels and is replaced by algae, challenge the management and survival of coral reefs worldwide¹. In addition, this shift to macroalgal dominance offers relatively little value to fisheries, as most of the primary production is lost to detrital pathways rather than fish-based consumption². As a result, an increasing macroalgal composition can affect coral reef habitats, reduce local biodiversity and reduce ecosystem functions³.

Overfishing of herbivorous fish has been cited as one of the underlying drivers, motivating management responses that include sustainable fisheries management and the establishment of marine protected areas or no-take zones⁴. While managing parrotfish and other important herbivorous fish species is not a panacea for conserving coral reefs, their protection can play a role in sustaining the health of reefs and high-quality habitats for reef fisheries⁵.

It is important to commend those countries that have implemented bans on or restrictions to herbivorous fish harvest. Some include Belize, Guatemala, and Colombia. However, most jurisdictions have no fisheries restrictions or conservation strategies that recognize the need to protect these key species for improved coral health.

In light of the ongoing decline of herbivorous fish populations in the Tropical Eastern Pacific, the Eastern and Western Atlantic, and the Greater Caribbean Region, and in accordance with ICRI's Framework for Action cornerstone of 'integrated management,'

¹ Arias-González JE, Fung T, Seymour RM, Garza-Pérez JR, Acosta-González G, Bozec Y-M. Bozec and C.R. Johnson. (2017). A coral-algal phase shift in Mesoamerica not driven by changes in herbivorous fish abundance. PLoS ONE 12(4): e0174855. <https://doi.org/10.1371/journal.pone.0174855>

² Bozec, I.M., S. O'Farrell, J. H. Bruggemann, B. E. Luckhurst and P.J. Mumby. 2016. Tradeoffs between fisheries harvest and the resilience of coral reefs. PNAS 113: 16, 4536-4541.

³ Done TT, Ogden JJ, Wiebe W, Rosen B (1996) Biodiversity and ecosystem function of coral reefs. Functional Roles of Biodiversity, UKA Global Perspective, eds Mooney HA, Cushman JH, Medina E, Sala OE, Schulze E-D (John Wiley and Sons, Chichester, UK), pp 393–429.

⁴ Jackson JBC, Kirby MX, Berger WH, Bjorndal KA, Botsford LW, Bourque BJ, Bradbury RH, Cooke R, Erlandson J, Estes JA, Hughes TP, Kidwell S, Lange CB, Lenihan HS, Pandolfi JM, Peterson CH, Steneck RS, Tegner MJ, Warner RR. Historical overfishing and the recent collapse of coastal ecosystems. Science. 2001; 293:629±638. <https://doi.org/10.1126/science.1059199> PMID: 11474098

⁵ Bozec, I.M., S. O'Farrell, J. H. Bruggemann, B. E. Luckhurst and P.J. Mumby. 2016. Tradeoffs between fisheries harvest and the resilience of coral reefs. PNAS 113: 16, 4536-4541.



the International Coral Reef Initiative would like to highlight the need for strong management actions to protect reefs from overfishing, and urge governments in Latin America to effectively protect parrotfish and similar herbivores.

Accordingly, the International Coral Reef Initiative encourages Nations, fisheries forums, and conservation commissions of the Tropical Eastern Pacific, the Eastern and Western Atlantic, and the Greater Caribbean Region to:

RECOGNIZE the need and urgency to protect herbivorous fish populations in Latin America;

RECOGNIZE the species richness and composition of functional groups of herbivorous reef fishes in all biogeographic regions, including the Tropical Eastern Pacific, the Eastern and Western Atlantic, and the Greater Caribbean Region;

ENCOURAGE governments in the Latin American Region to establish and coordinate strategies, priorities, and programs that lead to sustainable fisheries management and integrated coastal management initiatives to support the recovery of herbivorous fish, such as fisheries closures, fishing quotas and catch sizes, prohibitions or improved control of detrimental fishing gears (e.g. spearguns and traps), as well as local bans and prohibitions;

DEVELOP and/or strengthen national and regional conservation and management strategies for herbivorous fish populations, and encourage Fisheries Regulatory Agencies, fisheries forums and conservation commissions to address the ongoing decline of herbivorous fish species;

INCORPORATE the necessary resources and mechanisms for outreach campaigns, enforcement, compliance, and the promotion of public participation in decision-making, including indigenous and local communities as well as other important stakeholders.