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MINISTRY OF CLIMATE CHANGE
& ENVIRONMENT

POLICY BRIEF

UAE National Red List of Select Bony Fishes

2021

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The UAE National Red List of Select Bony Fishes, prepared for the UAE Ministry of Climate Change and Environment (MOCCA), provides the most up-to-date information on the conservation status and distribution of select bony fishes in the country. It serves as the ultimate information resource for policy-making and priority-setting with the aim of building fisheries management capacities, expanding the network of protected areas, protecting marine habitats, and meeting the UAE's commitments to international environmental agreements.

Key Messages

- **14 species (11%)** of the 126 species of select bony fishes in UAE territorial waters for which sufficient data are available **are threatened** (assessed as Critically Endangered, Endangered, or Vulnerable) **with regional extinction**. Four of these are heavily fished. The threatened species have not undergone stock assessment.
- **Life history characteristics, such as late maturation, large body size, and slow growth**, correspond to increased risk of **overfishing** and **regional extinction** in marine bony fishes.
- **Many threatened fished species are also associated with vulnerable habitats in the UAE**, including coral reefs and seagrass beds.
- **Nearly half (41%) of select bony fishes found in UAE waters are Data Deficient**, and of those, 42 species are fished to some degree.
- **The percentage of threatened species would rise to 52 if all Data Deficient species were found to be threatened.**
- There is a need for increased fisheries management capacity and enforcement of existing fisheries regulations. Fisheries–dependent and fisheries–independent monitoring is required to support expanded stock assessments.
- The 2019 Red List Index score for these select bony fishes is 0.88.

Overview

There is an urgent need to understand the status of biodiversity in the UAE to inform conservation policy and decision-making. Biodiversity data assist with national-level reporting for bilateral and multilateral environmental agreements (MEAs).

The UAE National Red List of Select Bony Fishes seeks to leverage the combined knowledge of local and international experts to assess the risk of extinction of commercially important families of bony fishes in the country, and to produce a baseline to understand the long-term trends in extinction risk (the Red List Index datapoint for select bony fishes) that occur within the exclusive economic zone (EEZ) of the UAE.

To support the UAE National Red List Project, the IUCN (International Union for Conservation of Nature) compiled the available data on a subset of 12 commercially important families of marine bony fishes recorded in the territorial marine waters of the country.



Background

One hundred and twenty–six species of bony fishes in commercially important families native to UAE territorial marine waters were selected for assessment against the IUCN Red List Criteria. Bony fishes provide considerable income, cultural heritage, and recreational value for the UAE (Grandcourt et al. 2012, Al–Abdulrazzak et al. 2015), and form an important component of the country’s unique marine environment. However, many species are impacted by regional overfishing and fisheries or development–associated habitat loss (Finucci et al. 2019).

The UAE promotes management and conservation of its marine resources through a combination of spatial and seasonal fishing bans, gear restrictions, and the establishment of marine protected areas. However, the extent to which regulations have affected bony fish populations is largely unknown. Overall, the country’s fisheries remain severely overexploited, and the relative stock abundances of three indicator species are at about 10% of their unexploited state (EAD and MOCCA 2019).

Information on the status and distribution of select bony fishes in the UAE can be used for:

- **Identifying and prioritising** species for fisheries assessment and management.
- **Guiding** the administration of existing protected areas and the designation of new protected areas for select bony fishes. Informing Environmental Impact Assessments.
- **Enriching** environmental education and awareness initiatives in the private and public sectors.
- **Reporting** on the UAE’s progress towards achieving national and international biodiversity targets.

Methodology

IUCN compiled the list of species for inclusion in the UAE National Red List. Families containing one or more species of commercial importance were prioritised for assessment, resulting in the selection of 126 species of bony fishes. IUCN also produced draft distribution maps for each species using Geographic Information Systems (GIS), as well as data on their population size and trend, habitat and ecology, and the threats to each species. This information underwent initial review by experts in the UAE, followed by the National Red List Assessment Workshop (Dubai, September 2019) that brought together experts from across the country to assign each species to one of 11 IUCN Regional Red List Categories (Figs. 1 and 2). In contrast to other marine species groups assessed at this workshop (i.e., marine mammals, sea birds, mangroves, and seagrasses), a retrospective assessment for 1996 was not produced because of the absence of data on the historical distribution and status of select bony fishes. Thus, a Red List Index datapoint for 2019 was produced, not a full index. However, these numbers must be interpreted with caution, as not all bony fishes in the UAE were assessed. Therefore, these results reflect the status of highly exploited fish families in the UAE.

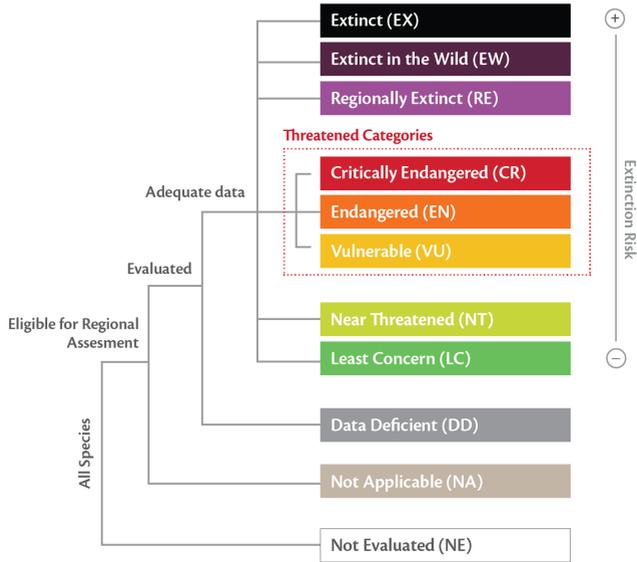


Figure 1: IUCN Red List Categories at the regional scale.

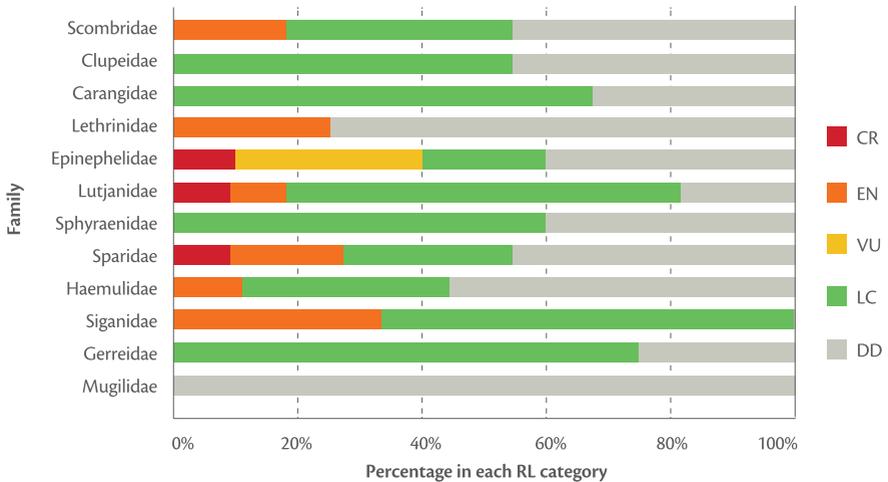


Figure 2. Extinction risk of select bony fishes assessed for the UAE National Red List: number and percentage of species within each IUCN Red List Category.

Outcomes:

Threatened species – priorities for conservation

One hundred and twenty-six select bony fishes considered native to the UAE in 12 commercially important families were assessed for their risk of extinction using the IUCN Red List Regional Categories and Criteria (Fig. 1), and their distributions within the UAE mapped using GIS. This represents a **comprehensive assessment of select bony fishes** in the UAE (Fig. 2) and the **first Red List Index datapoint generated for the UAE**. Regional assessments are among a suite of tools used to inform conservation action.

Fourteen species (11%) of select bony fishes for which sufficient data are available are threatened with regional extinction – see the full report for more details on this statistic. Given the uncertainty surrounding the true status of the species assessed as Data Deficient, the proportion of threatened species could range from 11% to 52%. Three bony fishes – *Cephalopholis hemistiktos* (Yellowfin hind, eshnenuh), *Lutjanus malabaricus* (Malabar Blood Snapper, hamra), and *Argyrops spinifer* (King Soldier Bream, kofar) – were categorised as Critically Endangered (CR). Each of these three Critically Endangered bony fishes is a commercially valuable species that exhibited a population decline of 50–80% over three generations in UAE waters. Stock assessments produced for two of the Critically Endangered species (*C. hemistiktos* and *A. spinifer*) indicate that these species are overexploited. However, the other Critically Endangered species (*L. malabaricus*), as well as two other threatened species, *Epinephelus areolatus* (Areolate Grouper or samman, assessed as EN) and *E. bleekeri* (Duskytail Grouper or summam, assessed as VU), have not undergone formal stock assessments. These species may be high priorities for future assessment.

Species information is limited for many bony fishes in the UAE EEZ, with **nearly half (48%) of the select bony fishes found in UAE waters assessed as Data Deficient (DD)**, meaning there were insufficient data to apply the IUCN criteria for assessments. Of the 52 bony fishes assessed as Data Deficient, 42 (81%) are fished in the UAE, and at least 25 are heavily fished. **Only 26% of the fished species assessed**

as Data Deficient have undergone formal stock assessment, highlighting the need for increased fisheries management efforts in the region.

Sixty species (48%) of the select bony fishes included in this regional assessment were assessed as Least Concern (LC). These species were often wide-ranging habitat generalists that were not of commercial importance in the UAE.

Threats to select bony fishes in the UAE

The direct impact of i) **fisheries overexploitation** was identified as the primary threat to many threatened species of select bony fishes in the UAE. Additional threats include ii) **indirect target/bycatch fisheries impacts** and localised **habitat loss** due to fishing and harvesting aquatic resources, iii) habitat-related impacts of **industrial, residential, and commercial development**, and iii) **climate change impacts**, including the loss of coral reef habitat.

The marine environment of the UAE supports diverse and distinctive habitats, including seagrass beds, intertidal mudflats, and coral reefs. UAE fisheries are primarily artisanal and are the second-most important natural resource in the country after oil and gas. Many fish stocks are considered overfished in UAE waters and in the surrounding Arabian Gulf region and Sea of Oman (Grandcourt 2012, Abdulrazzak et al. 2015, Finucci et al. 2019).

Red List Index (RLI)

The Red List Index (RLI) score for the 2019 assessment of select bony fishes in the UAE is 0.88. A score of 1 indicates that all species are Least Concern, and the lower the value, the faster the set of species is heading toward extinction. This score indicates that these commercially exploited bony fishes are much less threatened than other marine taxa of the UAE (e.g., marine mammals with an RLI of 0.64, cartilaginous fishes with an RLI of 0.60, and reef-building corals with an RLI of 0.54). However, the highly exploited species, particularly those currently overexploited or without a formal stock assessment, require continued and accelerated conservation and management action, as they play a vital role in the health of the UAE's ecosystems, and fisheries are of national socioeconomic importance. The information compiled in the UAE National Red List of Select Bony Fishes, combined with political will and subsequent action, can help to ensure long-term survival of these species in the country.



Management and conservation recommendations

- Increase fisheries management action and continue to build fisheries management capacities, including improving nationwide tracking of fishing activities.
- Evaluate and prioritise species for stock assessment based in part on the results of the UAE National Red List of Select Bony Fishes. See the full report for more details.
- Continue annual surveys of fisheries resources, such as Hurst and Bagley (2017), and expand them to the east coast.
- Assess the existing network of protected areas for coverage/protection of threatened bony fishes and essential fish habitat.
- Consistently limit and mitigate the impacts of future coastal development and of land– and vessel–based sources of pollution in accordance with the Federal Laws No. (23) and No. (24).
- Continue to invest in ocean conservation education and awareness initiatives across the UAE to increase future capacity for conservation and resource management.
- In addition to addressing localised threats in the UAE, concerted movement towards achieving climate neutrality by leaders in government, business, and civil society may benefit biodiversity and conservation initiatives.

Policy and reporting recommendations

The UAE National Red List of Select Bony Fishes and accompanying distribution maps can and should be used to:

- **Set biodiversity targets and enhance national reporting** for the UAE's commitments to MEAs, including the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Biological Diversity (CBD), and the UN Sustainable Development Goals (SDGs), including:
 - CBD Aichi Biodiversity Targets 1, 2, 3, 6, 12, 17, 19
 - SDG Targets 12.2, 14.4, 14.6, 14.C, 15.5, 15.5.1, 15.9, 15.c
- **Inform national legislation and priority-setting, including:**
 - Reporting on relevant targets of the National Biodiversity Strategy and Action Plan (2014–2021).
 - Compiling national lists of species of conservation concern.
 - Assessing the attainment of strategic objectives outlined in The UAE National Framework Statement for Sustainable Fisheries (2019–2030).
 - Developing plans, strategies, and policies by the Environment Agency – Abu Dhabi (EAD), MOCCA, and competent authorities and stakeholders.
- **Inform the private sector** through mechanisms such as the International Finance Corporation's Performance Standards and Environmental Safeguards. Civil society can play a key role in research, monitoring, conservation planning and action, and education and outreach.

The continued integration and coordination of environmental policy in the UAE across emirates and across sectors, including extractive industries, urban planning, energy, and agriculture, will unify regulatory objectives and ensure the consistency of financial initiatives.

Opportunities for capacity building

Training in the application of biodiversity datasets to species- and site-based management and enforcement activities is available through the IUCN Conservation Planning Specialist Group, the IUCN Species Monitoring Specialist Group, and the IUCN World Commission on Protected Areas / Species Survival Commission Joint Task Force on Biodiversity and Protected Areas.



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Read the full report

Ralph et al. (2021) UAE National Red List of Select Bony Fishes
(<https://www.moccae.gov.ae/en/home.aspx>)

Visit the UAE National Red List portal
(<https://gis.moccae.gov.ae/>)

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