Potential pressures affecting the MNPS ecosystem

The diverse marine life of the Gulf rely on coral reefs for habitat, which, in turn, provides livelihoods for local communities. To offer protection, the MNPS relocated corals in the late-1990s and a transplantation pilot project in 2012.

To conserve and restore corals, the MNPS relocated corals in the late-1990s and a transplantation pilot project in 2012. The diverse marine life of the Gulf rely on coral reefs for habitat, which, in turn, provides livelihoods for local communities.

Where do we go from here?

The framework for the Marine National Park and Sanctuary–Jamnagar Report Card shown here synthesizes social–ecological data from human activities and natural processes, and analyses that directly affect the ecosystem. The insights the system and implications are compared with desired conditions and leads to potential pressures affecting the MNPS ecosystem.

Restoration of mangroves and corals, and improving sea turtle survival in the MNPS

Workshop participants

The MNPS ecosystem is highly susceptible to human activities and natural processes, and analyses that directly affect the ecosystem. The insights the system and implications are compared with desired conditions and leads to potential pressures affecting the MNPS ecosystem.

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Potential pressures affecting the MNPS ecosystem

On the southern coast of the Gulf of Kachchh, the Marine National Park and Sanctuary–Jamnagar (MNPS) is subject to constant pressures from both natural processes and human activities. The problems highlighted here are pollution, overfishing, and erosion, all of which can result in a degradation of the marine habitat. By identifying these pressures through efforts like the ecosystem health report card and subsequent management actions, the likelihood of the MNPS to sustain itself is improved.

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Measures of ecosystem health

**WATER QUALITY**

- **Dissolved O2** — Measure of availability of oxygen in the water body to sustain life. The level of dissolved oxygen can be impacted by factors such as temperature, salinity, and turbidity.
- **Salinity** — Measure of the salt concentration in seawater, which can affect the distribution and survival of marine organisms.
- **pH** — A measure of the acidity or basicity of the water, which affects the solubility and biological availability of organisms and nutrients.
- **Ammonia as N** — A metric of nitrogen concentration, which is essential for the growth of marine organisms.
- **Temperature** — Affects many physical, biological, and chemical characteristics of a water body, including the distribution and abundance of marine organisms.

**BIODIVERSITY**

- **Biodiversity** — Includes the variety of species, populations, communities, and ecosystems. It is critical for maintaining the health and resilience of ecosystems.
- **Bird richness** — The number of species observed or expected in a given area.
- **Seagrass area** — The size of seagrass beds, which provide habitats for many marine species.
- **Mangrove area** — The extent of mangrove forests, which protect coastal areas from storms and provide habitats for wildlife.
- **By-catch** — The unintentional capture of non-target species during fishing activities.

**FISHERIES**

- **Total catch** — The total mass of fish and invertebrates collected during a given period.
- **Percentage of fish diversity** — The proportion of fish species observed or expected in the ecosystem.
- **Species landed** — The total number of fish species collected during a given period.
- **Average size of fish** — The average length or weight of fish species collected during a given period.

**Desired conditions guide ecosystem change.**

Desired conditions are based on available guidelines, current scientific knowledge, and past data trends and metrics. Since the inception of the report card, the desired conditions have evolved, and the indicators chosen for assessment are based on the information available.

**What do the grades represent?**

- A grade of 1 indicates that all ecosystem health metrics meet desired conditions.
- A grade of 3 indicates that most ecosystem health metrics meet desired conditions, but there is a need for improvement.
- A grade of 5 indicates that some ecosystem health metrics do not meet desired conditions, and there is a significant need for improvement.

**How is the report card updated?**

- Grades are calculated on a periodic basis, providing a means to track change over time.
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**Overall, the Marine National Park and Sanctuary—Jamnagar scored a “B” for ecosystem health based on performance of Water Quality, Fisheries, and Biodiversity indices.**

Based on available data, the Marine National Park and Sanctuary—Jamnagar received a “B” due to excellent results for Fisheries, good results for Water Quality, and average results for Biodiversity. No sector-specific data was available for bird richness, seagrass area, or fish diversity, resulting in low confidence of scores for the Biodiversity Index and Fisheries Index.