The MPA Guide

Expanded Guidance: Level of Protection

Version 2 (December, 2021)

Expanded Guidance for Level of Protection

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The MPA Guide (1; mpa-guide.protectedplanet.net) organizes MPAs and zones within multi-zone MPAs according to two features: Level of Protection and Stage of Establishment. Further, it links these Levels and Stages to Outcomes that can be expected for biodiversity and human well-being, and describes the Enabling Conditions that are prerequisite for durable, effective MPAs. As long as an MPA (or zone within a multi-zone MPA) meets the IUCN definition (2), it will fit into one Stage of Establishment and one Level of Protection at any given point in time. This system complements the IUCN Protected Area Categories that are based, not on the level of protection, but on an area's management objectives and governance types (2). It builds from the IUCN MPA Standards (2). Zones within MPAs must meet all qualifying requirements in the same way as entire MPAs, including the guidance on both Level of Protection and Stage of Establishment.

This document focuses on Level of Protection and outlines how *The MPA Guide* categorizes the degree to which biodiversity and habitats within an MPA or MPA zone are protected from abatable extractive and destructive activities. The Levels of Protection are summarized as follows:

1. Fully Protected: No extractive or destructive activities are allowed; all abatable impacts are minimized.
2. Highly Protected: Only light extractive activities with low total impact are allowed, with all other abatable impacts minimized.
3. Lightly Protected: Some protection of biodiversity exists, but moderate to significant extraction and other impacts are allowed.
4. Minimally Protected: Extensive extraction and other impacts are allowed, but the site still provides some conservation benefits in the area.

Allowed activity types include both those explicitly permitted by regulations and those that are not forbidden by either the MPA or the surrounding regulations. Potential users of *The MPA Guide* include government officials and MPA managers, who may be charged with official reporting of the Level of Protection of an MPA or MPA zone to the World Database on Protected Areas (WDPA). The Guide can also be used by NGOs, academics, policymakers, and others who may be interested in understanding the Level of Protection of specific MPAs, or in tracking regional or global trends in MPAs to better understand collective progress towards global area-based conservation targets.

Guidance from Grorud-Colvert et al. (1) states: Impact is determined via activity type, intensity, scale, duration, and frequency relative to biodiversity conservation goals, and is described as "none", "minimal", "low", "moderate", "high/large", or "incompatible with biodiversity conservation".

Level of Protection is directly related to the impact of different activities occurring inside an MPA or zone. For example, "none" or "minimal" impact activities often align with Fully Protected MPAs. Assigning a Level of Protection requires identifying the impact of each of the activities listed below. These impacts may differ across any given MPA or zone due to different locations, species, and other features or circumstances. For example, an activity that is distributed across a larger area may have a lower impact than if that same activity is concentrated in a smaller area.

Seven main types of activities determine Level of Protection: (1) Mining, mineral, oil and/or gas prospecting or exploitation, (2) Dredging and Dumping, (3) Anchoring, (4) Infrastructure, (5) Aquaculture, (6) Fishing (whether it is subsistence, professional, or recreational fishing; this activity encompasses extraction of wild fish and other marine species and includes gleaning), and (7) Non-extractive activities, including recreational, traditional, and cultural activities. The compatibility of each activity with conservation goals was evaluated through multiple, iterative workshops using peer-reviewed literature, scientific judgment, expert opinion, and IUCN resolutions and protected area guidance. Incompatible activities include industrial extraction such as industrial fishing (e.g., vessels > 12m using towed/dragged gears; see IUCN Resolution 066), oil and gas exploration, mining, and other extremely impactful activities such as fishing with dynamite or poison. The compatibility of activities conducted in an MPA or zone for scientific research purposes is at the discretion of the MPA management authority.

The MPA Guide does not include every possible activity but provides best practices wherever possible. For example, shipping is not explicitly addressed, because the right of innocent passage is mandated under international law and regulated by International Maritime Organization treaties. As a result, it is challenging for an MPA managing authority to restrict shipping movement. Nonetheless, it is recommended that ships with dangerous goods or toxic anti-fouling chemicals do not transit MPAs, and that shipping activity be restricted to shipping lanes to minimize noise pollution and other negative impacts such as collisions with marine life. Guidance is intended to evolve with new knowledge, activities, and technology. Emerging threats due to electromagnetic fields, excessive or persistent noise, high energy active sonar, or other technologies not explicitly addressed in the Guide are subject to the burden of proof. That means management bodies should receive evidence of their expected impacts before allowing their use, and they should monitor to assess and actively manage their actual impacts. Impacts should not exceed those associated with a given Level of Protection.

Some activity types or impact levels are not explicitly stated in MPA rules and regulations, often because they are not within the management jurisdiction of the MPA authority. In these circumstances, knowledge of whether or not a particular activity occurs may be used. Since it is the current activities that influence the degree to which an MPA is protecting biodiversity at a given point in time, the assessment of an MPA's Level of Protection should reflect activities actually occurring in the site at the time of reporting, whether or not they are explicitly stated in the management plans.

In cases where information on the scale or magnitude of an activity is unknown, the Level of Protection should be assigned as accurately as possible by the appropriate managing authority. If this information is not available, a dialogue between the managing authority and MPA experts, such as those at the WDPA, can be initiated to improve the protection and the transparency of the MPA for users and reporters.

This document supplements the Level of Protection information presented in the Decision Tree (Fig. S1) from Grorud-Colvert et al. (2021) and the other Resources available on https://mpa-guide.protectedplanet.net. Here we provide three layers of detail within each of the seven activity types to help users assign a Level of Protection based on the actions occurring in an MPA or zone:

Layer 1: Summary tables. These provide a concise summary of activities allowed in each Level of Protection.

Layer 2: Color-coded tables that link specific activities to their level of impact, from low impact (green) to impact that is Incompatible with the Conservation of Nature (gray). The Layer 1 Summary table refers to these color-coded activities.

Layer 3: Long-form tables and notes with an in-depth description of the criteria and activities associated with each Level of Protection.

This document provides the information needed to allow different types of users to assign a Level of Protection to any given MPA or zone.

Layers 1 & 2: Summary and Color-Coded Impacts Tables of Activities by *Level of Protection*

In Layers 1 and 2, we provide summary information on the seven activities and examples of specific activities that are allowed or disallowed in the different Levels of Protection: Fully, Highly, Lightly, and Minimally, as well as activities that are Incompatible with the Conservation of Nature.

1. Mining, mineral, oil and/or gas prospecting or exploitation

Any mining, mineral, oil and/or gas prospecting or exploitation, or active pipelines with the potential to leak, have impacts that are incompatible with the conservation of nature, as stated in the IUCN MPA Standards (1).

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Is mining, mineral, oil and/or gas prospecting or exploitation allowed in the MPA or MPA zone?	No.				Yes. All of these are incompatible with the conservation of nature (any GRAY types, *see below*)

Color-coded impacts table: gray = Incompatible with the Conservation of Nature. The table below gives examples of types of mining, mineral, oil and/or gas prospecting or exploitation; none are compatible with the conservation of nature.

Description	Examples
Any mining, mineral, oil and/or gas prospecting or exploitation, or active pipelines with the potential to leak, occur and may have impacts that are Incompatible with the Conservation of Nature	• Prospecting, exploring, or mining for recovery of sand, gravel, or minerals • Oil and/or gas prospecting or exploitation (e.g., oil platforms) • Active pipelines that have the potential to leak, or where leaking is known to occur

2. Dredging and dumping

All dredging and dumping activities should undergo review and approval by the managing authority; any impacts should be compatible with a given Level of Protection. Whether dredging and dumping are compatible with the conservation objectives of the MPA will depend on location, type, scale, and intensity.

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Are dredging or dumping allowed in the MPA or MPA zone?	No.		Yes. Only if infrequent for selective purposes and if area still provides some biodiversity conservation (may include RED types, *see below*)		Yes. It is Incompatible if the Minimally Protected conditions are not met (any GRAY types, *see below*)

Color-coded impacts table: red = high impact, gray = Incompatible with the Conservation of Nature. The table below gives examples of the types of dredging and dumping activities that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in scale and impacts.

Description	Examples
Dredging and dumping are infrequent and only for specific, approved purposes	• Includes dredging and dumping of both capital and maintenance dredge spoil • Formally approved navigation (e.g., shipping channels, ports) • Shoreline protection • Coastal erosion prevention • Restoration (connectivity, e.g., to ensure natural access between a wetland and the ocean, or as determined by managing authority)

Dredging and dumping occurs and may have impacts that are Incompatible with the Conservation of Nature	• Sea dumping
	• Deliberate/harmful discharge of noxious substances (solid or liquid)
	• Dumping of any material that will adversely impact, or has the potential to adversely impact, the receiving waters, including any activity or use of a material that:
	  • is direct untreated effluent discharge from land
	  • may cause eutrophication in receiving waters
	  • may introduce marine pests
	  • may introduce genetic material that is dissimilar to that existing at the introduction site
	  • may introduce genetically modified material
	  • may artificially increase endemic species to outbreak levels (e.g., Crown of Thorns; Drupella spp.)

3. Anchoring

All anchoring activities should undergo review and approval by the managing authority; any impacts should be compatible with a given Level of Protection. Whether an activity is compatible with the conservation objectives of the MPA will depend on location (including species and habitat type affected), scale, and intensity.

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Is there any anchoring in the MPA or MPA zone?	None, or if any, only low impact, small-scale, short duration anchoring (only GREEN types, *see below*)		Yes, but only moderate impact, medium-scale, moderate duration (may include YELLOW types, *see below*)	Yes. Anchoring may have a large impact, but area still provides some biodiversity conservation (may include RED types, *see below*)	Yes. Accumulative anchoring has an impact so high it is Incompatible with the Conservation of Nature (any GRAY types, *see below*)

Color-coded impacts table: green = low impact, yellow = moderate impact, red = high impact, gray = Incompatible with the Conservation of Nature. The table below gives examples of the types of anchoring that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in impacts.

Description	Examples
Low impact, small-scale, and short duration anchoring	• Regulated by MPA or other managing authority • Vessels are only anchored in the same location for a short time, as determined by the managing authority for durations consistent with low impacts and meeting conservation requirements • Best practices are to anchor at an appropriate distance from sensitive habitats (e.g., in sand or gravel, soft bottoms, some kelps, or other ecosystems or habitats that recover quickly) • Best practices use existing moorings
Moderate impact, medium-scale, and moderate duration anchoring	• Regulated by MPA or other managing authority, but may include some unregulated anchoring • Vessels are only anchored in the same location for a short time, as determined by the managing authority for durations consistent with moderate impacts and meeting conservation requirements • Anchoring may be occurring in or too close to sensitive habitats, e.g., coral or rocky reefs, seagrass beds, some kelps (e.g., those with slow recovery times), or in sand patches within these habitats
Large impact, scale and duration	• As above (yellow), but has large impact, e.g., through anchoring for longer duration or causing large impact to habitats
Accumulative anchoring activities occur that may have impacts that are Incompatible with the Conservation of Nature	• Unregulated anchoring which has impacts that are incompatible with biodiversity conservation • Areas where large ships repeatedly anchor • Repetitive or large-scale anchoring in habitats causing long-term damage

4. Infrastructure

The impact of a given infrastructure, and its potential compatibility with MPA goals, scales with its size, permanence, frequency and intensity of use, and type of materials involved. The guidelines below give examples of the types of infrastructure (whether planned or pre-existing) that are most likely to be compatible with each Level of Protection. All infrastructure should undergo review and approval by the managing authority; any impacts should be compatible with a given Level of Protection. There are no official standards governing allowed infrastructure within different types of MPAs, but these guidelines are largely informed by guidance on infrastructure given by the Great Barrier Reef Marine Park Authority [e.g., for artificial reefs (4) and moorings (5)].

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Is there any existing or proposed infrastructure in the MPA or MPA zone?	None, or if any, only minimal impact, small-scale, and for conservation, fixed moorings, scientific or navigational purposes (only GREEN types, *see below*)	Yes, but low impact, small-scale infrastructure (only GREEN or YELLOW types, *see below*)	Yes, but moderate impact, medium-scale infrastructure (only GREEN or YELLOW types, *see below*)	Yes. Infrastructure may have large impact, but area still provides some biodiversity conservation (may include RED types, *see below*)	Yes. Large scale, long-term infrastructure occurs that may have impacts that are Incompatible with the Conservation of Nature (any GRAY types, *see below*)

Color-coded impacts table: green = minimal impact, yellow = low to moderate impact, red = high impact, gray = Incompatible with the Conservation of Nature. The table below gives examples of the types of infrastructure that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in impacts.

Description	Examples
Small scale infrastructure with minimal impact for conservation, scientific, navigational, or sustainable tourism purposes	• Fixed moorings • Artificial reefs made from material that does not adversely affect surrounding area and only for conservation purposes (i.e., harvest is not allowed) • Agency-approved channel markers • Navigation lights • Restoration works using aquaculture techniques, but not for the purpose of harvesting seafood* • Facilities associated with limited, regulated and monitored non-extractive recreational and cultural use, e.g., for sustainable tourism*
Small- to medium-scale infrastructure with an impact that is low to moderate	• Low to moderate impact facilities associated with aquaculture* or non-extractive use, e.g., for sustainable tourism* • Renewable energy structures with low to moderate impact • Artificial reefs made from material that does not adversely affect surrounding area. May allow seafood harvest
Infrastructure with a large impact, but biodiversity conservation goals are not compromised	• Large impact facilities associated with aquaculture* • Large impact facilities associated with tourism* • Renewable energy structures with large impact • Artificial reefs considered to have a large impact, but not leaching or releasing pollutants into surrounding waters • Ports, harbors, or marinas with large impact
Large-scale, long-term infrastructure that may have impacts that are Incompatible with the Conservation of Nature	• Large-scale ports or areas where large ships repeatedly anchor • Planned or pre-existing artificial reefs or other infrastructure that may leach pollutants into surrounding waters • Facilities for aquaculture that are Incompatible with the Conservation of Nature* • The use of toxic antifouling on structures

* Infrastructure associated with aquaculture and non-extractive recreational or cultural activities should be approved by the managing authority and should meet conservation requirements. See Sections in this document on "Aquaculture" and "Non-extractive activities".

5. Aquaculture

Aquaculture types and their potential compatibility with MPA goals are based on preliminary work by IUCN (6, 7). There are no official standards for acceptable aquaculture practices within different types of MPAs. All activities should undergo review and approval by the managing authority; any impacts should be compatible with a given Level of Protection. Regardless of the Level of Protection, whether a particular aquaculture operation is compatible with the conservation objectives of the MPA will depend on the type of aquaculture, the scale of the operation, the intensity of cultivation (stocking density, frequency of harvest cycles), and whether the operation is appropriately sited (6, 7), making it difficult to develop generic guidelines.

There are two main categories of marine aquaculture: unfed aquaculture (e.g., seaweed, bivalves like mussels and oysters), and fed aquaculture (e.g., finfish like Atlantic salmon). In general, unfed aquaculture will have lower environmental impacts. The table below suggests the types of

aquaculture most likely to be compatible with each Level of Protection, although it is advisable to make case-by-case decisions given the large variability in the environmental effects of aquaculture.

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Is aquaculture allowed in the MPA or MPA zone?	No. Restoration works using aquaculture techniques may be allowed, but not for the purpose of harvesting seafood	Yes, but only low density, small-scale unfed aquaculture, with low impact (only GREEN types, *see below*)	Yes. Unfed aquaculture that is semi-intensive to intensive, OR low density, small-scale fed culture, with moderate impact (only GREEN or YELLOW types, *see below*)	Yes. Fed aquaculture that is semi-intensive with large impact, but area still provides some biodiversity conservation (may include RED types, see below)	Yes. Aquaculture is allowed with an impact that is so high that it is Incompatible with the Conservation of Nature (any GRAY types, *see below*)

Color-coded impacts table: green = low impact, yellow = moderate impact, red = high impact, gray = Incompatible with the Conservation of Nature. The table below gives examples of the types of aquaculture activities that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in impacts.

Description	Examples
Unfed (or integrated multi-trophic) aquaculture that is small-scale and low density (i.e., low total impact)	• Algae • Bivalves (e.g., mussels, clams, oysters) • Sea cucumbers • Herbivorous fish • Integrated multi-trophic aquaculture (IMTA) • Restoration aquaculture that includes harvest (e.g., Indigenous clam gardens) • Appropriate distance from sensitive habitats (e.g., coral reefs, seagrass beds, kelp forests)
Unfed (or integrated multi-trophic) aquaculture that is commercial scale and semi-intensive to intensive; or fed aquaculture that is small-scale and low density (i.e., moderate total impact)	• Medium or high density (i.e., semi-intensive to intensive; up to commercial scale) unfed aquaculture (e.g., algae, bivalves, sea cucumbers), or integrated multi-trophic aquaculture (IMTA) • Low density, small-scale/traditional use, fed culture (e.g., fish, shrimp) • Appropriate distance from sensitive habitats (e.g., coral reefs, seagrass beds, kelp forests)
Fed aquaculture that is commercial scale and semi-intensive	• Medium density fish cages or shrimp farms (i.e., semi-intensive; commercial scale) • May be located in or close to sensitive habitats
Fed aquaculture that is commercial scale and intensive and/or industrial-scale aquaculture that may have impacts that are Incompatible with the Conservation of Nature	• Practices that convert/destroy habitats, cause hypoxia, use harmful chemicals, or significantly degrade water quality, e.g., o High density fish cages (i.e., intensive) o Shrimp farms that deforest mangrove habitat o Introduction of feed supplements which have the potential to introduce disease

6. Fishing (extraction of wild fish and other marine species, including gleaning)

The ability of an MPA to meet its conservation objectives will depend on the impact of fishing activities, which is determined by the intensity and frequency of fishing by each gear type (e.g., number of fishers or amount of gear deployed). All activities should undergo review and approval by the managing authority; any impacts should be compatible with a given Level of Protection.

The framework used here to assess the compatibility of different types of fishing with each MPA Level of Protection builds from the Regulation Based Classification System (RBCS), a recently published categorization system that synthesizes new and existing data to assess gear types and their potential impacts (8). The RBCS system scores different types of fishing gear for their impact on biodiversity – and hence the ability of an MPA to meet conservation objectives – by using three criteria: species selectivity, size selectivity, and bottom impact. Using this system and expert input, we assigned gears into four categories of impact (see color-coded gear table below) and also accounted for the number of gears used in an MPA, with the assumption that more gear types is likely to lead to more total fishing pressure and disturbance to the ecosystem (8). As agreed by the IUCN (WCC-2016-Rec-102-EN), industrial fishing is incompatible with an MPA.

The impact of fishing will also depend on management regulations such as: size limits, mesh size regulations, and temporal closures; where gears are deployed (e.g., bottom gears may be less destructive over soft bottom habitat); and interactions with non-target species (e.g., bycatch). Such information is often not readily available. **Given available data, consider the types of gears used, the number of different types of gears, and whether permits and catches are limited by management authorities as metrics of fishing impact**. Since it is the current activities that influence the degree to which an MPA is protecting biodiversity at a given point in time, the assessment of fishing impact should reflect fishing that is actually occurring in the site at the time of reporting, whether or not it is explicitly stated in the management plans.

Any fishing that may be conducted for scientific research purposes in an MPA or zone is subject to the review and approval of the MPA management authority based on its impact. Any research fishing should align with IUCN Resolution 066 on Industrial Fishing, which allows for scientific research to be carried out in MPAs if it is: *"low-impact scientific research activities and ecological monitoring related to and consistent with the values and restrictions of the protected area can be carried out, particularly when collection cannot be conducted elsewhere"*. Best practices include to (1) establish clear hypotheses and research plans at the outset and revise as needed, and (2) report the data and research findings each year, including to the MPA managing authority, with renewal of permission contingent upon evidence of progress towards research objectives. An example of research fishing that is compatible with a Highly Protected MPA is the Ross Sea MPA in Antarctica (9).

In all Levels of Protection, except for Fully Protected, sustainable extractive activities by Indigenous Peoples may occur to enable traditional, spiritual and cultural practices. Many areas within MPAs hold significant spiritual or cultural importance and, thus, should be adequately preserved in recognition of those values. Extraction of marine resources for this purpose by Indigenous Peoples can have variable impacts on density and diversity of marine communities – indeed, in some cases, there may be positive impacts on biodiversity conservation. However, as stated above, the primary objective of the MPA must be nature conservation. In other words, in cases where maintaining spiritual or cultural activities geared towards sustainable use is the primary goal, please see guidance for Other Effective Area-Based Conservation Measures (OECMs).

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Is fishing allowed in the MPA or MPA zone? (extraction of wild fish and other marine species, including gleaning, for commercial, recreational, subsistence, or spiritual, traditional or cultural reasons)	No.	Yes. There is infrequent use of only a few selective and low impact gear types (5 or fewer, only GREEN types, see below)	Yes. There is a moderate number of fishing gear types allowed with moderate total impact (10 or fewer gear types, only GREEN or YELLOW types, *ssee below*)	Yes. There is a large number of gear types allowed and/or gears with large impact, but area still provides some biodiversity conservation (more than 10 gear types, may include non-in-dustrial RED types, *see below*)	Yes. There is a large number of gear types allowed, including any industrial gears, with impact that is so high it is Incompatible with the Conservation of Nature (includes any GRAY gear types, *see below*)

Fishing is prohibited in Fully Protected MPAs (except for scientific monitoring purposes – *see above*). The same fishing gear type may count multiple times (up to three) if used (1) commercially, (2) recreationally, (3) for cultural reasons, or (4) is illegal, unregulated, or unreported (IUU). For example, if the same fishing gear is used commercially, recreationally, and for cultural reasons, it would count as three gears.

Color-coded gear impacts table: green = low impact, yellow = moderate impact, red = high impact, gray = Incompatible with the Conservation of Nature. The table below gives examples of the types of fishing activities that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in impacts.

Description	Examples
Small-scale, selective gear with low impact	• Cast nets • Hand captures/gleaning • Single lines (hooks, pole and line, rod, troll) • Spearfishing (free diving only) • Traps (lobster/octopus/crab) • Fish traps (if similar to octopus traps, used over a soft bottom habitat) • Hand dredges (bivalves) • Low impact traditional extraction
Gear with a moderate impact	• Drift nets (small-scale) • Fixed fish traps (e.g., "madragues") • Fish traps (as used in coral reefs) • Gillnets • Longlines (bottom; small-scale) • Longlines (pelagic; small-scale) • Spearfishing (scuba diving) • Surrounding nets near shore (e.g., fixed nets) • Trammel nets • Beach seines • Purse seining (pelagic; small-scale for small species, minimal bycatch)

Description	Examples
Gear with a large impact (e.g., towed gears from non-industrial vessels; <12m in length)	• Dredges (bivalves) • Drift nets (medium- to large-scale) • Electric fishing • Longlines (bottom; medium-scale) • Longlines (pelagic; medium-scale) • Purse seining (bottom; medium-scale) • Purse seining (pelagic; medium-scale) • Trawl (bottom, small-scale & non-industrial) • Trawl (pelagic, small-scale & non-industrial) • Fish aggregating devices (FADs; non-industrial) • Fish fences
Gear with an impact so high it is Incompatible with the Conservation of Nature	• Industrial fisheries (see above; operated by motorized vessels larger than 12m length using trawling gears that are towed/dragged across the seafloor or through the water column, as well as using purse seines and large longlines) • Dynamite/explosive fishing • Poison fishing • Industrial anchored and drifting FADs

7. Non-Extractive Activities

Non-extractive activities (i.e., recreational, traditional, spiritual or cultural activities) can have an impact on the density and diversity of marine communities (10). Impacts include trampling sensitive habitats, boat anchoring damage, and damage caused by snorkeling, SCUBA diving, and other nature viewing activities. Importantly, the impact of the non-extractive activities will depend on not only the type of activity, but also the intensity and frequency of use. Recreational use should always be formally approved by the managing authority, and appropriate measures should be in place to minimize impacts; any impacts should be compatible with a given Level of Protection. Non-extractive use by Indigenous Peoples to preserve traditional, spiritual and cultural practices and values is guided by Indigenous leadership. Measures should be in place to minimize impacts. As stated in Section 6: Fishing, this use should be adequately preserved in recognition of those values. In cases where maintaining spiritual or cultural activities is the primary goal of the area, please see guidance for Other Effective Area-Based Conservation Measures (OECMs).

Because of the lower degree of overall impact of non-extractive activities relative to other activities included in *The MPA Guide*, here we do not use non-extractive activities to distinguish between Lightly and Minimally Protected areas or those that are Incompatible with the Conservation of Nature. Similarly, we do not use non-extractive activities to distinguish Fully and Highly Protected areas.

	Fully Protected	Highly Protected	Lightly Protected	Minimally Protected	Incompatible with the Conservation of Nature
Are there non-extractive uses in the MPA or MPA zone? (i.e., recreational, traditional, cultural, or spiritual)	None, or if any, only minimal to low impact, low density, and/or small-scale (only GREEN types, *see below*)		Yes. Uses are moderate impact, and moderate to high density and/or scale, but area still provides some biodiversity conservation		

Color-coded impacts table: green = low impact. The table below gives examples of the types of non-extractive activities that are most likely to be compatible with each Level of Protection; it is advisable for the managing authority to make case-by-case decisions given the large variability in impacts.

Description	Examples
None, or if any, only minimal to low impact, low density, and/or small-scale	• Snorkeling • Swimming • SCUBA diving • Tide pooling • Motorized or non-motorized vessels for non-extractive purposes (e.g., snorkeling, SCUBA, wildlife viewing) • Cultural/ceremonial gatherings • Cultural education • Teaching/knowledge transmission • Other uses with minimal to low impact
Yes. Non-extractive recreational, traditional, spiritual, and cultural uses that are moderate impact, moderate to high density and/or scale, but area still provides some biodiversity conservation	• All non-extractive uses that have moderate to high impact, density, and/or scale

Layer 3: Supplemental Information and Notes for Use

In Layer 3, we provide additional notes on the seven activities, along with best practices for the types of activities allowed or disallowed in the different Levels of Protection: Fully, Highly, Lightly, and Minimally, as well as activities that are Incompatible with the Conservation of Nature.

1. Mining, mineral, oil and/or gas prospecting or exploitation

Notes:

- If prospecting, exploring, or mining for the recovery of sand, gravel, or minerals occurs in the MPA or zone, the area is considered Incompatible with the Conservation of Nature.
- If inactive pre-existing infrastructure associated with prospecting, exploring, or mining occurs in an MPA or zone, impacts should be appropriate to a given Level of Protection as outlined in the Infrastructure guidance (Infrastructure: Activity 4). If leaking is known to or has the potential to occur, the area is considered Incompatible with the Conservation of Nature.
- If active pipelines occur within the MPA or zone, the probability of leaking is considered real, and the MPA is considered Incompatible with the Conservation of Nature.
- Best practices include limits on sonar related to oil and gas prospecting to protect marine life, e.g., cetaceans.

2. Dredging and Dumping

Notes:

- Ballast water should not be released in an MPA as it may introduce marine pests or genetic material dissimilar to that existing at the introduction site.
- In many cases, land disposal of dredged materials is preferred to disposal in the sea.
- Consider that maintenance dredge spoil is composed of fine material, may be contaminated, and may be easily re-suspended and transported great distances by currents and tides, where it can smother reefs, seagrasses, or other marine habitats.
- Best practices are that the proposed dredging, the dump site, and the intended spoil have undergone review and approval by the managing authority prior to commencement of works.
- Best practices are for small, recreational boats to not empty/treat bilge water in the MPA.
- Point source pollution not directly located in the MPA (e.g., on land near a coastal MPA) is not evaluated by *The MPA Guide* because it is not abatable by the MPA, but impacts should be minimized to the extent possible.

3. Anchoring

Notes:

- Consider that mooring is preferred to anchoring, as anchoring can have severe impacts on bottom habitats. Best practice is to avoid anchoring in Fully Protected MPAs or zones. If anchoring occurs, it is well-regulated and permitted, including being confined to specific zones, and avoids sensitive habitats.
- Best practices for anchoring are to avoid anchoring in or near a sensitive habitat, e.g., coral or rocky reefs, seagrass beds, some kelp forests (e.g., those with slow recovery times), or sand patches within these habitats. Consider anchor drag and swing and anchor in an area that will minimize potential harm to habitats.

4. Infrastructure

Notes:

- A facility is defined as "a building, a structure, a vessel, goods, equipment or services" (11).
- For infrastructure purposes, "location" is defined as the same broad anchorage location, e.g., in the same bay or reef.
- Proposed or approved future structures should follow review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) to ensure the MPA still provides biodiversity conservation that is compatible with a given Level of Protection, otherwise it should go to the following Level of Protection.
- Pre-existing structures are automatically compatible with a given Level of Protection if they do not leach or release pollutants to surrounding waters. If leaching or pollution occurs as a result of the pre-existing structure, the area is considered Incompatible with the Conservation of Nature.
- Most privately installed moorings may not have been approved and may not meet appropriate environmental or safety standards; these should be assessed to ensure they are acceptable for conservation before any approval, and then routinely monitored.
- Infrastructure by Indigenous Peoples for preserving traditional, cultural or spiritual values or practices is guided by Indigenous leadership. Measures should be in place to minimize impacts.
- Infrastructure associated with aquaculture should be formally approved by the managing authority and should meet conservation requirements. See "Aquaculture: Activity 5". Infrastructure associated with non-extractive recreational or cultural activities, such as tourism, should be approved by the managing authority and should meet conservation requirements. See "Non-extractive activities: Activity 7".
- Effects of infrastructure due to renewable energy such as wind towers or wave turbines are an emerging area of research. Best practices will be updated accordingly. Infrastructure should undergo review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge).
- Additional potential infrastructure facilities (e.g., communication cables), including those for research, should also undergo review and approval, as above.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Fully Protected	Impacts of infrastructure are minimal, based on scale and magnitude. Infrastructure is small-scale. • **MPA park management facilities** • **Facilities for conservation or scientific purposes** • **Navigation aids** • **Fixed moorings for small vessels**, provided they meet the qualifying requirements in the Example Best Practices column. • **Artificial reefs** with material that does not adversely affect surrounding area. The objective must be to restore degraded reef for conservation purposes, not allowing any kind of fisheries. • **Restoration works that use aquaculture techniques** • **Facilities for cultural use or recreational use** (e.g., sustainable tourism)	• May include facilities that enhance the protection and conservation of an MPA, e.g., official or agency moorings; MPA signage, such as agency-approved channel markers; navigation lights. • Vessels are only moored in the same location for a short time, as determined by the managing authority for durations consistent with minimal impacts and meeting conservation requirements. • Facilities undergo review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates any impacts are minimal and will be minimized based on scale and magnitude, and that they are not leaching or releasing pollutants into surrounding waters. • There are appropriate measures in place to minimize impacts.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Highly Protected	All **potentially compatible activities** that are allowed in Fully Protected MPAs or zones *(see above)*	
	Impacts of infrastructure are low, based on scale and magnitude. Infrastructure is small-scale. • Facilities associated with low impact, small-scale renewable energy, sustainable tourism, aquaculture, cultural use, or other uses. • **Artificial reefs** made from material that does not adversely affect surrounding area, but that may allow fishing.	• Facilities undergo review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates any impacts are low, based on scale and magnitude, and that facilities are not leaching or releasing pollutants into surrounding waters. • There are appropriate measures in place to ensure impacts are low at most.
Lightly Protected	All **potentially compatible activities** that are allowed in Fully Protected and Highly Protected MPAs or zones *(see above)*	
	Impacts of infrastructure are moderate at most, based on scale and magnitude. Infrastructure is medium scale. • Facilities associated with moderate impact, medium-scale renewable energy, aquaculture, tourism, cultural use, or other uses. • **Artificial reefs** made from material that does not adversely affect surrounding area, but that may allow fishing.	• Fisheries occurring around artificial reefs within Lightly Protected MPAs or zones should be monitored and regulated accordingly to avoid overexploitation and targeting of fish aggregations (to classify the Level of Protection according to allowed fisheries, see "Fishing: Activity 6"). • Facilities undergo review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates only a moderate impact based on scale and magnitude, and that facilities are not leaching or releasing pollutants to surrounding waters. • There are appropriate measures in place to ensure impacts are moderate at most.
Minimally Protected	All **potentially compatible activities** that are allowed in Fully Protected, Highly Protected or Lightly Protected MPAs or zones *(see above)*	
	Impacts of infrastructure may be large, based on scale and magnitude. • Facilities associated with high impact renewable energy, aquaculture, tourism, cultural use, or other uses. • **Artificial reefs** considered to have large impact, but with material that does not adversely affect surrounding area. May allow fishing. • Any high-impacting marine facility associated with small ports, harbors, marinas, or tourism.	• Facilities undergo review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates that, despite large impact, regulations in place still provide some biodiversity conservation, and that facilities are not leaching or releasing pollutants into surrounding waters. • There are appropriate measures in place to ensure impacts are large at most, and not Incompatible with the Conservation of Nature.
Incompatible with the Conservation of Nature	• **Pre-existing or planned (future) artificial reefs or other infrastructure constructed of materials that adversely affect surrounding area** (e.g., car bodies, tires, wrecks), especially those materials that in time will rust, erode, or otherwise deteriorate and leach pollutants. • **Any facility or vessel for which the level of impact** is so high that it is Incompatible with the Conservation of Nature (e.g., medium/large-scale ports or areas where large ships repeatedly anchor, facilities for aquaculture that is Incompatible with the Conservation of Nature (see Activity 5), use of toxic antifouling on structures).	

5. Aquaculture

Notes:

- Restoration of biogenic habitats (e.g., oyster reefs, coral reefs) by cultivating an aquatic species through off-site rearing and/or transplantation of wild stock is allowed.
- Associated infrastructure should be formally approved by the managing authority and should meet conservation requirements and minimize impacts (See "Infrastructure: Activity 4").
- Aquaculture by Indigenous Peoples for preserving traditional, cultural or spiritual values and practices is guided by Indigenous leadership. Measures should be in place to minimize impacts.
- Point source pollution associated with aquaculture not directly located in the MPA (e.g., from aquaculture facilities near a coastal MPA) is not evaluated by *The MPA Guide* because it is not abatable by the MPA, but impacts should be minimized to the extent possible.
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Level of Protection	Potentially Compatible Activities	Example Best Practices
Fully Protected	Only for the purpose of active restoration and not for harvesting seafood; impacts are minimal, based on scale and magnitude. • Restoration works (also referred to as conservation aquaculture; not for commercial purposes or subsistence food) are defined as "the use of human cultivation of an aquatic organism for the planned management and protection of a natural resource" (12). • Release of individuals from hatcheries for stock enhancement of an endangered or threatened local population, as long as the hatchery genetic stock matches that of the wild population and there are appropriate safeguards against pathogen spread. • Restoration of biogenic habitats (e.g., oyster reefs, coral reefs) by cultivating an aquatic species through off-site rearing and/or transplantation of wild stock.	• All aquaculture for restoration undergoes review and approval by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates any restoration actions are in line with biodiversity conservation goals. • There are appropriate measures in place to minimize impacts.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Highly Protected	All **potentially compatible activities** that are allowed in Fully Protected MPAs or zones *(see above)*	
	Impacts of aquaculture are low at most. • Types of aquaculture allowed are restricted	• Aquaculture of native species • Does not degrade water quality • Does not use harmful chemicals • Does not destroy natural habitats • Does not cause hypoxic conditions • Over soft bottom • Low density, small-scale/traditional use unfed aquaculture (e.g., algae, bivalve, sea cucumber), restoration aquaculture that includes harvest (e.g., Indigenous clam gardens), or integrated multi-trophic aquaculture (IMTA) are most likely to be able to meet the conservation objectives of a Highly Protected MPA. • Aquaculture operation undergoes review and approval by the managing authority prior to installation (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates any impacts associated with farm and associated infrastructure will be minimized, based on scale and magnitude, and that the MPA still provides biodiversity conservation. • There are appropriate measures in place to ensure impacts are low at most.
Lightly Protected	All **potentially compatible activities** that are allowed in Fully Protected and Highly Protected MPAs or zones *(see above)*	

	Impacts of aquaculture are moderate at most.
	• Types of aquaculture allowed are restricted
		• Aquaculture of native species
		• Does not degrade water quality
		• Does not use harmful chemicals
		• Does not destroy natural habitats
		• Does not cause hypoxic conditions
		• Over soft bottom
		• The following aquaculture types may be able to meet the conservation objectives of a Lightly Protected MPA:
		  • Medium or high density (i.e., semi-intensive to intensive; commercial scale) unfed aquaculture (e.g., algae, bivalve, sea cucumber)
		  • integrated multi-trophic aquaculture (IMTA)
		  • low density, small-scale/traditional use, fed culture (e.g., fish, shrimp)
		• Aquaculture operation undergoes review and approval by managing authority prior to installation (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates only a moderate impact, based on scale and magnitude, and that the MPA still provides biodiversity conservation.
		• There are appropriate measures in place to ensure impacts are moderate at most.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Minimally Protected	All **potentially compatible activit**ies that are allowed in Fully Protected, Highly Protected or Lightly Protected MPAs or zones *(see above)*	
	Impacts of aquaculture may be large based on scale and magnitude. • Types of aquaculture allowed are restricted	• Aquaculture of native species • Does not degrade water quality • Does not use harmful chemicals • Does not destroy natural habitats • Does not cause hypoxic conditions • Over soft bottom • More permanent infrastructures may be present. • Medium density fish cages (i.e., semi-intensive; commercial scale) may be able to meet some conservation objectives of a Minimally Protected MPA. • All aquaculture operations should be reviewed and approved by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) and demonstrate that, despite large impact, regulations in place still provide some biodiversity conservation. • There are appropriate measures in place to ensure impacts are large at most, and not Incompatible with the Conservation of Nature.
Incompatible with the Conservation of Nature	• **High intensity aquaculture** (i.e., high density fish cages) • **Any aquaculture for which the level of impact** is so high that it is Incompatible with the Conservation of Nature (e.g., the introduction of feed supplements for aquaculture, which have the potential to introduce disease).	

6. Fishing (extraction of wild fish and other marine species, including gleaning)

Notes:

- By definition, the primary objective of any MPA, including those that allow fishing, is the conservation of biodiversity (2).
- Fishing should be regulated by specific management measures (e.g., maximum number of vessels or gears allowed, limits on mesh size, quotas, spatio-temporal closures, etc.), ideally based on the evaluation of target species, main bycatch species, and others. See *The MPA Guide* Stages of Establishment: Implemented and Actively Managed.
- IUCN (WCC-2016-Rec-102-EN) states that industrial fishing is incompatible with an MPA.
- The "same" fishing gear may count up to three times if used commercially, recreationally, and for cultural reasons (i.e., as three different gear types).
- Fishing should be formally approved by the managing authority and should meet conservation requirements.
- Fishing for endangered or protected species (including through unintended bycatch) is not allowed in any MPA and is considered Incompatible with the Conservation of Nature.
- Fishing for invasive species may occur at any Level of Protection, if it is formally approved by the managing authority and meets conservation requirements.
- All fishing vessels should utilize automatic location communicators (e.g., AIS/VMS) at all times to enable surveillance.
- Fishing vessels that are unlicensed and conducting innocent passage through an MPA should follow these best practices: (1) fishing gear should be stowed and not readily accessible for use; (2) vessel should transmit at all times via AIS, VMS, or other appropriate position-fixing and identification equipment to enable surveillance; (3) no loitering within an MPA.
- In all Levels of Protection, except for Fully Protected, sustainable extractive activities by Indigenous Peoples may occur to enable traditional, spiritual, and cultural practices. Many areas within MPAs hold significant spiritual or cultural importance and, thus, should be adequately preserved in recognition of those values.
- Any fishing that may be conducted for scientific research purposes in an MPA or zone is subject to the review and approval of the MPA management authority based on its impact. Best practices include to (1) establish clear hypotheses and research plans at the outset and revise as needed, and (2) report the data and research findings each year, including to the MPA managing authority, with renewal of permission contingent upon evidence of progress towards research objectives.
- Fishing by Indigenous Peoples for preserving traditional, cultural or spiritual values and practices is guided by Indigenous leadership. Measures should be in place to minimize impacts.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Fully Protected	• None	• Fishing gears are not allowed in a Fully Protected MPA or MPA zone
Highly Protected	Impacts of fishing activities are low at most. • A maximum of 5 fishing gear types allowed • Only GREEN fishing gears (if 5 or fewer different types of fishing gears are allowed but some are YELLOW or RED, go to Lightly or Minimally Protected, respectively)	• Infrequent use of small-scale, highly selective gear with low impact (e.g., single lines, octopus traps) – only GREEN gear types. • See specific GREEN gears listed above (Level 2 information). • These gears may be used commercially, recreationally, or culturally, but each use counts as one gear type. These fishing types are usually distinguished in management plans. • Permits and catches are both limited as deemed appropriate by managing authority. • There are appropriate measures in place to ensure impacts are low at most.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Lightly Protected	Impacts of fishing activities are moderate at most. • Maximum of 10 different fishing gear types, commercial, recreational, or cultural uses • Only GREEN and YELLOW fishing gears (if any RED gears are allowed, go to Minimally Protected)	• Small-scale, moderate impact gear (e.g., nets, longlines) – any YELLOW gear types. • See specific YELLOW gears above (Level 2 information). • Up to 10 gear types, either GREEN or YELLOW. • These gears may be used commercially, recreationally, or culturally, but each use counts as one gear type. • Permits and catches are both limited as deemed appropriate by managing authority. • There are appropriate measures in place to ensure impacts are moderate at most.
Minimally Protected	Impacts of fishing activities may be large, based on scale and magnitude. • > 10 fishing gears allowed • GREEN, YELLOW and RED fishing gears	• Medium- to large-scale use of non-industrial gears with high impact (e.g., towed gears such as trawls and dredges) – i.e., any RED gear types. • See specific RED gears above (Level 2 information). • More than 10 gear types, GREEN or YELLOW or RED. • These gears may be used commercially, recreationally, or culturally, but each use counts as one gear type. • Bottom gears should be reviewed and approved by the managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) and demonstrate that, despite large impact, the MPA still provides biodiversity conservation. • There are appropriate measures in place to ensure impacts are large at most, and not Incompatible with the Conservation of Nature
Incompatible with the Conservation of Nature	• **Any fishing, including illegal fishing, for which the level of impact** is so high that it is Incompatible with the Conservation of Nature. • **Industrial fishing** (from vessels >12m in length using towed/dragged gears, see above) is not permitted within an MPA. Neither is the use of a combination of gear types with such a high impact that it is Incompatible with the Conservation of Nature. For example: Industrial vessels using trawling gears that are dragged or towed across the seafloor or through the water column, as well as industrial fishing using purse seines and large longlines; dynamite explosive fishing; poison fishing; industrial-scale anchored and drifting fish aggregating devices.	

7. Non-Extractive Activities

Notes:

- Best practices for implementation: Recreational use should always be formally approved by the managing authority, and appropriate measures should be in place to minimize impacts. Use by Indigenous Peoples for preserving traditional, cultural or spiritual values and practices is guided by Indigenous leadership. Measures should be in place to minimize impacts.
- See "Anchoring: Activity 3" for information on anchoring restrictions by Level of Protection.

Level of Protection	Potentially Compatible Activities	Example Best Practices
Fully and Highly Protected	Unregulated or regulated use that is minimal to low impact, density and/or scale.	• Non-destructive, spatially limited, permitted, regulated, or otherwise limited (e.g., temporally). • May include no-access area (conservation zones). • Include visitor education/information, and money raised (e.g., recreation fees) contributes to conservation. • Recreational activities undergo review and approval by managing authority (e.g., an environmental impact assessment or council approval based on collected data and traditional knowledge) that demonstrates any impacts will be minimized based on scale and magnitude. • There are appropriate measures in place to ensure impacts are low at most.
Lightly Protected	• All potentially compatible activities that are allowed in Fully and Highly Protected MPAs or zones *(see above)*	
	• Unregulated or regulated use that is moderate impact, moderate to high density and/or scale.	• All non-extractive uses that are unregulated, with moderate impact and moderate to high density and/or scale.

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