

# A NEW GLOBAL CLASSIFICATION SYSTEM FOR MARINE PROTECTED AREAS

A regulation-based classification for MPAs to assess how well they can perform.

A system that classifies MPAs as well as each MPA zone individually,  
is globally applicable and unambiguously discriminates the impacts of uses.

## Arrábida Marine Park AMP

Year: 1998 • Total Area: 5.275 ha

Zone Types: 5 • Number of Zones: 8

MPA Class: **HIGHLY PROTECTED AREA**

4.5

1 2

4

5

6

3

8%

36%

22%

31%

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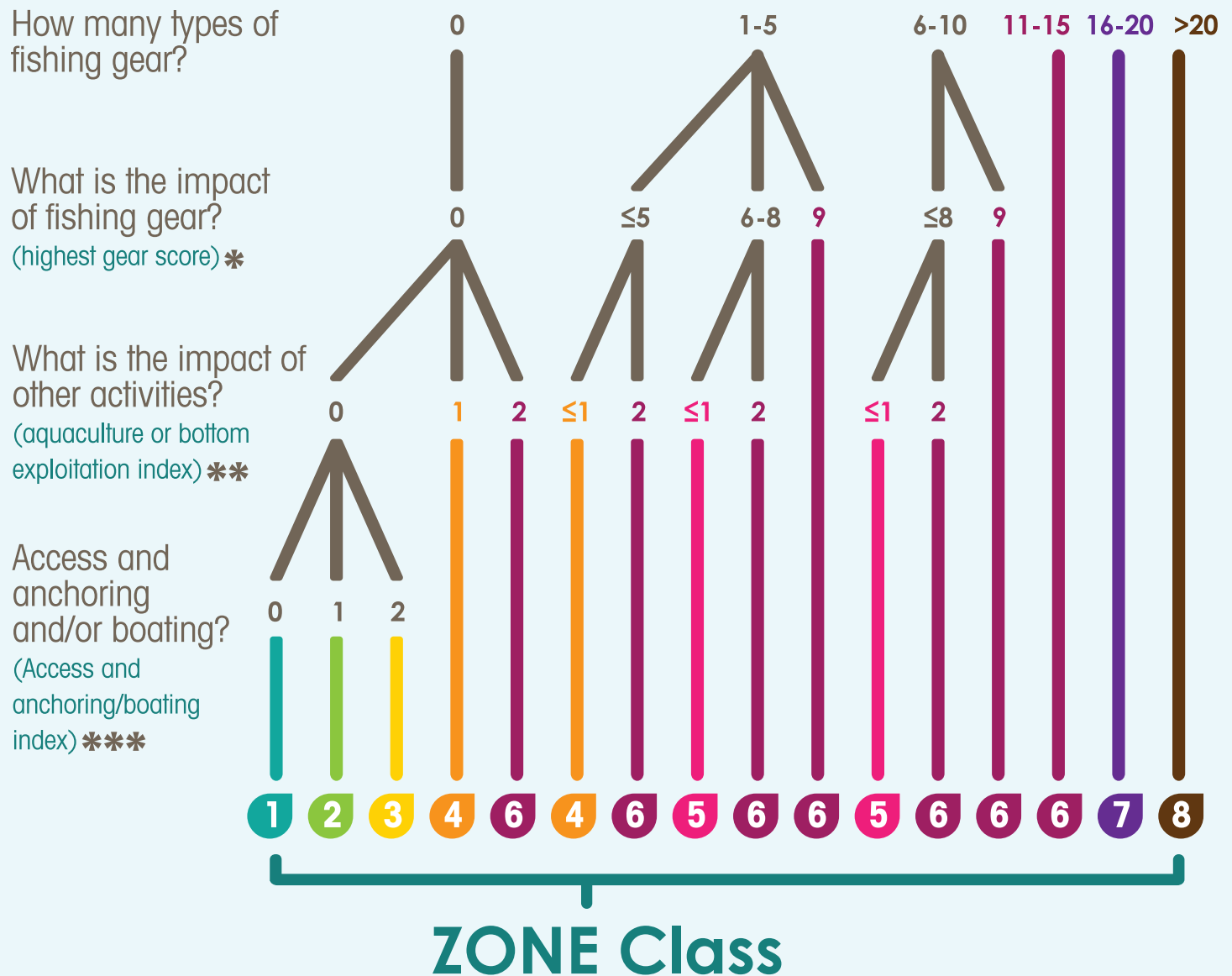
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# A Regulation-Based Classification System for Marine Protected Areas (MPAs)

Horta e Costa et al. Marine Policy. DOI: <http://dx.doi.org/10.1016/j.marpol.2016.06.021>

## Classification System of Zones within MPAs (a decision tree)



## ZONE Classification

- |                               |                                    |
|-------------------------------|------------------------------------|
| ① No-take/No-go               | ⑤ Moderately regulated extraction  |
| ② No-take/Regulated access    | ⑥ Weakly regulated extraction      |
| ③ No-take/Unregulated access  | ⑦ Very weakly regulated extraction |
| ④ Highly regulated extraction | ⑧ Unregulated extraction           |

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## Classification System of MPAs

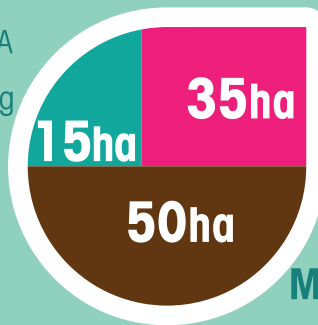


## Next stage: how to classify MPAs

An MPA index is calculated based on the area each ZONE Class occupies within the MPA

$$\text{MPA index} = \text{SUM} \left( \text{ZONE}_i \text{ Class} \times \frac{\text{Area ZONE}_i}{\text{Area MPA}} \right)$$

Example of a multiple-use MPA with 3 zones (and corresponding zone classes) occupying different areas



### EXAMPLE

MPA with 100 ha of total area

15ha class 1 + 35ha class 5 + 50ha class 8

$$\text{MPA index} = \left(1 \times \frac{15}{100}\right) + \left(5 \times \frac{35}{100}\right) + \left(8 \times \frac{50}{100}\right) = 5.9$$

MPA index

MPA Classification

1 to 3 *incl.*



FULLY PROTECTED AREA

3 to 5 *incl.*



HIGHLY PROTECTED AREA

5 to 6 *incl.*



MODERATELY PROTECTED AREA

6 to 7 *incl.*



POORLY PROTECTED AREA

7 to 8



UNPROTECTED AREA

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## Indices of Activities (supporting information for the decision tree)

### \* Highest fishing gear score

Fishing gear (commercial or recreational)	Gear score
Beach seines	8
Cast nets	3
Dredges (bivalves)	7
Drift nets	5
Fish traps	6
Fixed fish traps "madrague"	6
Gillnets	6
Hand dredges (bivalves)	5
Hand harvesting	4
Intertidal hand captures	3
Lines (jigs, hook and line, rod, troll)	5
Longlines (bottom)	5
Longlines (pelagic)	4
Purse seining (bottom)	9
Purse seining (pelagic)	5
Spearfishing/diving	3
Surrounding nets near shore	8
Tammel nets	8
Traps (lobster/octopus/crab)	4
Trawl (bottom)	9
Trawl (pelagic)	5

≤ 5 corresponds to highly selective and low impact gears (e.g. lines, octopus traps);

6-8 medium impacting gears (e.g. fish traps, bottom longlines, pelagic towed gears);

9 to the most destructive gears affecting biodiversity and ecosystems (e.g. bottom trawling, bottom purse seining)

### \*\* Aquaculture or bottom exploitation index

Activities allowed	Index
Aquaculture and bottom exploitation not allowed	0
Aquaculture OR bottom exploitation allowed, but not mining/oil platforms/sand extraction/detonations	1
Both aquaculture AND bottom exploitation allowed with no restrictions (or if aquaculture is not allowed but mining/oil platforms/sand extraction/detonations are)	2

### \*\*\* Recreational Access index

Activities allowed	Index
No access	0
Fully regulated access including boating and/or anchoring allowed but fully regulated: restricted to particular areas or mooring buoys	1
Boating and/or anchoring allowed but partially regulated or unregulated	2