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Agenda Item 25.1.3

**FISH AGGREGATING DEVICES**

*(Prepared by the Secretariat)*

Summary:

This document reports on progress to implement Decisions 14.35–14.37 *Fish Aggregating Devices*, and presents a summary of the report, *Relationship between Fish Aggregating Devices (FADs) and Marine Debris in the Mediterranean Sea*. It also proposes the adoption of new draft Decisions.

The attached draft Decisions would support the achievement of Targets 2.3, 3.1, 3.3, 4.1 and 5.4 of the Samarkand Strategic Plan for Migratory Species 2024–2032.

## FISH AGGREGATING DEVICES

### Background

1. Fish aggregating devices (FADs) are mentioned in Resolution 12.20 *Management of Marine Debris* and Resolution 14.9 *Conservation Priorities for Cetaceans*. The position of COP-appointed Councillor for Marine Pollution, which has been in place since COP13, continues to support work on this topic. Marine pollution is addressed in [UNEP/CMS/COP15/Doc.25.2.1](#)

2. COP14 adopted the following Decisions on this issue:

#### **14.35 Directed to Parties**

*Parties are encouraged to:*

- a) *address potential negative impacts of FADs on CMS-listed species such as sharks, rays, turtles, marine mammals, which may get entangled in such devices, as well as the impact on marine ecosystems, such as pollution, beaching, ghost fishing, and their transformation into marine debris*
- b) *ensure that FADs deployed within their jurisdiction or by vessels for which they are a flag state are:*
  - i. *of non-entangling nature, designed to reduce the likelihood of them being lost, and, to the extent possible, subject to regular inspection and maintenance to avoid loss,*
  - ii. *marked, monitored, maintained and retrieved in an environmentally sound manner by the fisheries concerned,*
  - iii. *located, where possible, away from shipping routes or areas where they will be in conflict with other fisheries and migratory routes for CMS-listed species,*
  - iv. *deployed at times of the year and in locations where their beaching is less likely, according to relevant scientific advice, and*
  - v. *disposed of appropriately when they are no longer required.*
- c) *where they are a flag state for FAD fisheries and/or FAD deploying vessels:*
  - i. *ensure, whenever possible and feasible, that natural biodegradable materials are used in the construction of FADs, noting that more research is needed on this topic, and*
  - ii. *ask fisheries to use real-time lost gear reporting to track rates of loss, identify high risk location and gear types, and promote retrieval, particularly in sensitive marine habitats or areas of high importance for food security, where it is environmentally save to do so;*
- d) *continue working with and within relevant fisheries organizations to promote the adoption of conservation and management measures to ensure the sustainability of FAD fisheries, including a progressive ban of entangling FAD designs to eliminate ghost fishing and related impacts;*
- e) *develop solutions to reduce loss or prevent dumping, as well as ensure the full retrieval and proper disposal of FADs;*
- f) *promote the progress of ongoing scientific work within relevant fisheries organizations for the development of biodegradable FADs,;*
- g) *include terms of environmental control measures in fishing licences and in development of related guidelines aiming at mitigating the impacts on CMS-listed species;*
- h) *support inclusion of effective steps to address fishing gear as part of the new global plastics treaty, including abandoned, lost and otherwise discarded fishing gear;*
- i) *conduct clean ups to remove abandoned, lost and otherwise discarded FADs from the sea including ghost nets;*
- j) *work within relevant fisheries organizations to promote effective design, construction and use of FADs to reduce the risks to CMS-listed species; and*
- k) *report to the Conference of the Parties at its 15<sup>th</sup> meeting on the progress in implementing this Decision.*

**14.36 Directed to the Scientific Council**

*The Scientific Council is requested to, subject to the availability of resources:*

- a) *evaluate the relationship between FADs and marine debris and establish principles for best practice to avoid their loss, entanglement with marine wildlife, and beaching in corals, mangroves and other aquatic and coastal habitats, and that seek to reduce their contribution to plastic pollution. This should include liaison with the International Seafood Sustainability Foundation (ISSF), further to their work on improving FAD design, and the relevant fisheries organizations;*
- b) *consider a possible case study area looking at FADs as a source of marine debris, for example in the Mediterranean Sea, to*
  - i. *look at compliance with existing regulations,*
  - ii. *recommend environmental management and control measures to avoid gear loss, and*
  - iii. *explore ways of improving the environmentally sound retrieval of lost FADs; and*
- c) *report to the 15<sup>th</sup> meeting of the Conference of the Parties on the progress in implementing this Decision.*

**14.37 Directed to the Secretariat**

*The Secretariat shall, subject to the availability of external resources, support the Scientific Council in implementing Decision 14.36.*

**Report on the relationship between FADs and marine debris**

3. With funding provided by the Government of the Principality of Monaco under the Migratory Species Champion Programme, the Secretariat, in close cooperation with the CMS COP-appointed Councillor for Marine Pollution, hired a consultant to prepare the report called for in Decision 14.36 (a) and (b) on the relationship between FADs and marine debris, including the impacts on CMS-listed species and coastal habitats. The report is presented as [UNEP/CMS/COP15/Inf.25.1.3](#). An executive summary and recommendations can be found in Annex 1 of this document.
4. The report reviews the relationship between FADs and marine debris using the Mediterranean region as a case study. It examines the scale and use of FADs in the Mediterranean and the regulatory landscape for FADs, plastic pollution and sustainable fisheries. It also reviews regulations governing the use of FADs and best practices for the sustainable use of FADs globally.
5. The majority of FADs deployed in the Mediterranean are anchored; the region accounts for the highest number of anchored FADs globally. It is estimated that approximately 60,000 FADs are deployed annually in the Mediterranean, most of which are not retrieved. Many of these devices are subsequently lost, thereby becoming drifting FADs, or are abandoned when recovery is deemed too costly or logistically challenging. Abandoned, lost or otherwise discarded FADs are therefore a major contributor to global marine debris. Even after they are discarded, their nets continue to trap and kill marine life.
6. A range of technical and policy measures are available to minimize the impacts of FADs on endangered species and marine ecosystems. Effective implementation could substantially reduce these negative impacts. Recommendations to reduce the harmful impacts of FADs while allowing their use in well-managed, sustainable fisheries can be found in Annex 1.

### Discussion and analysis

7. The use of FADs presents a growing conservation concern under CMS due to their contribution to marine debris and the risk they pose to migratory species through entanglement, ingestion and habitat degradation.
8. The mandates under Decisions 14.36–14.37 have been fulfilled: a report analysing the relationship between FADs and marine debris has been prepared, and recommendations to support the sustainable use of FADs have been developed. A new draft Decision proposed for adoption encourages Parties to apply the recommendations set out in the report.

### Recommended actions

9. The Conference of the Parties is recommended to:
  - a) note the executive summary and recommendations of the report on the *Relationship between Fish Aggregating Devices (FADs) and Marine Debris in the Mediterranean Sea* contained in Annex 1 of this document;
  - b) adopt the draft Decisions contained in Annex 2 of this document; and
  - c) delete Decisions 14.35-14.37.

## ANNEX 1

**RELATIONSHIP BETWEEN FISH AGGREGATING DEVICES (FADs)  
AND MARINE DEBRIS IN THE MEDITERRANEAN SEA:  
EXECUTIVE SUMMARY AND RECOMMENDATIONS**

(The full report can be found in [UNEP/CMS/COP15/Inf.25.1.3](#))

**Executive Summary**

Fish aggregating devices (FADs) are a commonly used commercial fishing gear that, depending on how they are constructed and used, can cause environmental harms to marine life and marine and coastal habitats. Many of these harms can be mitigated or significantly reduced with appropriate regulations on their construction, operation and post-use recovery, described in detail throughout this report.

FADs with netting or mesh ('entangling FADs') entangle marine life of conservation concern, including sharks, sea turtles, marine mammals and seabirds, as well as non-target species of fish. FADs are often lost (sometimes due to storms or gear breakage) or abandoned by fishers, which results in 'ghost gear' that continues to entangle marine life for years. When abandoned, lost or otherwise discarded, FADs can sink or drift into shallow water. They can smother, crush or entangle sensitive marine and coastal habitats, including coral reefs, causing habitat destruction and loss, with wide-ranging ecological impacts. Many FADs are made of plastic, and when lost or abandoned, they contribute to issues relating to marine plastic pollution (including entanglement or choking hazards) and microplastic pollution (including ingestion of toxic substances).

This report reviews the relationship between FADs and marine debris using the Mediterranean region as a case study – though these problems are global and the proposed solutions are widely applicable. In this region, an estimated 60,000 FADs are deployed each year, and overwhelmingly not recovered. The report focuses on existing regulations in the Mediterranean, with consideration of both sustainable fisheries management and reducing plastic pollution and marine debris. It also reviews similar regulations and best practice recommendations in other regions that could be adapted to the Mediterranean context (or anywhere else in the world).

Numerous management and control measures can mitigate the potential environmental harms associated with the construction and usage of FADs. Summarizing regulations, research and best practices from around the world, this report makes a number of recommendations to reduce the potential environmental impacts of FADs. These include:

- Regulating the design and materials used in the construction of FADs, with recommendations to require non-entangling designs and biodegradable materials. This includes design elements to reduce the risk of gear breakage and loss, such as stronger anchors;
- Controlling the total number of FADs that can be deployed per fishing vessel or fleetwide, and where FADs can and cannot be deployed;
- Requiring markings so that any lost gear can be traced to its original owner if recovered;
- Requiring regular and thorough reporting of data to relevant authorities; and
- Encouraging recovery efforts for lost FADs.

## Recommendations

A review of peer-reviewed scientific literature, technical reports from regional fisheries management organizations, and best practice guides for commercial fisheries from industry groups and environmental non-profit organizations, was used to develop a clear set of recommendations for reducing the harmful impacts of FADs while still permitting their use in potentially sustainable well-managed fisheries (Table 1).

While this report focuses on the Mediterranean region as a case study, problems from poorly managed FADs are global, and these solutions can be adapted to any region's management systems.

It should be noted that any regulation is only valuable if it is enforced. Regional fisheries management organizations (including the General Fisheries Commission for the Mediterranean), as well as nations whose fishing vessels use FADs, should cooperate and coordinate with each other to increase compliance and effectiveness.

These recommendations include:

### When constructing FADs:

#### **Parties are encouraged to:**

**Require the use of non-entangling FADs** (and restrict the use of entangling FADs). A non-entangling design for FADs still aggregates target species of fish just as effectively, with dramatically reduced impacts on non-target species caught as bycatch, including marine mammals, sharks, sea turtles and seabirds, as well as non-target fish species. Non-entangling refers to construction without any netting or mesh material that can pose a risk of entanglement to numerous marine species.

**Require the use of biodegradable, organic, non-toxic materials when constructing FADs (or key components of FADs)**, including in components such as ropes and floats, and restrict the use of materials such as plastic. A life cycle analysis can be used to determine the most suitable material – for instance, a strong non-biodegradable component that can be reused for many years may have less environmental impact than a biodegradable element that can only be used for one season. However, gear components that are most frequently lost, or are most often associated with ecosystem impacts when lost, should be required to be biodegradable. Though some plastics may be considered biodegradable under some definitions, the regulations should stipulate that materials used in the construction of FADs should be non-toxic in the marine environment, and therefore should preclude the use of most biodegradable plastics.

**Require stronger (and reusable) anchor systems** to reduce the chances of gear loss during normal operations. Some fishing operations prioritize ease (including low cost) of anchor construction, but lower-quality anchor systems are more likely to break resulting in lost gear. Ideally, anchor systems should be designed to be reusable (and recoverable) even if the rest of the anchored FAD is lost. Reusing anchors reduces total material waste associated with FADs.

When deploying FADs / monitoring deployed FADs:**Parties are encouraged to:**

**Restrict the total number of FADs in use at a time**, both per vessel (to reduce the chance of a fishing vessel losing gear inadvertently, a risk which increases when there are more FADs to keep track of) and in total in the whole fishery or region (reducing total impacts ecosystem-wide). Currently some Mediterranean Sea nations have rules along these lines, but others do not. A General Fisheries Commission of the Mediterranean regulation (43/2019/1) requires a register of fishing vessels authorized to deploy FADs in the region, but several nations have yet to comply.

**Regulate where FADs can and cannot be deployed**, including avoiding:

- shipping lanes
- areas of potential conflict with other fisheries
- key migratory routes or critical habitats
- seafloor habitat where breakage and loss are more likely

While drifting FADs (or lost anchored FADs that become drifting FADs) may drift into these regions, restricting where they can be initially deployed reduces this chance. And reducing deployment in areas where breakage is more likely reduces the chance of breakage and lost gear.

**Require identifying markings on FADs** so that any recovered FADs can be traced to their owner. Such markings should be standardized and internationally recognizable. The markings should be such that any vessel or management authority can easily determine the source of recovered lost FADs (rather than simply allow fishers/captains to identify gear that came from their own boats). These marks should be placed on multiple key components of each FAD in case the gear breaks and only one component is later recovered.

**Require inspection and maintenance of FADs.** The ocean is a dynamic and challenging environment, and some gear breakage (and therefore loss) is likely inevitable. However, some gear breakage is due to poor maintenance, and requiring inspection, maintenance and repair prior to deploying FADs (and restricting the deployment of damaged FADs) will reduce gear loss.

**Require the use of electronic tracking devices** so that FADs can be easily recovered and do not become abandoned 'ghost gear'. Electronic-signalling devices on FADs can also reduce the chance of them being struck by ships.

End of fishing season / end of FADs' operating life:**Parties are encouraged to:**

**Require the removal of FADs at the end of the season.** Many fisheries that use FADs have a distinct fishing season. Requirements to remove FADs at the end of the season can reduce the long-term environmental impacts of the gear and reduce the chances of it becoming lost. All FADs should be inspected and repaired during this timeframe, and irreversibly damaged gear should not be redeployed the following season.

If FADs are lost:

**Parties are encouraged to:**

**Require monitoring and reporting of lost gear.** A striking number of studies reviewed in this report rely on estimates because reliable data on the scale of the problem is unavailable. Requirements for fishing vessels to document and report lost FADs would both improve scientific understanding of the scale of the issue and, in some cases if reported quickly, could trigger recovery efforts.

**Implement FAD recovery policies including financial incentives** (e.g., paying fishers directly to recover FADs, including those that are not their own). This could be facilitated by electronic tracking devices. In some regions, a communications network could be used to rapidly inform fishers of any FADs drifting nearby that could be recovered. There could be some form of deposit that fishers get back when gear is delivered at the end of a fishing season, as well as penalties for careless avoidable gear loss or intentional abandonment.

Table 1: Key recommendations and their benefits

<b>TECHNICAL / POLICY SOLUTION</b>	<b>PROPOSED BENEFIT</b>
<b>During the construction of FADs</b>	
Non-entangling design elements	Dramatically reduces the possibility of entangling non-target marine life including species of conservation concern
Biodegradable design elements	Dramatically reduces environmental impacts of 'ghost gear' if FADs are lost or abandoned
Stronger anchor system	Reduces the chance of FADs being lost during moderate storms or normal operations
Life Cycle Analysis of gear to reduce total lifetime impact	Reduces multi-year impact of gear (e.g., a non-biodegradable component that can be reused repeatedly may have less environmental impact than a single-season use biodegradable component)
<b>During the deployment of FADs / monitoring of deployed FADs</b>	
Restrict total number of FADs deployed, per vessel and fleetwide	Reduces the chance of lost gear and total impacts
Restrict where FADs can be deployed	Reduces the chance of breakage leading to lost gear and impacts of gear on sensitive habitats or on migratory species of conservation concern
Require identifying markings	Ensures that each FAD is traceable to an individual fishing vessel
Require inspection and maintenance of gear	Reduces the chance of lost gear
Require electronic tracking devices	Reduces the chance of lost gear / facilitates recovery of lost gear
<b>At the end of fishing season / end of FADs' operating life</b>	
Require removal of FADs after the fishing season	Reduces long-term impact of gear
<b>If FADs are lost</b>	
Require monitoring and reporting lost gear	Facilitates an understanding of the scale of the problem and can trigger recovery efforts
Financial incentives for recovery of lost gear	Reduces long-term impacts of lost gear

**ANNEX 2**

DRAFT DECISIONS  
**FISH AGGREGATING DEVICES**

***Directed to Parties***

15.AA Parties are encouraged to:

- a) apply the recommendations contained in Annex 1 of UNEP/CMS/COP15/Doc.25.1.3; and
- b) report to the 16<sup>th</sup> meeting of the Conference of the Parties on implementation of the Decision.

***Directed to Scientific Council***

15.BB The Scientific Council is requested to:

- a) utilize, in related work, the summary and recommendations of the report, *Relationship between Fish Aggregating Devices (FADs) and Marine Debris in the Mediterranean Sea*, contained in Annex 1 of UNEP/CMS/COP15/Doc.25.1.3; and
- b) continue to monitor FADs as a source of plastic pollution, under the marine pollution work stream of the Scientific Council.