EFCA
European Fisheries Control Agency

Unit
EU Waters and North Atlantic

Guidance for Inspectors on Acoustic Deterrent Devices (ADDs) as required by *Regulation (EU) 2019/1241 of the European Parliament and the Council of 20 June 2019* provisions

European Fisheries Control Agency
Vigo, 2022

www.efca.europa.eu efca@efca.europa.eu +34 986 120 610 Edificio Odriozola, Avenida García Barbón 4, 36201, Vigo – Spain

Contents

Introduction

The purpose of this guidance document is to assist inspectors in a common understanding of the requirements of the regulation in a practical manner. In this role this guidance might not be the only available source for inspectors as some MS might have as well national guidelines.

The *Regulation 2019/1241* sets in *Article 4* the target to limit incidental catches of marine mammals. In *Article 6 (44)* acoustic deterrent devices are defined as a tool to deter marine mammals from fishing gear by emitting acoustic signals. Article 11 of the same regulation prohibit the catch of marine mammals and regulates the handling of such by-catch. It also provides for the mandate for Member States to establish additional protective measures either for mitigation or restriction of use of certain gear. In *Annex XIII* the regulation provides for measures to monitor and reduce the incidental catches of Cetaceans in fisheries.

The *Regulation 2020/967* provides for the technical specifications of ADD's and the implementation characteristics. There are two types of ADD's described initially, analogue ADD and digital ADD. The regulation also provides for conditions for using alternative ADD's that might not fulfil the requirements in the same manner but shall be as effective as the described once.

Legal basis

The *Regulation 2019/1241* (hereafter TMR):
Article 4; Article 6 (44); Article 11; Annex XIII part A – see Annex II of this guidance document

The *Regulation 2020/967* – see Annex III

Scope

Scope by fisheries

According to the TMR, the obligation to use ADD is limited to fishing with bottom set gill nets and entangling nets exclusively.

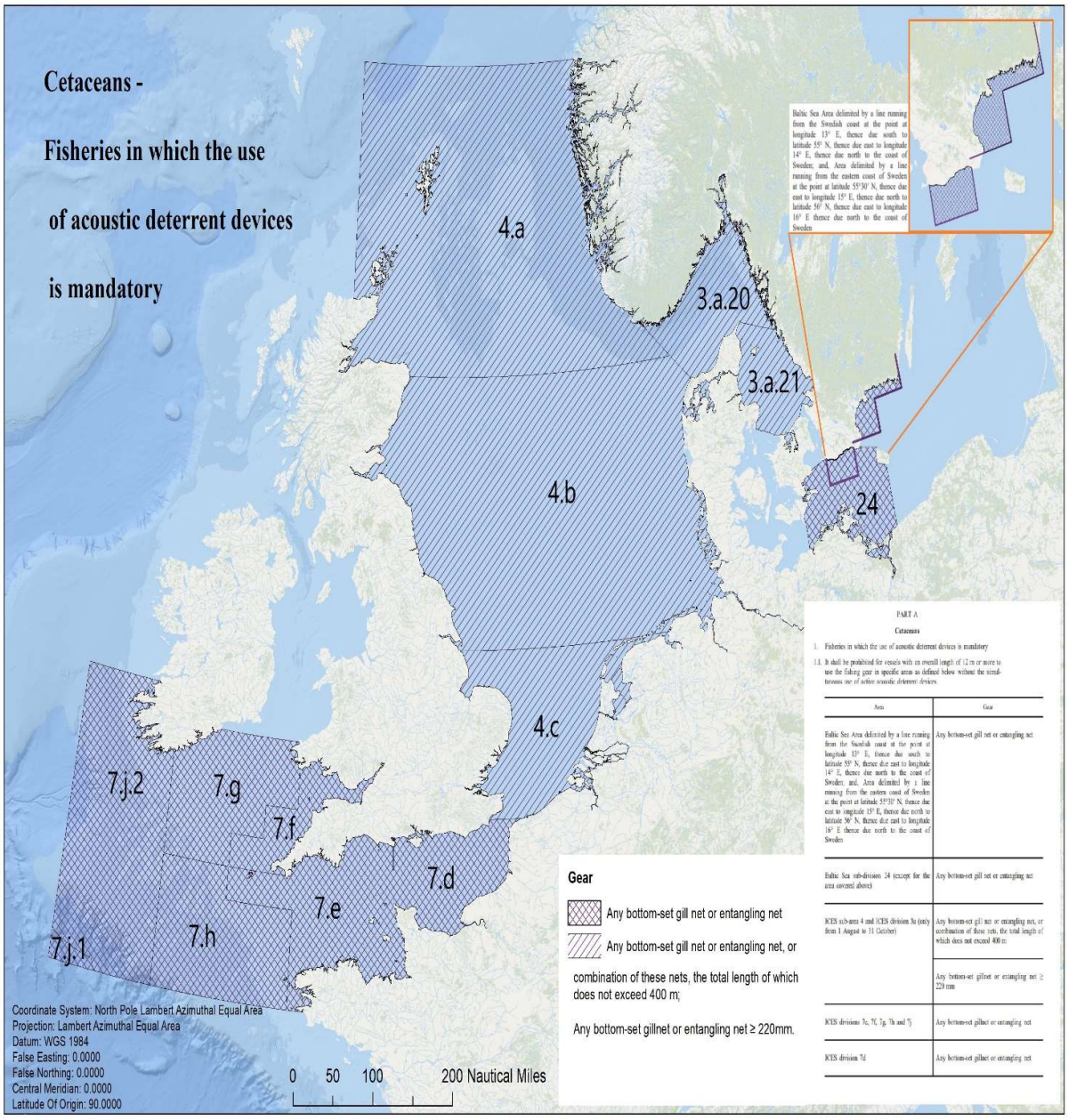
Further the obligation are established only for vessels of 12 meters or more using those gears.

In the North Sea, the obligation is further limited to a dedicated period of the year when from 1 August to 31 October and to nets with either a mesh size over 220 mm or to nets with a total length less than 400 m.

Certain exemptions for vessels authorised to operate for scientific investigation on methods to reduce the incidental capture of cetaceans are also established.

At the time of this document, Spain and France have established national obligation to use ADD on certain towed gear in ICES subarea 8,however these remain outside the scope of the Technical measures Regulation .

Geographical Scope



Control scenarios

For inspection of the correct application of ADD under EU law we see two control scenarios:

- Inspection of gear at sea with presence of the vessel and its master fishing with bottom set gillnets and entangling nets
- Inspection of gear deployed at sea (bottom set gillnets and entangling nets) in absence of the vessel

The guidance does not provide for control scenario ashore. Technical Measures Regulation requirements on the deployment of ADD cannot be verified at landing as it might not be possible to verify if the vessel had fished in an area with ADD obligation, if it had used gear falling under ADD obligation, if it had used ADD and if they were functioning during the fishing operation.

How to identify Inspection targets?

Inspector establishes if ADDs are required by the fishing vessel in area of operation.

- Establish if the vessel is greater than 12 meters in length by checking the licence details of the vessel.
- Establish the gear being deployed is a bottom set gillnet or entangling net using the vessel logbook, if available.
- Establish the location of the deployed gears are in areas requiring ADDs using geo-positioning, e.g., VMS, if available (and crosscheck with the vessel logbook, if available).
- In the North Sea, Skagerrak and Kattegat (ICES 3a and 4) determine the mesh size from the logbook, if available.
- In the North Sea, Skagerrak and Kattegat (ICES 3a and 4) determine the lengths of the gears deployed using the logbook, if available. (Less than 400-meter length[1] ADD requirement in the North Sea, Skagerrak and Kattegat)

What needs to be checked?

Inspector identifies the type of ADDs deployed.

- Depending on the type of ADD the spacing on the net is different with each 100m for analogue ADD and every 200m for digital ADD (derogated ADD might have also other spacing). There are also ADD's on the market that do not fulfil the specifications defined in the table of Regulation 2020/967. Some of those might qualify for a derogation according to Art 2 No.3. of 2020/967 that needs to be authorised by Member State. Mind: such authorisation might also allow for alternative spacing of ADD's.
- Depending on the type of ADD (analogue or digital), they are sending signals on different ranges of frequencies. For verifications of such signals the control tools need the correct setting. Therefore, it is important that before the inspection, the type of ADD can be determined.

Inspector establishes the number of ADDs which should be on the net deployed.

- Depending on the Type of ADD the spacing differs. The total length of net needs to be taken into account for establishing the necessary number of ADD's.
- The approximate length of the net needs to be known.

[1] according to recollection from the working group this limitation of the obligation was set up to focus on wreck fishing where only rather short panels had been in use. Assessing whether this limitation is still justified was not part of the exercise, we have to take the legislation as it is.

Inspector establishes that the ADDs are functioning when deployed.

- check if ADDs are deployed.
- check the functioning of ADD.

Control tools available - Hydrophones

While it is legally the master's obligation to ensure that ADDs are" *... fully operational, during the whole fishing operation*[2]*.",* the inspector needs to ensure compliance with the regulation in terms of the number of ADDs deployed, that they are functioning at the correct frequencies and that they are deployed at the correct intervals.

Some models of ADD signal either by LED lights or by test sounds that they are operational. Mind that this is basically just an indication for the battery status and no proof that the ADD is really emitting the correct signals.

The presence of the appropriate signals can be detected by hydrophones. Be aware that these are not directional and will not distinguish between multiple signals. At the time of this guidance and to our knowledge, there is currently only one tool designed for this purpose in Europe, the PD1102.

PD1102 – Pinger Detector 1102
http://etec.dk/hydrophone-amplifiers.html
The Pinger Detector 1102 was developed by a Danish company in cooperation with Danish and German Scientists and Control services. It allows detection of signals from analogue and digital ADD on submerged gear if weather and noise conditions are good.

For bucket tests the following tools would be sufficient:
Some providers offer tools for lower costs that allow to check if an ADD is sending a signal. The ADD is placed in a bucket of salt water to be activated. The hydrophone can then be used in the bucket to verify the signal.

Such tools are not designed to detect signals from deployed submerged gear. The concept of these tools is to enable the master of the fishing vessel to verify if the ADD's is still functioning at the time of hauling. The legislation doesn't provide for a specific obligation of the master to use such tools. To a certain extend such tools might be interesting for control purposes too.

As example from the company ETEK: **A1001** - Low-cost Hydrophone amplifier with high input impedance.
From the company FISHTEK the **Pinger Monitor:**
https://www.fishtekmarine.com/reduce-cetacean-bycatch/
check for accessories at that webpage

[2] Operational at all times: the ADD have to function when gear is set in the water and there they have to be mounted to the gear in the correct spacing. ADD's have not necessarily be attached to gear on board. E.g. if for reason of handling of gear, it is convenient for the master to detach the ADD's when hauling the gear, this would be okay. He just needs to ensure that functioning ADD's are attached to the gear in the right spacing when setting the gear where and when the obligation applies.

Problems in detecting signals with a hydrophone.

There are several challenges to conducting the inspections with hydrophone detectors:

- Where the net is in shallow waters in good sea conditions, it may be possible to detect the presence of ADDs using a hydrophone from a boarding craft.
- Where the net is at depths of several hundred meters this may not be possible using commercially available hydrophones.
- Heavy sea swells or waves, noise from engines will impact on the practicality of checking for ADDs using the hydrophones.
- Weak signal may also be caused by low ADD battery level could also be an issue on analogue ADD's. The signal is not emitted in all direction with same range (battery shadows the signal emitted).

Test the function of the inspection tool before using for inspections

The hydrophone or similar device which is capable of detecting ADDs should be checked that it is functioning correctly at least twice per day before the first inspection and after the last inspection that day:

a. Place the test ADD in a bucket of water.
b. Use hydrophone to confirm that the signal is being detected.
c. Test for both analog and digital ADDs
d. Document the outcome e.g., in a protocol of maintenance

Inspecting static gears where the Fishing vessel is present

ADD requirements on the vessel to be inspected

Vessel information is provided by the Coastal or Flag state in advance of inspection.
In this case the inspector will know:

a. That ADDs are mandatory at the location of the vessel fishing operations
b. That the vessel is deploying gear which needs ADDs
c. The type of ADDs deployed (analog/digital).

No vessel information is provided in advance of inspection.
In this case the inspector must check to see if ADDs are a requirement:

a. Establish if the vessel is greater than 12 meters in length by checking the licence details of the vessel
b. Establish the gear being deployed is a bottom set gillnet or entangling net using the vessel logbook
c. In the North Sea determine the mesh size from the logbook and confirm by measuring the mesh size if relevant.
d. Establish the location of the deployed gears are in areas requiring ADDs using geo-positioning, e.g., VMS, if available (and crosscheck with the vessel logbook, if available)
e. Determine the lengths of the gears deployed using the logbook, if available or estimating length of the gear to inspected by GPS from buy to buoy. (Less than 400-meter length for ADD requirements in area 3a and 4).

Testing of ADD compliance

Compliance with the number of ADDs deployed

a. Count the number of ADDs as the net is hauled.
b. Check against the estimated length of the net hauled.

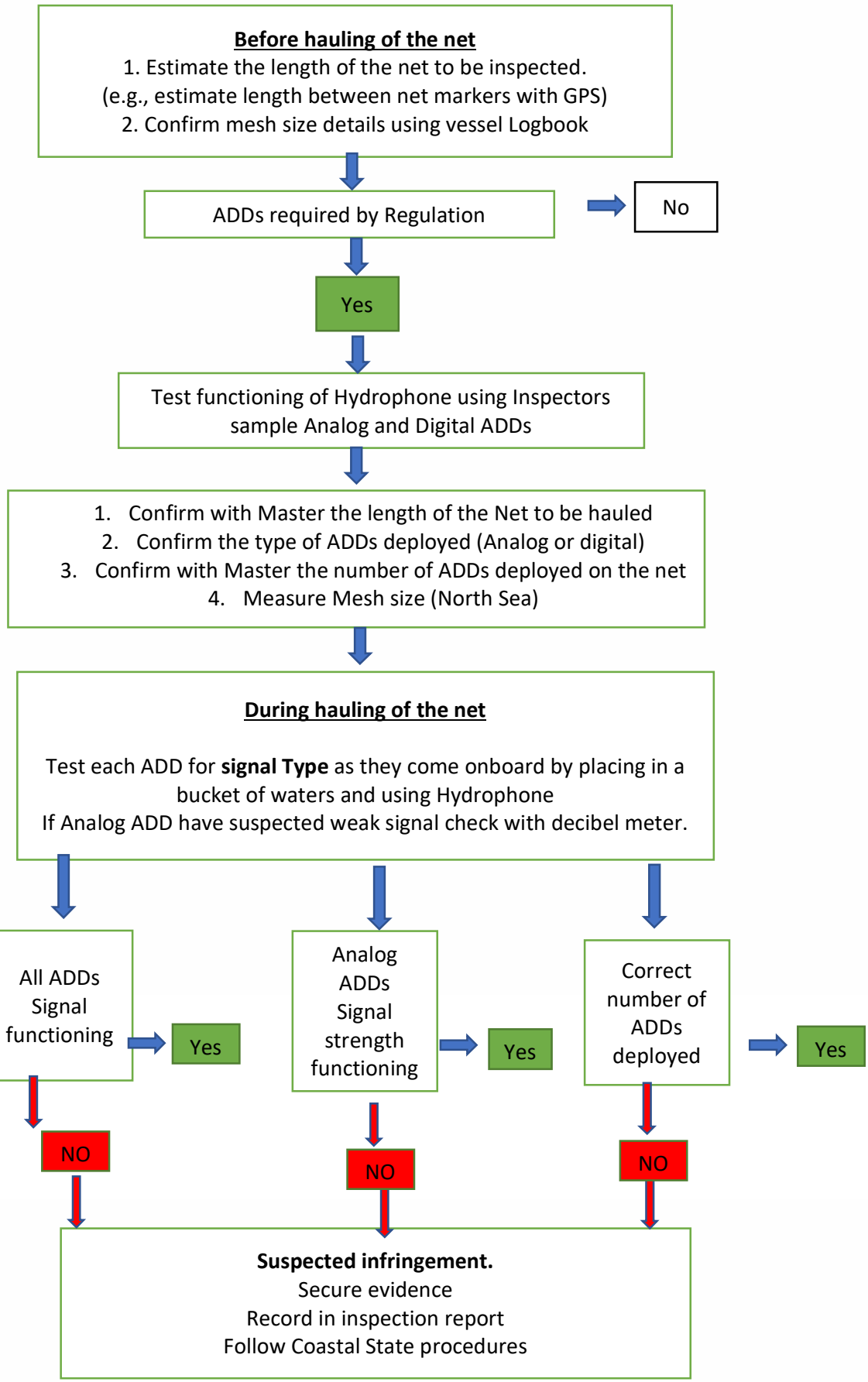
Compliance with the functioning ADDs deployed

a. As the net is being hauled, place each ADD in a bucket of water.
b. Using Hydrophone or similar device check for the required signal frequency.

Suspected noncompliance

Suspected noncompliance should be recorded in Inspection reports.
Non-compliant devices/gear should be secured.
Suspected infringement procedures of the Coastal state should be followed.

Decision tree on inspection of ADDs where the Fishing vessel is present



Inspecting static gears where no fishing vessel is present

ADD requirements regarding the vessel that deployed the gear

Vessel information is provided by the Coastal or Flag state in advance of inspection.
In this case the inspector will know after checking the marking of the buoy:

a. That ADDs are mandatory at the location of the deployed gears

No vessel information is provided in advance of inspection.
In this case the inspector must check to see if ADDs are a requirement.

a. Check the marker Buoy of the net to identify fishing vessel
b. Establish if the vessel is greater than 12 meters in length by checking the EU Fleet register.
c. Establish the gear being deployed is a bottom set gillnet or entangling net using the vessel logbook.
d. Determine the mesh size from the vessel logbook.
e. Establish the location of the deployed gears are in areas requiring ADDs using geo-positioning, e.g., VMS, if available (and crosscheck with the vessel logbook, if available).
f. Determine the lengths of the gears deployed using the logbook, if available or estimating length of the gear to inspected by GPS from buy to buoy. (Less than 400-meter length ADD requirement in area 3a and 4)

Testing of ADD compliance

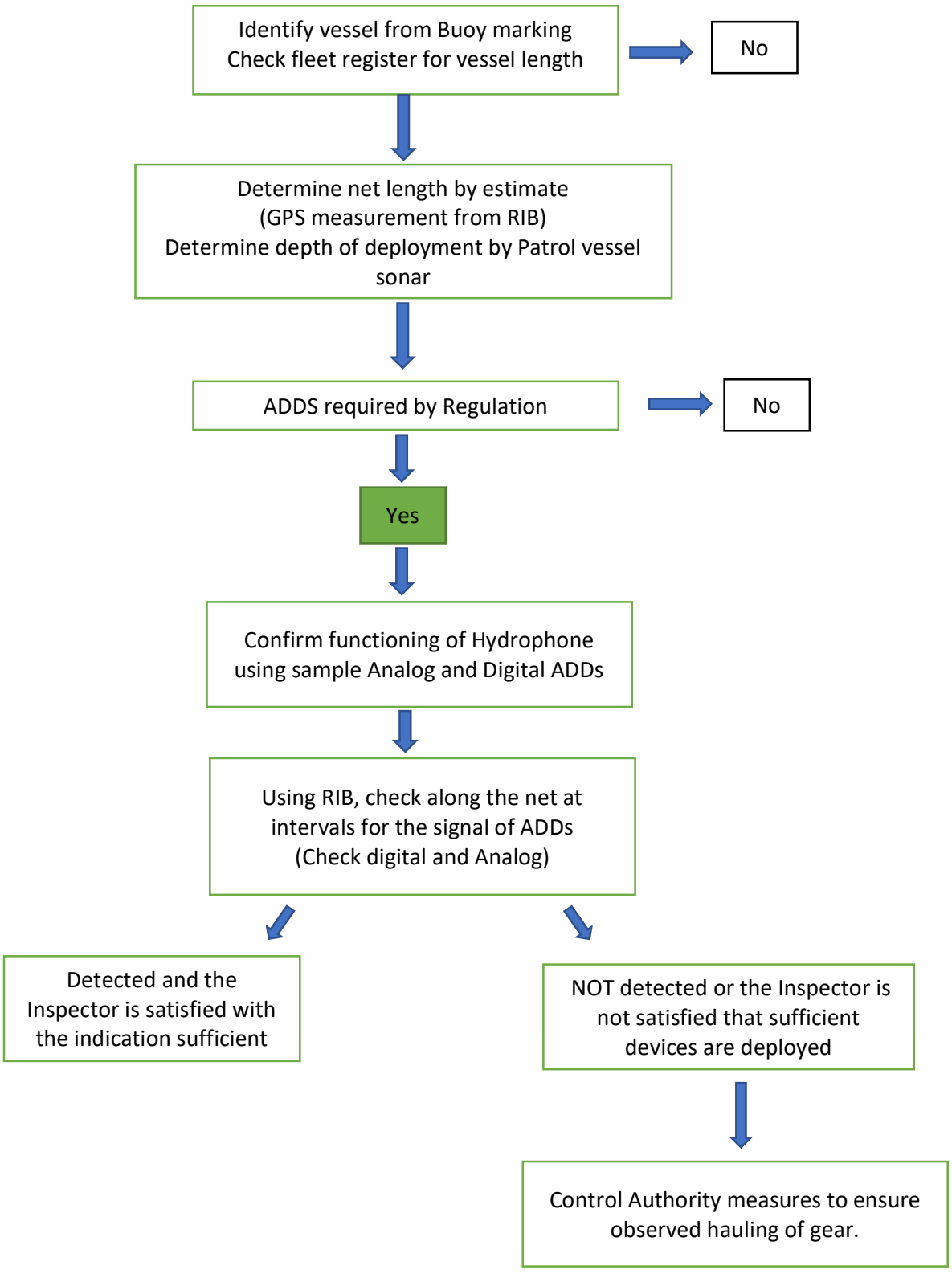
Compliance with the functioning ADDs deployed

a. Use Hydrophone or similar device to detect signals from the deployed nets.

Suspected noncompliance

a. If no signals are detected, the suspected noncompliance should be noted
b. If insufficient ADDs are detected the need for further verification should be noted
c. Coastal State should be informed.
d. Procedures of the Coastal state should be followed including hauling of gear under inspection.

Decision tree on inspections of static gears where no fishing vessel is present



ANNEX I - List of selected ADD that might be in use:

This list is not exhaustive!

Acoustic Deterrent Device	Specifications and spacing	Picture
Airmar Gillnet Pinger (https://www.airmar.com/index.html)	Set 2	
Aquamark 100	Set 1	
Aquamark 200	Set 1	
Aquamark 300 (Aquamark 100- 300 currently not in production, but might be still in use)	Set 2	
DDD-03L (https://www.stm-products.com/en/products/fishing-technology/)	Needs a derogating authorisation by MS Art 2 No.3. of 2020/967	
DDD-03H (https://www.stm-products.com/en/products/fishing-technology/)	For active gear Needs a derogating authorisation by MS Art 2 No.3. of 2020/967	

Acoustic Deterrent Device	Specifications and spacing	Picture
FishTek Banana Pinger BP154 (https://www.fishtekmarine.com/reduce-cetacean-bycatch/) Three types + Red: Anti depredation pinger (noisy)	Set 1 Red would need a derogating authorisation by MS Art 2 No.3. of 2020/967	
Future Oceans 10 KHz Porpoise Pinger (http://futureoceans.com/products/)	Set 2	
Future Oceans 70 KHz Dolphin Pinger (http://futureoceans.com/products/) Also, other types: Yellow: Wal Pinger 3kHz Dark blue: Porpoise & Dolphine 10kHz Red: anti net damage 70 kHz (noisy)	Set 1 Red would need a derogating authorisation by MS Art 2 No.3. of 2020/967	
Porpoise-PAL (http://www.f3mt.net/overview.html) Also, other types: 10 kHZ-PAL (green ribbon) Breitband-PAL (yellow ribbon) Wal – PAL (white ribbon)	Set 1	

More details see: JNCC-Report-615v3-FINAL-WEB
https://data.jncc.gov.uk/data/e2d08d7a-998b-4814-a0ae-4edf5d887a02/JNCC-Report-615v3-FINAL-WEB.pdf

ANNEX II - The Regulation 2019/1241 establishes the obligation and details about the use of ADD – extract of the regulation:

Article 4 Targets

1. Technical measures shall aim to ensure that:

…

(b) incidental catches of marine mammals, marine reptiles, seabirds and other non-commercially exploited species do not exceed levels provided for in Union legislation and international agreements that are binding on the Union.

2. The extent to which progress was made towards those targets shall be reviewed as part of the reporting process set out in Article 31.

Article 6 Definitions

For the purposes of this Regulation, in addition to the definitions set out in Article 4 of Regulation (EU) No 1380/2013, the following definitions apply:

…

(44) 'acoustic deterrent device' means devices aimed to deter species such as marine mammals from fishing gear by emitting acoustic signals;

Article 11 Catches of marine mammals, seabirds and marine reptiles

1. The catching, retention on board, transhipment or landing of marine mammals or marine reptiles referred to in Annexes II and IV to Directive 92/43/EEC and of species of seabirds covered by Directive 2009/147/EC shall be prohibited.

2. When caught, species referred to in paragraph 1 shall not be harmed and specimens shall be promptly released.

3. Notwithstanding paragraphs 1 and 2, the retention on board, transhipment or landing of specimens of marine species referred to in paragraph 1 which have been caught accidentally, shall be permitted as far as this activity is necessary to secure assistance for the recovery of the individual animals and to allow for scientific research on incidentally killed specimens, provided that the competent national authorities concerned have been fully informed in advance as soon as possible after the catch and in accordance with applicable Union law.

4. On the basis of the best available scientific advice a Member State may, for vessels flying its flag, put in place mitigation measures or restrictions on the use of certain gear. Such measures shall minimise, and where possible eliminate, the catches of the species referred to in paragraph 1 of this Article and shall be compatible with the objectives set out in Article 2 of Regulation (EU) No 1380/2013 and be at least as stringent as technical measures applicable under Union law.

5. Measures adopted pursuant to paragraph 4 of this Article shall aim at achieving the target set out in point (b) of Article 4(1). The Member States shall, for control purposes, inform the other Member States concerned of provisions adopted under paragraph 4 of this Article. They shall also make publicly available appropriate information concerning such measures.

ANNEX XIII MITIGATION MEASURES TO REDUCE INCIDENTAL CATCHES OF SENSITIVE SPECIES

The following measures to monitor and reduce incidental catches of sensitive species shall apply: 1. The measures set out in Parts A, B and C.
2. Member States shall take the necessary steps to collect scientific data on incidental catches of sensitive species.
3. As a result of scientific evidence, validated by ICES, STECF, or in the framework of GFCM, of negative impacts of fishing gear on sensitive species, Member States shall submit joint recommendations for additional mitigation measures for the reduction of incidental catches of the concerned species or in a concerned area on the basis of Article 15 of this Regulation.
4. Member States shall monitor and assess the effectiveness of the mitigation measures established under this Annex.

PART A

Cetaceans

1. Fisheries in which the use of acoustic deterrent devices is mandatory

1.1. It shall be prohibited for vessels with an overall length of 12 m or more to use the fishing gear in specific areas as defined below without the simultaneous use of active acoustic deterrent devices.

Area	Gear
Baltic Sea Area delimited by a line running from the Swedish coast at the point at longitude 13° E, thence due south to latitude 55° N, thence due east to longitude 14° E, thence due north to the coast of Sweden; and, Area delimited by a line running from the eastern coast of Sweden at the point at latitude 55°30′ N, thence due east to longitude 15° E, thence due north to latitude 56° N, thence due east to longitude 16° E thence due north to the coast of Sweden	Any bottom-set gill net or entangling net
Baltic Sea sub-division 24 (except for the area covered above)	Any bottom-set gill net or entangling net
ICES sub-area 4 and ICES division 3a (only from 1 August to 31 October)	Any bottom-set gill net or entangling net, or combination of these nets, the total length of which does not exceed 400 m
	Any bottom-set gillnet or entangling net ≥ 220 mm
ICES divisions 7e, 7f, 7g, 7h and 7j	Any bottom-set gillnet or entangling net
ICES division 7d	Any bottom-set gillnet or entangling net

ANNEX III - The Annex of Regulation 2020/967 lists the technical specifications that have to be fulfilled by standard ADD- extract:

Article 1

This Regulation establishes detailed rules on the signal and implementation characteristics of acoustic deterrent devices as referred to in Part A of Annex XIII of Regulation (EU) 2019/1241.

Article 2

1. The masters of Union fishing vessels shall ensure that the acoustic deterrent devices referred to in point 1.1 of Annex XIII to Regulation (EU) 2019/1241 are fully operational, during the whole fishing operation.
2. Such acoustic deterrent devices shall comply with one of the sets of the technical specifications and conditions of use defined in Annex I to this Regulation.
3. By way of derogation from paragraph 2, Member States may authorise the use of acoustic deterrent devices that do not fulfil the technical specifications or conditions of use defined in the Annex, provided that such devices are at least equally effective in the reduction of incidental catches of cetaceans as the acoustic deterrent devices with the technical specifications or conditions defined in the Annex, and this has been duly documented.
4. Member States shall inform the Commission of the authorisations issued in accordance with paragraph 3 within two months of the date of issue.
5. The notification referred to in paragraph 4 shall be accompanied with detailed technical and scientific information on the acoustic deterrent devices authorised according to paragraph 3 and their effects on incidental catches of cetaceans.

TECHNICAL SPECIFICATIONS AND CONDITIONS OF USE OF ACOUSTIC DETERRENT DEVICES

Any acoustic deterrent devices used in application of Article 2(2) shall meet one of the following sets of signal and implementation characteristics:

	Set 1	Set 2
	Signal characteristics	
Signal synthesis	Digital	Analogue
Tonal/wide band	Wide band/Tonal	Tonal
Source levels (max-min) Re 1 µPa@1 m	145 dB	130-150dB
Fundamental frequency	(a) 20-160 KHz Wide band sweeps (b) 10KHz tonal	10 KHz
High frequency harmonics	Yes	Yes
Pulse duration (nominal)	300 ms	300 ms
Interpulse interval	(a) 4-30 seconds randomised (b) 4 seconds	4 seconds
	Implementation characteristics	
Maximum spacing between two acoustic deterrent devices along nets	200 m with one acoustic device fixed at each end of the net (or combination of nets attached together)	100 m with one acoustic device fixed at each end of the net (or combination of nets attached together)

ANNEX IV - Abbreviations

Abbreviation	Explanation
A1001	Simplified model of a tool to verify if ADD's are sending the required sounds
ADD	Accoustic deterrent device - also called Pinger – shall deter cetaceans from fishing gear to avoid their entanglement and death
Art	article
dB	Decibel – unit for strength of acoustic signal
EU	European Union
GFCM	General Fisheries Commission for the Mediterranean
GPS	Global Positioning System
ICES	International Council for the Exploration of the Sea www.ices.dk
kHz	Kilo Hertz – physical unit for frequencies
LED	light emitting diode – a tiny light
MS	Member state(s)
PAL	A patented model or brand of ADD - Initially for Porpoise Alerting Device but seemingly also this producer has a range of models on the marked including one for whales
PD1102	Pinger Detector 1102 – a control tool to verify the function of ADD's
STECF	Scientific, Technical and Economic Committee for Fisheries
TMR	Technical Measures Regulation (regulation 2019/1241)
VMS	Vessel Monitoring System – the satellite based system of the EU to monitor the positions of certain fishing vessels