EUROPEAN
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ANNEX

ANNEX

to the

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

amending Regulation (EU) 2017/2107 laying down management, conservation and control measures applicable in the Convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT), Regulation (EU) 2018/975 laying down management, conservation and control measures applicable in the South Pacific Regional Fisheries Management Organisation (SPRFMO) Convention Area, Regulation (EU) 2019/833 laying down conservation and enforcement measures applicable in the Regulatory Area of the Northwest Atlantic Fisheries Organisation, Regulation (EU) 2021/56 laying down management, conservation and control measures applicable in the Inter-American Tropical Tuna Convention, Regulation (EU) 2022/2056 laying down conservation and management measures applicable in the Western and Central Pacific Fisheries Convention Area, Regulation (EU) 2022/2343 laying down management, conservation and control measures applicable in the Indian Ocean Tuna Commission (IOTC) Area of Competence, and Regulation (EU) 2023/2053 establishing a multiannual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean

ANNEX

The following Annexes of Regulation (EU) 2018/975 are amended:

(1) Annex IV is replaced by the following:

"ANNEX IV

Guidelines for the preparation and submission of notifications of encounters with potential vulnerable marine ecosystems (VMEs)

1. General Information

(a) contact details

(b) flag

(c) vessel name

(d) dates of fishing effort and notification

(e) time of tow start (UTC)

(f) time of tow end (UTC)

(g) fishing gear used

2. Location Information

(a) bottom trawl or mid-water trawl

(b) start and end position of trawl (no nearest 0.01 decimal degree)

3. VME Information

(a) summary information:

(i) number of VME indicator taxa encountered

(ii) total weight of VME indicator taxa encountered

(b) detailed information:

(i) Weight of each VME indicator taxa in tow (including any under threshold)"

(2) Annex X is amended as follows:

1. In section A.1, point (g) is replaced by the following:

"(g) UVI (Unique Vessel Identifier) / Lloyd's / IMO number"

2. In section B.2, points (c) and (d) are replaced by the following:

"(c) Tow start position (Lat/Lon, nearest 1/100th degree for bottom fishing and 1/10th for pelagic trawl – decimal)

(d) Tow end position (Lat/Lon, nearest 1/100th degree for bottom fishing and 1/10th for pelagic trawl – decimal)"

3. In section B.2, points (n), (o), (p) and (q) are replaced by the following:

"(n) If any marine mammals, seabirds, reptiles or other species of concern were caught, report as per requirements described in Section G

(o) If any benthic material, including VME Indicator Taxa[1], was caught, record as per the requirements described in Section H

(p) Estimated catch of all species (FAO species code) discarded, split by species, in live weight (to the nearest kg), including all benthic taxa

(q) Record any bycatch mitigation measures employed, as per below:

(i) Tori lines – if so, record details as described in Section L

(ii) Bird baffler(s) – if so, record details as described in Section N

(iii) Offal management – if so, record as per below:

(i) No discharge during shooting and hauling

(ii) Only liquid discharge

(iii) Waste batching ≥ 2 hours/others/none

(iv) Other – if so, record details"

4. In section C.2, point (d) is replaced by the following:

"(d) Set start position (Lat/Long, nearest 1/100th degree resolution)"

5. In section C.2, points (j), (k), (l) and (m) are replaced by the following:

"(j) If any marine mammals, seabirds, reptiles or other species of concern were caught, report as per requirements described in Section G

(k) If any benthic material, including VME Indicator Taxa[2], was caught record as per the requirements described in Section H

(l) Estimated catch of all species (FAO species code) discarded, split by species, in live weight (to the nearest kg), including all benthic taxa

(m) Record any bycatch mitigation measures employed, using types as described below and providing detail as required:

(i) Tori lines – if so, record details as described in Section L

(ii) Bird baffler(s) – if so, record details as described in Section N

(iii) Offal management – if so, record as per below:

(i) No discharge during shooting and hauling

(ii) Only liquid discharge

(iii) Waste batching ≥ 2 hours/others/none

(iv) Night setting (when setting is restricted to between the times of nautical dusk and nautical dawn)

(v) Other – if so, record details"

6. In section D.2, points (c) and (d) are replaced by the following:

"(c) Set start position (Lat/Lon, nearest 1/100th degree – decimal format)

(d) Set end position (Lat/Lon, nearest 1/100th degree – decimal format)"

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1 VME Indicator Taxa are defined in Annex XVII

2 VME Indicator Taxa are defined in Annex XVII

7. In section D.2, points (k), (l), (m) and (n) are replaced by the following:

"(k) If any marine mammals, seabirds, reptiles or other species of concern were caught, report as per requirements described in Section G

(l) If any benthic material, including VME Indicator Taxa, was caught record as per the requirements described in Section H

(m) Estimated catch of all species (FAO species code) discarded, split by species, in live weight (to the nearest kg), including all benthic taxa

(n) Record any bycatch mitigation measures employed and bait type, using types as described below and providing detail as required:

(i) Tori lines – if so, record details as described in Section M

(ii) Bird baffler(s) – if so, record details as described in Section O

(iii) Offal management – if so, record as per below:

(i) No discharge during shooting and hauling

(ii) Only liquid discharge

(iii) Waste batching ≥ 2 hours/other/none

(iv) Night setting, (when setting is restricted to between the times of nautical dusk and nautical dawn)

(v) Line weighting – if so, record details as described in Section M

(vi) Bait type – record if fish/squid/mixed; live/dead/mixed; frozen/thawed/mixed; synthetic

(vii) Other – if so, record details"

8. In section D.2, points (p), (q) and (r) are deleted.

9. Section E is replaced by the following:

"E. Length-frequency data to be collected

Representative and randomly sampled length-frequency data are to be collected for the target species and, time permitting, for other main by-catch species. Length data shall be collected and recorded at the most precise level appropriate for the species (cm or mm and whether to the nearest unit or unit below) and the type of measurement used (total length, fork length, or standard length) shall also be recorded. If possible, total weight of length-frequency samples for each species shall be recorded, or estimated and the method of estimation recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex.

1.Commercial Sampling Protocol

(a) Fish species other than skates, rays, and sharks:

(i) Fish length shall be measured, consistent with Section P, to the nearest cm for fish which attain a maximum length greater than 40 cm

(ii) Fish length shall be measured, consistent with Section P, to the nearest mm for fish which attain a maximum length less than 40 cm

(b) Squid:

Mantle length shall be measured to the nearest cm

(c) Skates and rays:

Maximum disk width shall be measured

(d) Sharks:

Appropriate length measurement to be used shall be selected for each species (see Section P). As a default, total length shall be measured.

(e) Marine mammals and reptiles (as possible):

Total length shall be measured wherever possible

2.Scientific Sampling Protocol

For scientific sampling of species, length measurements may need to be made at a finer resolution than specified in point 1.

Measurement standards for invertebrates (i.e. crabs/lobsters) shall be developed as required in line with the development of the associated exploratory fishery."

10. Section F.1 is replaced by the following:

"1. The following biological data shall be collected for representative samples of the main target species and, time permitting, for other main by-catch species contributing to the catch:

(a) Species

(b) Length (mm or cm). Measurement precision and type shall be determined on a species-by-species basis consistent with that defined in Section E above

(c) Type of length measurement used (i.e. total length, fork length, etc)

(d) Sex (male, female, immature, unsexed)

(e) Maturity stage (for sharks, report if pregnant, and how many (if any) eggs/pups found)"

11. In section G.1, point (e) is replaced by the following:

"(e) If dead, then collect adequate information or samples[3] for onshore identification in accordance with pre-determined sampling protocols. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols."

12. Section G.2 is replaced by the following:

"2. Record sex of each individual for taxa where this is feasible from external observation, e.g. pinnipeds, small cetaceans or *Elasmobranchii* species of concern."

13. Section G.3 is replaced by the following:

"3. Record the length of each individual (cm), with record of the type of length measurement used. Measurement precision and type shall be determined on a species by species basis."

14. In Section G, point 4 is added as follows:

[3] Options include: return of carcasses for necropsy, photographs taken using appropriate protocols or tissue or feather samples for genetic determination.

"4. Record the life-history stage of each individual where this is feasible (i.e. juvenile/adult)."

15. Section H is replaced by the following:

"H. Detection of fishing in association with VMEs

(1) For all bottom fishing events, including trawl, bottom line, and potting, the following data are to be collected for all benthic taxa caught:

(a) Species (or accompanied by a photograph where identification to genus or species level is difficult).

(b) An estimate of the quantity (to the nearest 0.1 kg) of each listed benthic taxon caught in the fishing event.

(c) The method of weight estimation (e.g., visual estimate, weighed in full, accurate count of bins multiplied by number of bins) (note this information is not collected by the SPRFMO Secretariat but shall be available upon request).

(d) Where possible, and particularly for new or scarce benthic species which do not appear in the guides for the identification of species, whole samples shall be collected and suitably preserved for identification on shore.

(e) Wherever possible, observers shall collect samples and images according to pre-determined specific research programmes implemented by the SPRFMO Scientific Committee or other national scientific research.

(2) For all bottom fishing events, the following data are to be collected for all taxa identified as VME indicators as defined in Annex XVII:

(a) An estimate of the quantity (to the nearest 0.1 kg) of each VME indicator taxon caught in the fishing event.

(b) Wherever possible, a photograph of a representative sample of each VME indicator taxa caught in the fishing event, archived by the flag Member State through its Observer Programme in a way that allows the photograph to be linked to the specific weight record for the fishing event.

(c) Wherever possible, a photograph of the entire quantity of each VME indicator taxa caught in the fishing event, archived by the flag Member State, through its Observer Programme, in a way that allows the photograph to be linked to the specific weight record for the fishing event.

(3) For each observed trawl, the following data are to be collected for all taxa identified as VME indicators in Annex XVII using the appropriate VME Encounter template:

(a) A record of whether the weight of any of the VME indicator taxa in the trawl catch exceeded taxa-specific weight thresholds as defined in Annex XVIII.

(b) A record of whether three or more VME indicator taxa in the trawl catch exceeded taxa-specific weight thresholds as defined in Annex XVIII.

16. In section I, point (j) is replaced by the following:

"(j) Location of capture (Lat/Lon, to the nearest 1/10th degree)"

17. In section J.2, point (d) is replaced by the following:

"(d) The reporting of catches and biological sampling procedures are to be prioritised among species groups as follows:

Species	Priority (1 highest)
Primary target species (such as jack mackerel, for pelagic fisheries, orange roughy for demersal fisheries, and squid where targeted)	1
Seabirds, mammals, reptiles (turtles) or other species of concern	2
All sharks	3
Other species typically within top 5 in the fishery (such as blue mackerel for pelagic fisheries, and oreos and alfonsino for demersal fisheries)	4
All other species	5

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g. number of hooks examined for species composition relative to the number of hooks set) is to be explicitly recorded as per the requirements of the Member State Observer Programme."

18. In section O.1, point (e) is replaced by the following:

"(e) Unique Vessel Identifier /IMO number (if allocated)"

19. In section O.3, point (d) is replaced by the following:

"(d) Indicative fishing area (decimal Lat/Long, nearest 1/10th degree – to the extent possible)"

20. Section P is added, as follows:

"P. Standard for length measurements

(1) Total length shall be used for the following fish species:

(a) Groupers, seabasses (Serranidae

(b) Oreo dories (Oreosomatidae)

(c) Grenadiers, rattails (Macrouridae)

(d) Hake (Merluccidae)

(e) Hapuka (*Polyprion* spp)

(f) Cusk eels, brotulas (Ophidiidae)

(g) Moras (Moridae)

(h) Pelagic armourheads (*Pseudopentaceros* spp)

(i) Rockfishes, rockcods, and thornyheads (*Sebastidae* spp)

(j) Scorpionfishes (Scorpaenidae)

(k) Slimeheads (Trachichthyidae)

(l) Antarctic toothfishes (*Dissostichus* spp)

(m) Any shark or chimaera species not otherwise listed (see FAO fisheries technical paper 474 on measuring sharks)

(2) Fork length shall be used for the following fish species:

(a) Amberjacks (*Seriola* spp)

(b) Barracouta (Gempylidae)

(c) Bluenose warehou (Hyperoglyphe antarctica)

(d) Alfonsinos, etc. (Berycidae)

(e) Driftfishes (Nomeidae)

(f) Cardinalfishes, etc. (Apogonidae)

(g) Chilean Jack mackerel (*Trachurus murphyi*)

(h) Chub Mackerel (Scomber japonicus)

(i) Morwongs (*Nemadactylus* spp)

(j) Emperors (Lethrinidae)

(k) Pomfrets, ocean breams (Bramidae)

(l) Snappers (Lutjanidae)

(m) Snake mackerels (Gempylidae)

(n) Other warehous (all)

(3) Standard Length shall be used for:

(a) Orange roughy (Hoplostethus atlanticus)

(4) Mantle length shall be used for:

(a) Squid (all including *Dosidicus gigas*)"

3. Annexes XIV, XV, XVI, XVII, XVIII, XIX and XX are added to Regulation (EU) 2018/975 as follows:

"Annex XIV
Bottom fishing management areas

Bottom Trawl Management Area coordinates

Block Name	**FMA**	**Method**	**Latitude**	**Longitude**	**EEZ Direction**
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°21.000′S	165°13.553′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°21.000′S	165°24.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°36.000′S	165°24.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°36.000′S	165°18.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	36°06.000′S	165°18.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	36°06.000′S	164°46.000′E	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°54.000′S	164°46.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°54.000′S	164°54.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°31.000′S	165°54.000′E	
C. Lord Howe – West	C. Lord Howe	Bottom trawl	35°31.000′S	165°13.550′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	35°26.000′S	165°44.000′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	35°26.000′S	166°21.915′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	35°47.000′S	165°26.000′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	35°47.000′S	165°44.000′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	36°00.500′S	165°26.000′E	
C. Lord Howe – East	C. Lord Howe	Bottom trawl	36°00.500′S	166°21.915′E	
S. Lord Howe	C. Lord Howe	Bottom trawl	36°13.460′S	164°40.830′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Bottom trawl	36°13.460′S	165°06.050′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Bottom trawl	36°26.800′S	164°40.830′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Bottom trawl	36°26.800′S	165°06.050′E	S. Lord Howe
01	South Louisville	Bottom trawl	47°40.000′S	149°27.000′W	
01	South Louisville	Bottom trawl	47°40.000′S	150°00.000′W	
01	South Louisville	Bottom trawl	48°05.000′S	149°27.000′W	
01	South Louisville	Bottom trawl	48°05.000′S	150°00.000′W	
03	South Louisville	Bottom trawl	45°59.000′S	154°07.224′W	
03	South Louisville	Bottom trawl	45°59.000′S	154°28.653′W	
03	South Louisville	Bottom trawl	46°15.000′S	154°07.224′W	
03	South Louisville	Bottom trawl	46°15.000′S	154°28.653′W	
04	South Louisville	Bottom trawl	46°01.000′S	155°40.000′W	
04	South Louisville	Bottom trawl	46°01.000′S	156°10.000′W	
04	South Louisville	Bottom trawl	46°24.000′S	155°40.000′W	
04	South Louisville	Bottom trawl	46°24.000′S	156°10.000′W	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
05	South Louisville	Bottom trawl	45°26.000′S	156°30.000′W	
05	South Louisville	Bottom trawl	45°26.000′S	156°55.000′W	
05	South Louisville	Bottom trawl	45°42.000′S	156°30.000′W	
05	South Louisville	Bottom trawl	45°42.000′S	156°55.000′W	
06	South Louisville	Bottom trawl	45°19.500′S	157°19.000′W	
06	South Louisville	Bottom trawl	45°19.500′S	157°55.000′W	
06	South Louisville	Bottom trawl	45°30.000′S	157°19.000′W	
06	South Louisville	Bottom trawl	45°30.000′S	157°55.000′W	
07	South Louisville	Bottom trawl	44°43.950′S	158°18.000′W	
07	South Louisville	Bottom trawl	44°43.950′S	158°38.000′W	
07	South Louisville	Bottom trawl	44°57.950′S	158°18.000′W	
07	South Louisville	Bottom trawl	44°57.950′S	158°38.000′W	
08	South Louisville	Bottom trawl	44°13.000′S	159°43.000′W	
08	South Louisville	Bottom trawl	44°13.000′S	159°54.000′W	
08	South Louisville	Bottom trawl	44°21.000′S	159°43.000′W	
08	South Louisville	Bottom trawl	44°21.000′S	159°54.000′W	
09	South Louisville	Bottom trawl	43°51.183′S	160°29.235′W	
09	South Louisville	Bottom trawl	43°51.183′S	160°50.820′W	
09	South Louisville	Bottom trawl	44°07.000′S	160°29.235′W	
09	South Louisville	Bottom trawl	44°07.000′S	160°50.820′W	
10	South Louisville	Bottom trawl	43°22.000′S	161°21.770′W	
10	South Louisville	Bottom trawl	43°22.000′S	161°39.000′W	
10	South Louisville	Bottom trawl	43°31.370′S	161°10.170′W	
10	South Louisville	Bottom trawl	43°31.370′S	161°21.770′W	
10	South Louisville	Bottom trawl	43°41.440′S	161°10.170′W	
10	South Louisville	Bottom trawl	43°41.440′S	161°39.000′W	
11	South Louisville	Bottom trawl	42°40.000′S	161°48.000′W	
11	South Louisville	Bottom trawl	42°40.000′S	162°07.000′W	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
11	South Louisville	Bottom trawl	42°54.500′S	161°48.000′W	
11	South Louisville	Bottom trawl	42°54.500′S	162°07.000′W	
13	Central Louisville	Bottom trawl	41°45.000′S	163°29.500′W	
13	Central Louisville	Bottom trawl	41°45.000′S	163°49.000′W	
13	Central Louisville	Bottom trawl	42°00.000′S	163°29.500′W	
13	Central Louisville	Bottom trawl	42°00.000′S	163°49.000′W	
14	Central Louisville	Bottom trawl	41°17.000′S	164°00.000′W	
14	Central Louisville	Bottom trawl	41°17.000′S	164°27.000′W	
14	Central Louisville	Bottom trawl	41°40.000′S	164°00.000′W	
14	Central Louisville	Bottom trawl	41°40.000′S	164°27.000′W	
15	Central Louisville	Bottom trawl	40°32.897′S	165°12.000′W	
15	Central Louisville	Bottom trawl	40°32.897′S	165°30.000′W	
15	Central Louisville	Bottom trawl	40°42.000′S	164°56.400′W	
15	Central Louisville	Bottom trawl	40°42.000′S	165°12.000′W	
15	Central Louisville	Bottom trawl	40°48.000′S	165°24.000′W	
15	Central Louisville	Bottom trawl	40°48.000′S	165°30.000′W	
15	Central Louisville	Bottom trawl	40°54.000′S	165°12.000′W	
15	Central Louisville	Bottom trawl	40°54.000′S	165°24.000′W	
15	Central Louisville	Bottom trawl	41°06.000′S	164°56.400′W	
15	Central Louisville	Bottom trawl	41°06.000′S	165°12.000′W	
17	North Louisville	Bottom trawl	38°20.013′S	167°29.000′W	
17	North Louisville	Bottom trawl	38°20.013′S	167°47.067′W	
17	North Louisville	Bottom trawl	38°32.000′S	167°29.000′W	
17	North Louisville	Bottom trawl	38°32.000′S	167°47.067′W	
18	North Louisville	Bottom trawl	38°11.013′S	168°01.785′W	
18	North Louisville	Bottom trawl	38°11.013′S	168°20.000′W	
18	North Louisville	Bottom trawl	38°40.000′S	168°01.785′W	
18	North Louisville	Bottom trawl	38°40.000′S	168°20.000′W	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
22	North Louisville	Bottom trawl	36°45.000′S	169°30.000′W	
	North Louisville				
22	North Louisville	Bottom trawl	36°45.000′S	170°00.000′W	
22	North Louisville	Bottom trawl	37°08.000′S	169°30.000′W	
22	North Louisville	Bottom trawl	37°08.000′S	170°00.000′W	
23	North Louisville	Bottom trawl	36°00.000′S	169°22.000′W	
23	North Louisville	Bottom trawl	36°00.000′S	169°40.000′W	
23	North Louisville	Bottom trawl	36°10.000′S	169°22.000′W	
23	North Louisville	Bottom trawl	36°10.000′S	169°40.000′W	
N. Lord Howe - South	N. Lord Howe Rise	Bottom trawl	34°04.035′S	162°20.000′E	
N. Lord Howe - South	N. Lord Howe Rise	Bottom trawl	34°04.035′S	163°00.000′E	
N. Lord Howe - South	N. Lord Howe Rise	Bottom trawl	34°40.000′S	162°20.000′E	
N. Lord Howe - South	N. Lord Howe Rise	Bottom trawl	34°40.000′S	163°00.000′E	
N. Lord Howe - East	N. Lord Howe Rise	Bottom trawl	32°54.650′S	163°16.615′E	
N. Lord Howe - East	N. Lord Howe Rise	Bottom trawl	32°54.650′S	163°26.380′E	
N. Lord Howe - East	N. Lord Howe Rise	Bottom trawl	33°04.400′S	163°16.615′E	
N. Lord Howe - East	N. Lord Howe Rise	Bottom trawl	33°04.400′S	163°26.380′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°16.400′S	162°52.540′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°09.296′S	162°52.540′E	North-east along the Australian EEZ
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°04.400′S	162°54.941′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°04.400′S	163°10.540′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°10.400′S	163°10.540′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°10.400′S	163°04.540′E	
N. Lord Howe - West	N. Lord Howe Rise	Bottom trawl	33°16.400′S	163°04.540′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	38°00.000′S	169°47.848′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	38°00.000′S	169°42.000′E	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	169°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°42.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°42.000′S	167°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	167°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	39°06.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	39°06.000′S	167°18.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	38°52.000′S	167°18.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	38°52.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°48.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°42.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°42.000′S	166°40.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°01.333′S	166°40.000′E	
Northwest Challenger	Northwest Challenger	Bottom trawl	37°01.333′S	169°36.706′E	South-east along the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Bottom trawl	37°29.902′S	170°00.000′E	Due south to a point on the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Bottom trawl	37°41.589′S	170°00.000′E	South-west along the New Zealand EEZ
S.Tasman Rise Box 1	S. Tasman Rise 1	Bottom trawl	47°08.280′S	147°50.200′E	Start on the Australian EEZ
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom trawl	47°17.370′S	147°50.200′E	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom trawl	47°17.370′S	147°32.300′E	
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom trawl	47°10.197′S	147°32.300′E	East along the Australian EEZ to the start point
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 2	Bottom trawl	47°05.160′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom trawl	47°05.160′S	148°50.670′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom trawl	47°13.780′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom trawl	47°13.780′S	148°50.670′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°21.000′S	148°45.610′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°21.000′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°24.015′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°24.015′S	148°45.610′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°24.800′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°30.320′S	148°44.390′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°30.320′S	148°57.650′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°35.205′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom trawl	47°35.205′S	148°44.390′E	
S. Tasman Rise 3 Box 3	S. Lord Howe	Bottom trawl	35°31.000′S	164°54.000′E	
S. Lord Howe - West	S. Lord Howe	Bottom trawl	36°13.460′S	164°40.830′E	
S. Lord Howe - South	S. Lord Howe	Bottom trawl	36°13.460′S	165°06.050′E	
S. Lord Howe - South	S. Lord Howe	Bottom trawl	36°26.800′S	164°40.830′E	

Block Name	FMA	Method	Latitude	Longitude	EEZ Direction
S. Lord Howe - South	S. Lord Howe	Bottom trawl	36°26.800′S	165°06.050′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	33°28.000′S	167°42.000′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	33°28.000′S	168°00.000′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	33°52.000′S	167°13.000′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	33°52.000′S	167°42.000′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	34°12.000′S	167°13.000′E	
Wanganella	West Norfolk West Norfolk Ridge	Bottom trawl	34°12.000′S	168°00.000′E	
Westpac Bank	Westpac Bank	Bottom trawl	39°39.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Bottom trawl	39°39.000′S	167°21.090′E	
Westpac Bank	Westpac Bank	Bottom trawl	39°55.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Bottom trawl	39°55.000′S	167°21.090′E	

a) Mid-water Trawl Management Area coordinates

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
CS. Lord Howe - East	C. Lord Howe	Mid-water trawl	35°26.000′S	165°44.000′E	
C. Lord Howe - EastS. Lord Howe - East	C. Lord Howe	Mid-water trawl	35°26.000′S	166°21.915′E	
C. Lord Howe - EastS. Lord Howe - East	C. Lord Howe	Mid-water trawl	35°47.000′S	165°26.000′E	
C. Lord Howe - EastS. Lord Howe - East	C. Lord Howe	Mid-water trawl	35°47.000′S	165°44.000′E	
C. Lord Howe - EastS. Lord Howe - East	C. Lord Howe	Mid-water trawl	36°00.500′S	165°26.000′E	
C. Lord Howe - EastS. Lord Howe - East	C. Lord Howe	Mid-water trawl	36°00.500′S	166°21.915′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°21.000′S	165°13.550′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°21.000′S	165°24.000′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°31.000′S	164°54.000′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°31.000′S	165°13.550′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°40.383′S	165°18.000′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°40.383′S	165°24.000′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°54.000′S	164°46.000′E	
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	35°54.000′S	164°54.000′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
C. Lord Howe - WestS. Lord Howe - West	C. Lord Howe	Mid-water trawl	36°06.000′S	164°46.000′E	
CS. Lord Howe - West	C. Lord Howe	Mid-water trawl	36°06.000′S	165°18.000′E	
S. Lord Howe	C. Lord Howe	Mid-water trawl	36°13.460′S	164°40.830′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Mid-water trawl	36°13.460′S	165°06.050′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Mid-water trawl	36°26.800′S	164°40.830′E	S. Lord Howe
S. Lord Howe	C. Lord Howe	Mid-water trawl	36°26.800′S	165°06.050′E	S. Lord Howe
1	South Louisville	Mid-water trawl	47°40.000′S	149°27.000′W	
1	Louisville Ridge	Mid-water trawl	47°40.000′S	150°00.000′W	
1	South Louisville Louisville Ridge	Mid-water trawl	48°05.000′S	149°27.000′W	
1	South Louisville Louisville Ridge	Mid-water trawl	48°05.000′S	150°00.000′W	
3	South Louisville Louisville Ridge	Mid-water trawl	45°59.000′S	154°07.224′W	
3	South Louisville Louisville Ridge	Mid-water trawl	45°59.000′S	154°28.653′W	
3	South Louisville Louisville Ridge	Mid-water trawl	46°15.000′S	154°07.224′W	
3	South Louisville Louisville Ridge	Mid-water trawl	46°15.000′S	154°28.653′W	
4	South Louisville Louisville Ridge	Mid-water trawl	46°01.000′S	155°40.000′W	
4	South Louisville Louisville Ridge	Mid-water trawl	46°01.000′S	156°10.000′W	
4	South Louisville Louisville Ridge	Mid-water trawl	46°24.000′S	155°40.000′W	
4	South Louisville Louisville Ridge	Mid-water trawl	46°24.000′S	156°10.000′W	
5	South Louisville Louisville Ridge	Mid-water trawl	45°26.000′S	156°30.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
5	South Louisville Louisville Ridge	Mid-water trawl	45°26.000′S	156°55.000′W	
5	South Louisville Louisville Ridge	Mid-water trawl	45°42.000′S	156°30.000′W	
5	South Louisville Louisville Ridge	Mid-water trawl	45°42.000′S	156°55.000′W	
6	South Louisville Louisville Ridge	Mid-water trawl	45°19.500′S	157°19.000′W	
6	South Louisville Louisville Ridge	Mid-water trawl	45°19.500′S	157°55.000′W	
6	South Louisville Louisville Ridge	Mid-water trawl	45°30.000′S	157°19.000′W	
6	South Louisville Louisville Ridge	Mid-water trawl	45°30.000′S	157°55.000′W	
7	South Louisville Louisville Ridge	Mid-water trawl	44°43.950′S	158°18.000′W	
7	South Louisville Louisville Ridge	Mid-water trawl	44°43.950′S	158°38.000′W	
7	South Louisville Louisville Ridge	Mid-water trawl	44°57.950′S	158°18.000′W	
7	South Louisville Louisville Ridge	Mid-water trawl	44°57.950′S	158°38.000′W	
8	South Louisville Louisville Ridge	Mid-water trawl	44°13.000′S	159°43.000′W	
8	South Louisville Louisville Ridge	Mid-water trawl	44°13.000′S	159°54.000′W	
8	South Louisville Louisville Ridge	Mid-water trawl	44°21.000′S	159°43.000′W	
8	South Louisville Louisville Ridge	Mid-water trawl	44°21.000′S	159°54.000′W	
9	South Louisville Louisville Ridge	Mid-water trawl	43°51.183′S	160°29.235′W	
9	South Louisville Louisville Ridge	Mid-water trawl	43°51.183′S	160°50.820′W	
9	South Louisville Louisville Ridge	Mid-water trawl	44°07.000′S	160°29.235′W	
9	South Louisville Louisville Ridge	Mid-water trawl	44°07.000′S	160°50.820′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
10	South Louisville Louisville Ridge	Mid-water trawl	43°22.000′S	161°21.770′W	
10	South Louisville Louisville Ridge	Mid-water trawl	43°22.000′S	161°39.000′W	
10	South Louisville Louisville Ridge	Mid-water trawl	43°31.370′S	161°10.170′W	
10	South Louisville Louisville Ridge	Mid-water trawl	43°31.370′S	161°21.770′W	
10	South Louisville Louisville Ridge	Mid-water trawl	43°41.440′S	161°10.170′W	
10	South Louisville Louisville Ridge	Mid-water trawl	43°41.440′S	161°39.000′W	
11	South Louisville Louisville Ridge	Mid-water trawl	42°40.000′S	161°48.000′W	
11	South Louisville Louisville Ridge	Mid-water trawl	42°40.000′S	162°07.000′W	
11	South Louisville Louisville Ridge	Mid-water trawl	42°54.500′S	161°48.000′W	
11	South Louisville Louisville Ridge	Mid-water trawl	42°54.500′S	162°07.000′W	
13	Central Louisville Ridge	Mid-water trawl	41°45.000′S	163°29.500′W	
13	Central Louisville Louisville Ridge	Mid-water trawl	41°45.000′S	163°49.000′W	
13	Central Louisville Louisville Ridge	Mid-water trawl	42°00.000′S	163°29.500′W	
13	Central Louisville Louisville Ridge	Mid-water trawl	42°00.000′S	163°49.000′W	
14	Central Louisville Louisville Ridge	Mid-water trawl	41°17.000′S	164°00.000′W	
14	Central Louisville Louisville Ridge	Mid-water trawl	41°17.000′S	164°27.000′W	
14	Central Louisville Louisville Ridge	Mid-water trawl	41°40.000′S	164°00.000′W	
14	Central Louisville Louisville Ridge	Mid-water trawl	41°40.000′S	164°27.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°32.897′S	165°12.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
15	Central Louisville Louisville Ridge	Mid-water trawl	40°32.897′S	165°30.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°42.000′S	164°56.400′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°42.000′S	165°12.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°48.000′S	165°24.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°48.000′S	165°30.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°54.000′S	165°12.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	40°54.000′S	165°24.000′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	41°06.000′S	164°56.400′W	
15	Central Louisville Louisville Ridge	Mid-water trawl	41°06.000′S	165°12.000′W	
17	North Louisville Ridge	Mid-water trawl	38°20.013′S	167°29.000′W	
17	North Louisville Louisville Ridge	Mid-water trawl	38°20.013′S	167°47.067′W	
17	North Louisville Louisville Ridge	Mid-water trawl	38°32.000′S	167°29.000′W	
17	North Louisville Louisville Ridge	Mid-water trawl	38°32.000′S	167°47.067′W	
18	North Louisville Louisville Ridge	Mid-water trawl	38°11.013′S	168°01.785′W	
18	North Louisville Louisville Ridge	Mid-water trawl	38°11.013′S	168°20.000′W	
18	North Louisville Louisville Ridge	Mid-water trawl	38°40.000′S	168°01.785′W	
18	North Louisville Louisville Ridge	Mid-water trawl	38°40.000′S	168°20.000′W	
22	North Louisville Louisville Ridge	Mid-water trawl	36°45.000′S	169°30.000′W	
22	North Louisville Louisville Ridge	Mid-water trawl	36°45.000′S	170°00.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
22	North Louisville Louisville Ridge	Mid-water trawl	37°08.000′S	169°30.000′W	
22	North Louisville Louisville Ridge	Mid-water trawl	37°08.000′S	170°00.000′W	
23	North Louisville Louisville Ridge	Mid-water trawl	36°00.000′S	169°22.000′W	
23	North Louisville Louisville Ridge	Mid-water trawl	36°00.000′S	169°40.000′W	
23	North Louisville Louisville Ridge	Mid-water trawl	36°10.000′S	169°22.000′W	
23	North Louisville Louisville Ridge	Mid-water trawl	36°10.000′S	169°40.000′W	
N. Lord Howe - Central	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°49.630′S	162°25.670′E	
N. Lord Howe - Central	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°48.622′S	162°25.670′E	North-east along the Australian EEZ
N. Lord Howe - Central	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°32.530′S	162°38.450′E	
N. Lord Howe - Central	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°32.530′S	162°57.770′E	
N. Lord Howe - Central	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°49.630′S	162°57.770′E	
N. Lord Howe - East	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	32°54.650′S	163°16.615′E	
N. Lord Howe - East	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	32°54.650′S	163°26.380′E	
N. Lord Howe - East	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°04.400′S	163°16.615′E	
N. Lord Howe - East	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°04.400′S	163°26.380′E	
N. Lord Howe - South	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°58.670′S	162°20.000′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
N. Lord Howe - South	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°58.670′S	163°00.000′E	
N. Lord Howe - South	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	34°40.000′S	162°20.000′E	
N. Lord Howe - South	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	34°40.000′S	163°00.000′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°16.400′S	162°52.540′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°09.296′S	162°52.540′E	North-east along the Australian EEZ
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°04.400′S	162°54.941′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°04.400′S	163°10.540′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°10.400′S	163°04.540′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°10.400′S	163°10.540′E	
N. Lord Howe - West	N. Lord Howe RiseN. Lord Howe	Mid-water trawl	33°16.400′S	163°04.540′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°01.333′S	166°40.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°01.333′S	169°36.706′E	South-east along the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°29.902′S	170°00.000′E	Due south to a point on the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°41.589′S	170°00.000′E	South-west along the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Mid-water trawl	38°00.000′S	169°47.848′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	38°00.000′S	169°42.000′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	169°42.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°42.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°42.000′S	167°42.004′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	167°42.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	39°06.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	39°06.000′S	167°18.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	38°52.000′S	167°18.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	38°52.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°48.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°42.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Mid-water trawl	37°42.000′S	166°40.000′E	
S. Lord Howe - South	S. Lord Howe	Mid-water trawl	36°13.460′S	164°40.830′E	
S. Lord Howe - South	S. Lord Howe	Mid-water trawl	36°13.460′S	165°06.050′E	
S. Lord Howe - South	S. Lord Howe	Mid-water trawl	36°26.800′S	164°40.830′E	
S. Lord Howe - South	S. Lord Howe	Mid-water trawl	36°26.800′S	165°06.050′E	
S. Tasman Rise 1 Box 1	S. Tasman Rise 1	Mid-water trawl	47°08.280′S	147°50.200′E	Start on the Australian EEZ

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Mid-water trawl	47°17.370′S	147°50.200′E	
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Mid-water trawl	47°17.370′S	147°32.300′E	
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Mid-water trawl	47°10.197′S	147°32.300′E	East along the Australian EEZ to the start point
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Mid-water trawl	47°05.160′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Mid-water trawl	47°05.160′S	148°50.670′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Mid-water trawl	47°13.780′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Mid-water trawl	47°13.780′S	148°50.670′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°21.000′S	148°45.610′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°21.000′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°24.015′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°24.015′S	148°45.610′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°24.800′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°30.320′S	148°44.390′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°30.320′S	148°57.650′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°35.205′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Mid-water trawl	47°35.205′S	148°44.390′E	
Wanganella	West Norfolk Ridge	Mid-water trawl	33°28.000′S	167°42.000′E	
Wanganella	West Norfolk Ridge	Mid-water trawl	33°28.000′S	168°00.000′E	
Wanganella	West Norfolk Ridge	Mid-water trawl	33°52.000′S	167°13.000′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
Wanganella	West Norfolk Ridge	Mid-water trawl	33°52.000′S	167°42.000′E	
Wanganella	West Norfolk Ridge	Mid-water trawl	34°12.000′S	167°13.000′E	
Wanganella	West Norfolk Ridge	Mid-water trawl	34°12.000′S	168°00.000′E	
Westpac Bank	Westpac Bank	Mid-water trawl	39°39.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Mid-water trawl	39°39.000′S	167°21.090′E	
Westpac Bank	Westpac Bank	Mid-water trawl	39°55.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Mid-water trawl	39°55.000′S	167°21.090′E	

b) Bottom Line Management Area coordinates

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
Carpel bank		Bottom Line	25°14.950′S	159°00.285′E	
Carpel bank		Bottom Line	25°14.950′S	160°00.000′E	
Carpel bank		Bottom Line	25°59.640′S	159°00.285′E	
Carpel bank		Bottom Line	25°59.640′S	160°00.000′E	
Gascoyne		Bottom Line	36°19.950′S	155°53.630′E	
Gascoyne		Bottom Line	36°19.950′S	156°43.770′E	
Gascoyne		Bottom Line	36°59.440′S	155°53.630′E	
Gascoyne		Bottom Line	36°59.440′S	156°43.770′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°20.000′S	165°00.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°20.000′S	166°21.915′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°31.000′S	164°54.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°31.000′S	165°00.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°54.000′S	164°46.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	35°54.000′S	164°54.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°00.500′S	165°18.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°00.500′S	166°21.915′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°06.000′S	164°46.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°06.000′S	165°18.000′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°13.460′S	164°40.830′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°13.460′S	165°06.050′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°26.800′S	164°40.830′E	
S. Lord Howe	C. Lord Howe	Bottom Line	36°26.800′S	165°06.050′E	
North Lord Howe Rise	Capel bank	Bottom Line	25°14.950′S	159°00.285′E	
North Lord Howe Rise	Capel bank	Bottom Line	25°14.950′S	160°00.000′E	
North Lord Howe Rise	Capel bank	Bottom Line	25°59.640′S	159°00.285′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
North Lord Howe Rise	Capel bank	Bottom Line	25°59.640′S	160°00.000′E	
Central Challenger	Central Challenger	Bottom Line	37°45.615′S	168°35.830′E	
Central Challenger	Central Challenger	Bottom Line	37°55.230′S	168°35.830′E	
Central Challenger	Central Challenger	Bottom Line	37°55.230′S	169°25.400′E	
Central Challenger	Central Challenger	Bottom Line	38°13.830′S	169°25.400′E	South-west along the New Zealand EEZ
Central Challenger	Central Challenger	Bottom Line	38°23.165′S	169°11.967′E	
Central Challenger	Central Challenger	Bottom Line	38°23.165′S	168°30.780′E	
Central Challenger	Central Challenger	Bottom Line	38°32.750′S	168°30.780′E	
Central Challenger	Central Challenger	Bottom Line	38°32.750′S	167°57.950′E	
Central Challenger	Central Challenger	Bottom Line	39°17.180′S	167°57.950′E	
Central Challenger	Central Challenger	Bottom Line	39°17.180′S	167°30.500′E	
Central Challenger	Central Challenger	Bottom Line	38°06.430′S	167°30.500′E	
Central Challenger	Central Challenger	Bottom Line	38°06.430′S	168°09.833′E	
Central Challenger	Central Challenger	Bottom Line	37°45.615′S	168°09.833′E	
Gascoyne	Gascoyne	Bottom Line	36°19.950′S	155°53.630′E	
Gascoyne	Gascoyne	Bottom Line	36°19.950′S	156°43.770′E	
Gascoyne	Gascoyne	Bottom Line	36°59.440′S	155°53.630′E	
Gascoyne	Gascoyne	Bottom Line	36°59.440′S	156°43.770′E	
1	South Louisville Louisville Ridge	Bottom Line	47°40.000′S	149°27.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
1	South Louisville Louisville Ridge	Bottom Line	47°40.000′S	150°00.000′W	
1	South Louisville Louisville Ridge	Bottom Line	48°05.000′S	149°27.000′W	
1	South Louisville Louisville Ridge	Bottom Line	48°05.000′S	150°00.000′W	
3	South Louisville Louisville Ridge	Bottom Line	45°59.000′S	154°07.224′W	
3	South Louisville Louisville Ridge	Bottom Line	45°59.000′S	154°28.653′W	
3	South Louisville Louisville Ridge	Bottom Line	46°15.000′S	154°07.224′W	
3	South Louisville Louisville Ridge	Bottom Line	46°15.000′S	154°28.653′W	
4	South Louisville Louisville Ridge	Bottom Line	46°01.000′S	155°40.000′W	
4	South Louisville Louisville Ridge	Bottom Line	46°01.000′S	156°10.000′W	
4	South Louisville Louisville Ridge	Bottom Line	46°24.000′S	155°40.000′W	
4	South Louisville Louisville Ridge	Bottom Line	46°24.000′S	156°10.000′W	
5	South Louisville Louisville Ridge	Bottom Line	45°26.000′S	156°30.000′W	
5	South Louisville Louisville Ridge	Bottom Line	45°26.000′S	156°55.000′W	
5	South Louisville Louisville Ridge	Bottom Line	45°42.000′S	156°30.000′W	
5	South Louisville Louisville Ridge	Bottom Line	45°42.000′S	156°55.000′W	
6	South Louisville Louisville Ridge	Bottom Line	45°19.500′S	157°19.000′W	
6	South Louisville Louisville Ridge	Bottom Line	45°19.500′S	157°55.000′W	
6	South Louisville Louisville Ridge	Bottom Line	45°30.000′S	157°19.000′W	
6	South Louisville Louisville Ridge	Bottom Line	45°30.000′S	157°55.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
7	South Louisville Louisville Ridge	Bottom Line	44°43.950′S	158°18.000′W	
7	South Louisville Louisville Ridge	Bottom Line	44°43.950′S	158°38.000′W	
7	South Louisville Louisville Ridge	Bottom Line	44°57.950′S	158°18.000′W	
7	South Louisville Louisville Ridge	Bottom Line	44°57.950′S	158°38.000′W	
8	South Louisville Louisville Ridge	Bottom Line	44°13.000′S	159°43.000′W	
8	South Louisville Louisville Ridge	Bottom Line	44°13.000′S	159°54.000′W	
8	South Louisville Louisville Ridge	Bottom Line	44°21.000′S	159°43.000′W	
8	South Louisville Louisville Ridge	Bottom Line	44°21.000′S	159°54.000′W	
9	South Louisville Louisville Ridge	Bottom Line	43°51.183′S	160°29.235′W	
9	South Louisville Louisville Ridge	Bottom Line	43°51.183′S	160°50.820′W	
9	South Louisville Louisville Ridge	Bottom Line	44°07.000′S	160°29.235′W	
9	South Louisville Louisville Ridge	Bottom Line	44°07.000′S	160°50.820′W	
10	South Louisville Louisville Ridge	Bottom Line	43°22.000′S	161°21.770′W	
10	South Louisville Louisville Ridge	Bottom Line	43°22.000′S	161°39.000′W	
10	South Louisville Louisville Ridge	Bottom Line	43°31.370′S	161°10.170′W	
10	South Louisville Louisville Ridge	Bottom Line	43°31.370′S	161°21.770′W	
10	South Louisville Louisville Ridge	Bottom Line	43°41.440′S	161°10.170′W	
10	South Louisville Louisville Ridge	Bottom Line	43°41.440′S	161°39.000′W	
11	South Louisville Louisville Ridge	Bottom Line	42°40.000′S	161°48.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
11	South Louisville Louisville Ridge	Bottom Line	42°40.000′S	162°07.000′W	
11	South Louisville Louisville Ridge	Bottom Line	42°54.500′S	161°48.000′W	
11	South Louisville Louisville Ridge	Bottom Line	42°54.500′S	162°07.000′W	
13	Central Louisville Louisville Ridge	Bottom Line	41°45.000′S	163°29.500′W	
13	Central Louisville Louisville Ridge	Bottom Line	41°45.000′S	163°49.000′W	
13	Central Louisville Louisville Ridge	Bottom Line	42°00.000′S	163°29.500′W	
13	Central Louisville Louisville Ridge	Bottom Line	42°00.000′S	163°49.000′W	
14	Central Louisville Louisville Ridge	Bottom Line	41°17.000′S	164°00.000′W	
14	Central Louisville Louisville Ridge	Bottom Line	41°17.000′S	164°27.000′W	
14	Central Louisville Louisville Ridge	Bottom Line	41°40.000′S	164°00.000′W	
14	Central Louisville Louisville Ridge	Bottom Line	41°40.000′S	164°27.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°32.897′S	165°12.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°32.897′S	165°30.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°42.000′S	164°56.400′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°42.000′S	165°12.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°48.000′S	165°24.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°48.000′S	165°30.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°54.000′S	165°12.000′W	
15	Central Louisville Louisville Ridge	Bottom Line	40°54.000′S	165°24.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
15	Central Louisville Louisville Ridge	Bottom Line	41°06.000′S	164°56.400′W	
15	Central Louisville Louisville Ridge	Bottom Line	41°06.000′S	165°12.000′W	
17	North Louisville Louisville Ridge	Bottom Line	38°20.013′S	167°29.000′W	
17	North Louisville Louisville Ridge	Bottom Line	38°20.013′S	167°47.067′W	
17	North Louisville Louisville Ridge	Bottom Line	38°32.000′S	167°29.000′W	
17	North Louisville Louisville Ridge	Bottom Line	38°32.000′S	167°47.067′W	
18	North Louisville Louisville Ridge	Bottom Line	38°11.013′S	168°01.785′W	
18	North Louisville Louisville Ridge	Bottom Line	38°11.013′S	168°20.000′W	
18	North Louisville Louisville Ridge	Bottom Line	38°40.000′S	168°01.785′W	
18	North Louisville Louisville Ridge	Bottom Line	38°40.000′S	168°20.000′W	
22	North Louisville Louisville Ridge	Bottom Line	36°45.000′S	169°30.000′W	
22	North Louisville Louisville Ridge	Bottom Line	36°45.000′S	170°00.000′W	
22	North Louisville Louisville Ridge	Bottom Line	37°08.000′S	169°30.000′W	
22	North Louisville Louisville Ridge	Bottom Line	37°08.000′S	170°00.000′W	
23	North Louisville Louisville Ridge	Bottom Line	36°00.000′S	169°22.000′W	
23	North Louisville Louisville Ridge	Bottom Line	36°00.000′S	169°40.000′W	
23	North Louisville Louisville Ridge	Bottom Line	36°10.000′S	169°22.000′W	
23	North Louisville Louisville Ridge	Bottom Line	36°10.000′S	169°40.000′W	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
N. Lord Howe	N. Lord Howe	Bottom Line	32°39.630′S	163°04.415′E	Start on the Australian EEZ
N. Lord Howe	N. Lord Howe	Bottom Line	32°39.630′S	163°40.000′E	
N. Lord Howe	N. Lord Howe	Bottom Line	33°20.000′S	163°40.000′E	
N. Lord Howe	N. Lord Howe	Bottom Line	33°20.000′S	163°20.000′E	
N. Lord Howe	N. Lord Howe	Bottom Line	34°40.000′S	162°20.000′E	
N. Lord Howe	N. Lord Howe	Bottom Line	34°40.000′S	163°20.000′E	
N. Lord Howe	N. Lord Howe	Bottom Line	33°54.773′S	162°20.000′E	North-east along the Australian EEZ to the start point
Central Challenger	Northwest Challenger	Bottom Line	37°45.615′S	168°35.830′E	
Central Challenger	Northwest Challenger	Bottom Line	37°55.230′S	168°35.830′E	
Central Challenger	Northwest Challenger	Bottom Line	37°55.230′S	169°25.400′E	
Central Challenger	Northwest Challenger	Bottom Line	38°13.830′S	169°25.400′E	
Central Challenger	Northwest Challenger	Bottom Line	38°23.165′S	169°11.967′E	
Central Challenger	Northwest Challenger	Bottom Line	38°23.165′S	168°30.780′E	
Central Challenger	Northwest Challenger	Bottom Line	38°32.750′S	168°30.780′E	
Central Challenger	Northwest Challenger	Bottom Line	38°32.750′S	167°57.950′E	
Central Challenger	Northwest Challenger	Bottom Line	39°17.180′S	167°57.950′E	
Central Challenger	Northwest Challenger	Bottom Line	39°17.180′S	167°30.500′E	

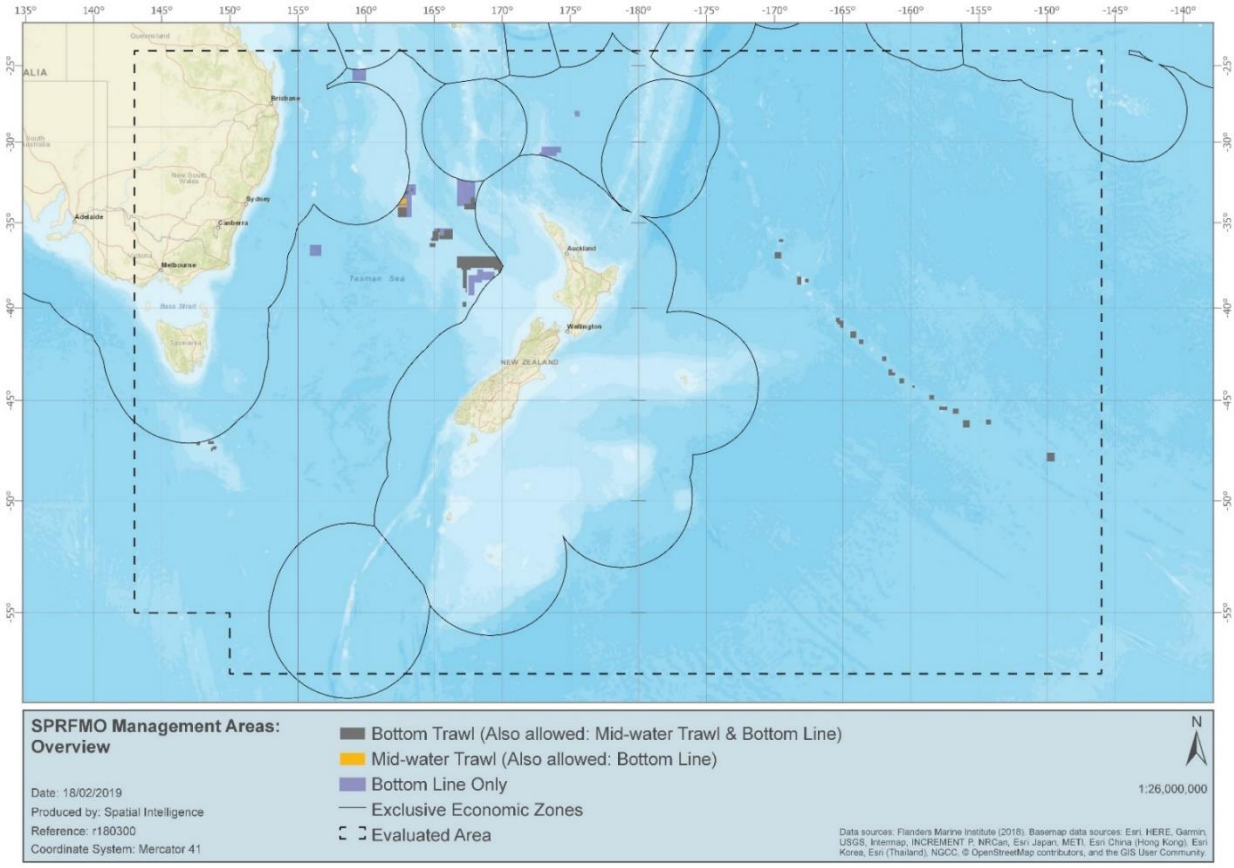
Block name	Locality	Method	Latitude	Longitude	EEZ Direction
Central Challenger	Northwest Challenger	Bottom Line	38°06.430′S	167°30.500′E	
Central Challenger	Northwest Challenger	Bottom Line	38°06.430′S	168°09.833′E	
Central Challenger	Northwest Challenger	Bottom Line	37°45.615′S	168°09.833′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°01.333′S	169°36.706′E	South-east along the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Bottom Line	37°29.902′S	170°00.000′E	Due south to a point on the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Bottom Line	37°41.589′S	170°00.000′E	South-west along the New Zealand EEZ
Northwest Challenger	Northwest Challenger	Bottom Line	38°00.000′S	169°47.848′E	
Northwest Challenger	Northwest Challenger	Bottom Line	38°00.000′S	169°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	169°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°42.000′S	169°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°42.000′S	167°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	167°42.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	39°06.000′S	167°24.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	39°06.000′S	167°18.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	38°52.000′S	167°18.000′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
Northwest Challenger	Northwest Challenger	Bottom Line	38°52.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	167°06.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°48.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°42.000′S	167°00.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°42.000′S	166°40.000′E	
Northwest Challenger	Northwest Challenger	Bottom Line	37°01.333′S	166°40.000′E	
S. Tasman Rise 1 Box 1	S. Tasman Rise 1 S. Tasman Rise	Bottom Line	47°08.280′S	147°50.200′E	Start on the Australian EEZ
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom Line	47°17.370′S	147°50.200′E	
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom Line	47°17.370′S	147°32.300′E	
S. Tasman Rise 1 Box 1	S. Tasman RiseS. Tasman Rise 1	Bottom Line	47°10.197′S	147°32.300′E	East along the Australian EEZ to the start point
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom Line	47°05.160′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom Line	47°05.160′S	148°50.670′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom Line	47°13.780′S	148°24.165′E	
S. Tasman Rise 2 Box 2	S. Tasman RiseS. Tasman Rise 2	Bottom Line	47°13.780′S	148°50.670′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°21.000′S	148°45.610′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°21.000′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°24.015′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°24.015′S	148°45.610′E	

Block name	Locality	Method	Latitude	Longitude	EEZ Direction
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°24.800′S	149°03.200′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°30.320′S	148°44.390′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°30.320′S	148°57.650′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°35.205′S	148°37.235′E	
S. Tasman Rise 3 Box 3	S. Tasman RiseS. Tasman Rise 3	Bottom Line	47°35.205′S	148°44.390′E	
Marion	Three Kings	Bottom Line	27°59.155′S	175°19.590′E	
Marion	Three Kings	Bottom Line	27°59.155′S	175°40.370′E	
Marion	Three Kings	Bottom Line	28°19.800′S	175°19.590′E	
Marion	Three Kings	Bottom Line	28°19.800′S	175°40.370′E	
Three Kings	Three Kings	Bottom Line	30°49.324′S	172°42.880′E	Start on the New Zealand EEZ
Three Kings	Three Kings	Bottom Line	30°40.115′S	172°42.880′E	
Three Kings	Three Kings	Bottom Line	30°40.115′S	172°53.295′E	
Three Kings	Three Kings	Bottom Line	30°16.500′S	172°53.295′E	
Three Kings	Three Kings	Bottom Line	30°16.500′S	174°20.000′E	
Three Kings	Three Kings	Bottom Line	30°40.245′S	174°20.000′E	
Three Kings	Three Kings	Bottom Line	30°40.245′S	174°00.200′E	
Three Kings	Three Kings	Bottom Line	30°53.670′S	174°00.200′E	
Three Kings	Three Kings	Bottom Line	30°53.670′S	173°08.819′E	West along the New Zealand EEZ to the start point
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	32°17.000′S	166°41.530′E	
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	32°17.000′S	166°41.921′E	South-east along the Australian EEZ

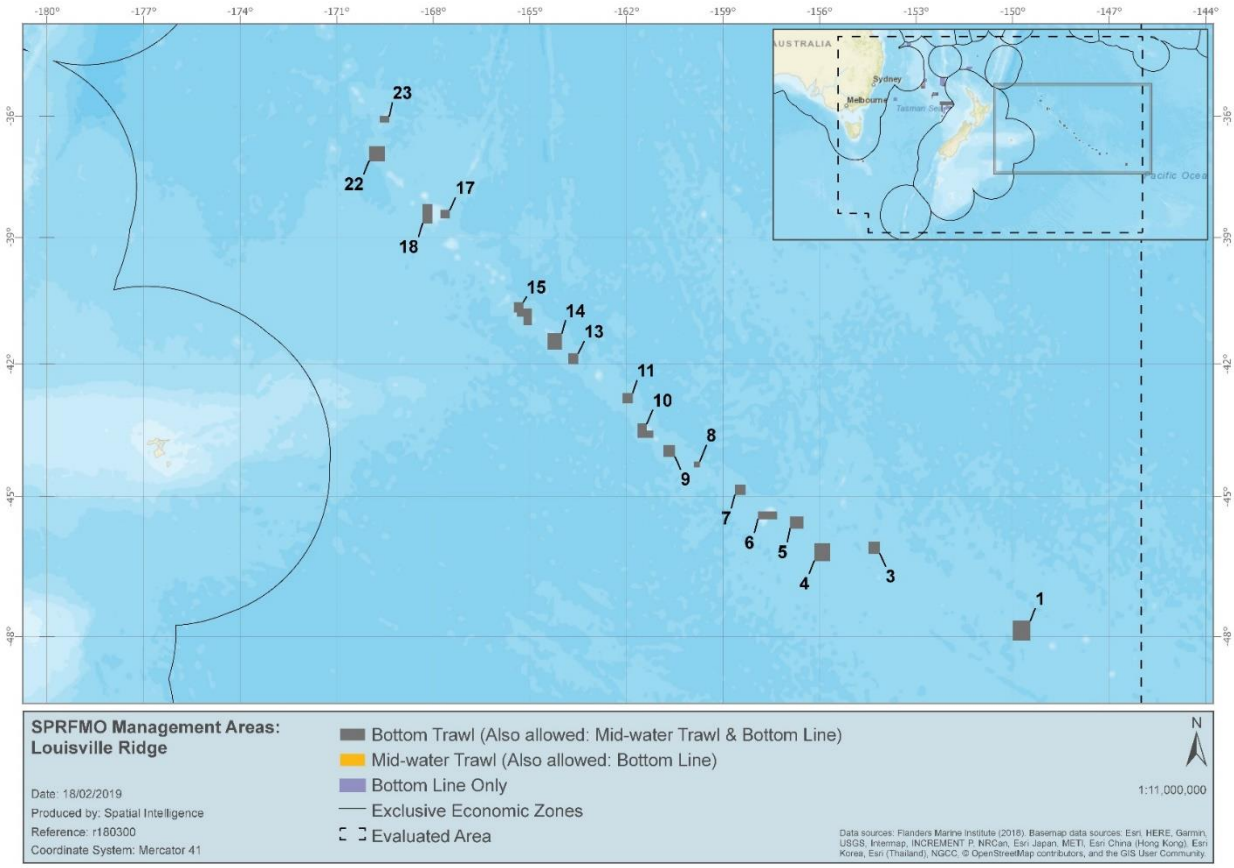
Block name	Locality	Method	Latitude	Longitude	EEZ Direction
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	32°28.633′S	168°00.000′E	
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	34°12.000′S	168°00.000′E	
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	34°12.000′S	167°13.000′E	
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	34°00.000′S	167°13.000′E	
West Norfolk Ridge	West Norfolk Ridge	Bottom Line	34°00.000′S	166°41.530′E	
Westpac Bank	Westpac Bank	Bottom Line	39°39.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Bottom Line	39°39.000′S	167°21.090′E	
Westpac Bank	Westpac Bank	Bottom Line	39°55.000′S	167°05.000′E	
Westpac Bank	Westpac Bank	Bottom Line	39°55.000′S	167°21.090′E	

Figure 1: SPRFMO management area overview



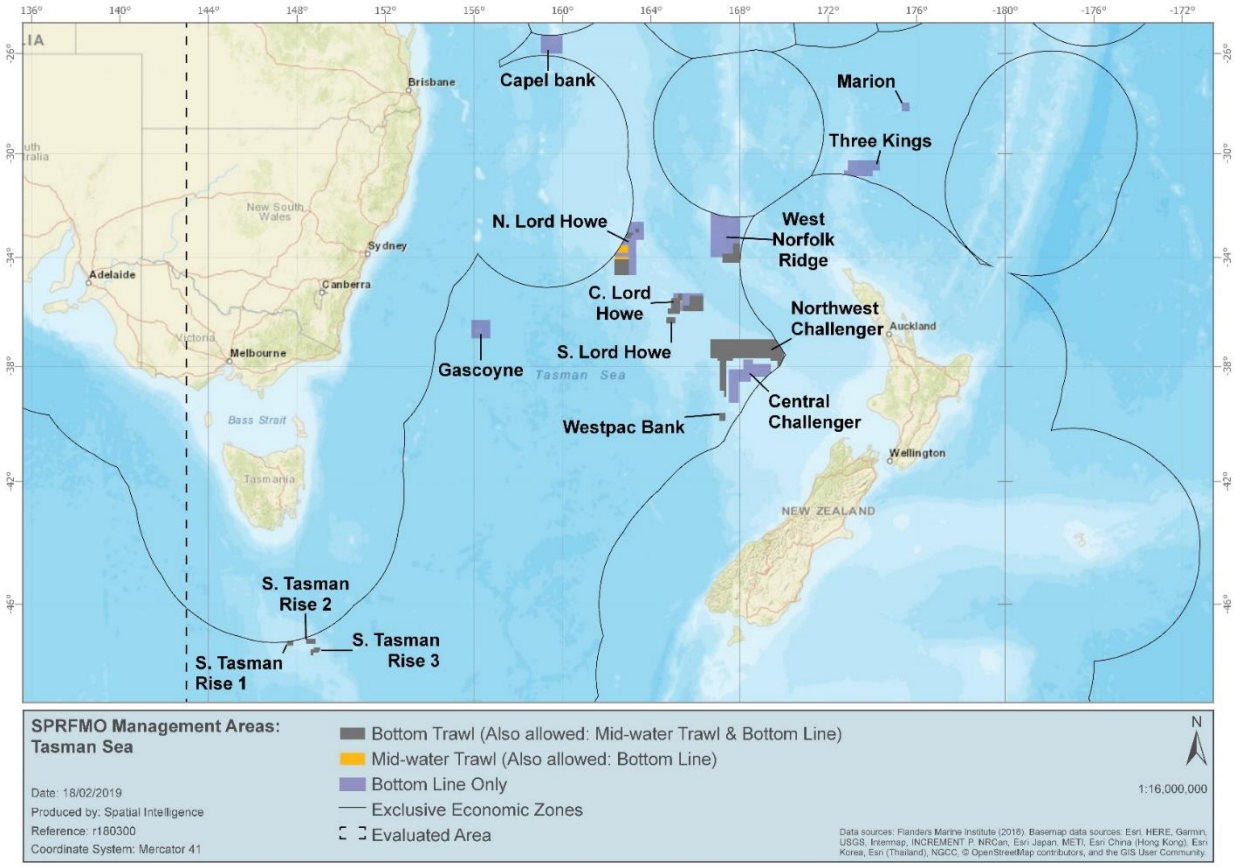
Legend:
-SPRFMO Management Areas: Overview
-Bottom Trawl (Also allowed: Mid-water Trawl & Bottom Line)
- Bottom Line Only
-Mid-water Trawl (Also allowed: Bottom Line)
-Exclusive Economic Zone
-Evaluated Area

Figure 2: SPRFMO Bottom Fishing Management Areas for the Louisville Ridge



Legend:
-SPRFMO Management Areas: Louisville Ridge
-Bottom Trawl (Also allowed: Mid-water Trawl & Bottom Line)
- Bottom Line Only
-Mid-water Trawl (Also allowed: Bottom Line)
-Exclusive Economic Zone
-Evaluated Area

Figure 3: SPRFMO Bottom Fishing Management Areas for the Tasman Sea



Legend:
-SPRFMO Management Areas: Tasman Sea
-Bottom Trawl (Also allowed: Mid-water Trawl & Bottom Line)
- Bottom Line Only
-Mid-water Trawl (Also allowed: Bottom Line)
-Exclusive Economic Zone
-Evaluated Area

Annex XV

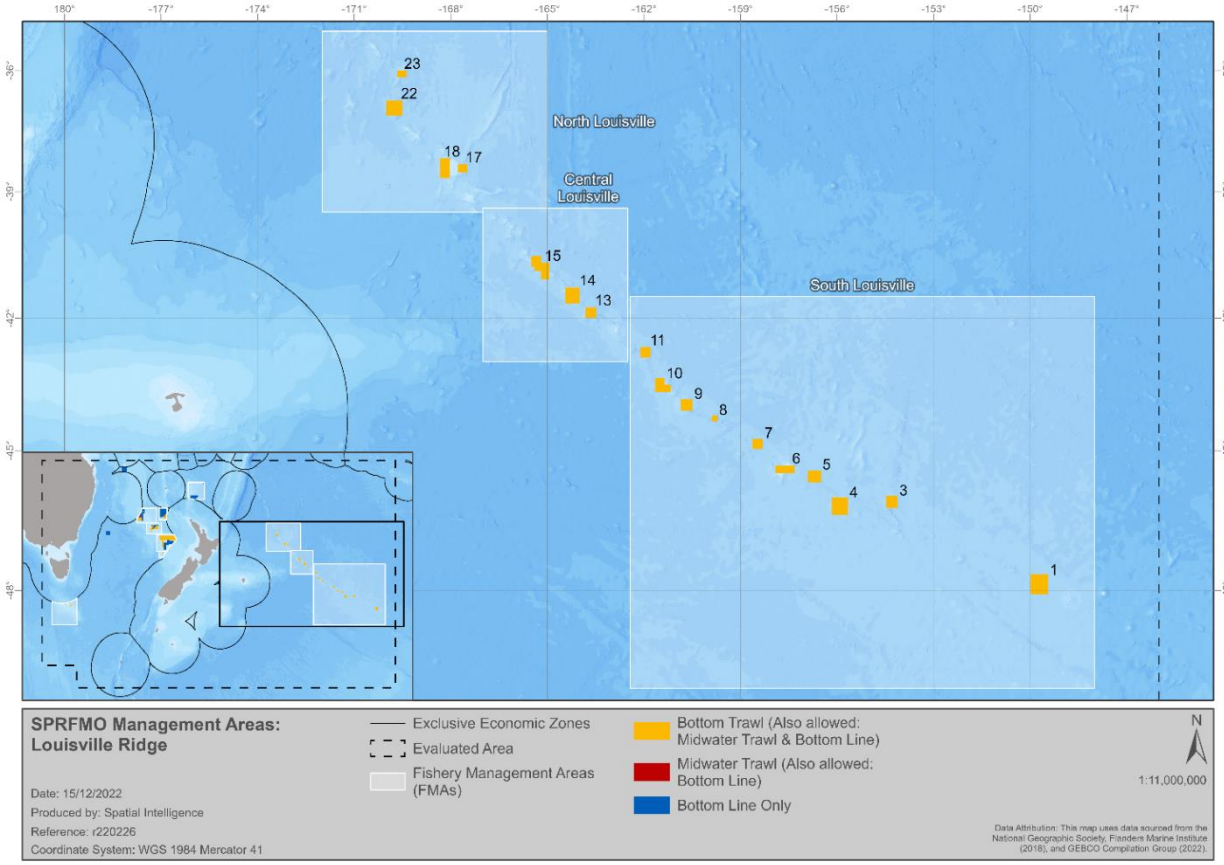
Fishery management areas

Coordinates for each fishery management area

FMA	Point Order	Latitude	Longitude	EEZ Direction
Central Lord Howe Rise	1	35°00.000′S	164°00.000′E	
Central Lord Howe Rise	2	35°00.000′S	167°00.000′E	
Central Lord Howe Rise	3	36°45.000′S	167°00.000′E	
Central Lord Howe Rise	4	36°45.000′S	164°00.000′E	
Central Louisville	1	39°24.000′S	167°00.000′W	
Central Louisville	2	39°24.000′S	162°30.000′W	
Central Louisville	3	43°00.000′S	162°30.000′W	
Central Louisville	4	43°00.000′S	167°00.000′W	
North Lord Howe Rise	1	32°30.000′S	163°06.980′E	Start on the Australian EEZ
North Lord Howe Rise	2	32°30.000′S	166°00.000′E	
North Lord Howe Rise	3	35°00.000′S	166°00.000′E	
North Lord Howe Rise	4	35°00.000′S	162°00.000′E	
North Lord Howe Rise	5	34°13.064′S	162°00.000′E	North along the Australian EEZ to the start point
North Louisville	1	35°00.000′S	172°00.000′W	
North Louisville	2	35°00.000′S	165°00.000′W	
North Louisville	3	39°24.000′S	165°00.000′W	
North Louisville	4	39°24.000′S	167°00.000′W	
North Louisville	5	39°30.000′S	167°00.000′W	
North Louisville	6	39°30.000′S	172°00.000′W	
Northwest Challenger	1	36°50.000′S	166°00.000′E	
Northwest Challenger	2	36°50.000′S	169°28.474′E	South-east along the New Zealand EEZ
Northwest Challenger	3	37°29.902′S	170°00.000′E	Due south to a point on the New Zealand EEZ
Northwest Challenger	4	37°41.589′S	170°00.000′E	South-west along the New Zealand EEZ
Northwest Challenger	5	39°30.000′S	168°08.799′E	

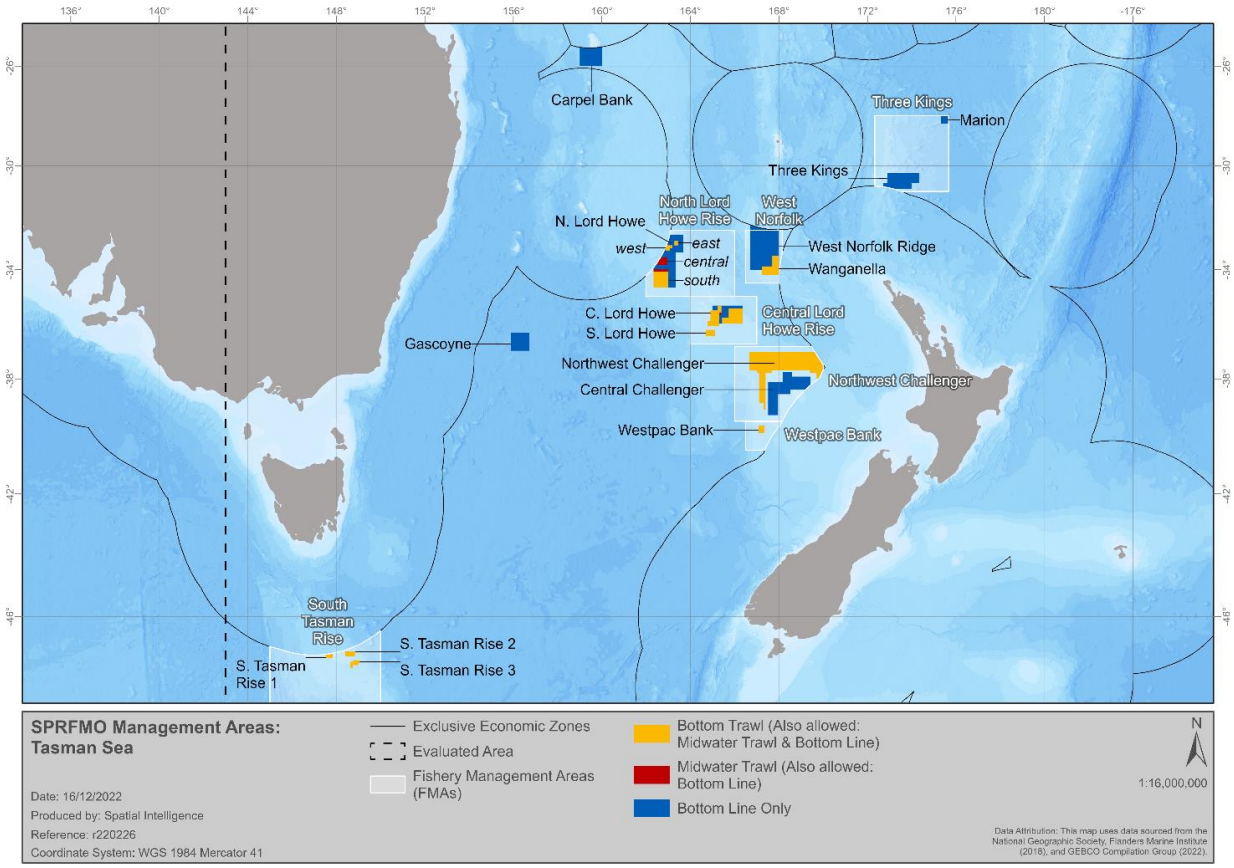
FMA	Point Order	Latitude	Longitude	EEZ Direction
Northwest Challenger	6	39°30.000′S	166°00.000′E	
South Louisville	1	41°30.000′S	162°26.000′W	
South Louisville	2	41°30.000′S	148°00.000′W	
South Louisville	3	50°00.000′S	148°00.000′W	
South Louisville	4	50°00.000′S	162°26.000′W	
South Tasman Rise	1	46°25.979′S	150°00.000′E	Start on the Australian EEZ
South Tasman Rise	2	50°00.000′S	150°00.000′E	
South Tasman Rise	3	50°00.000′S	145°00.000′E	
South Tasman Rise	4	46°55.906′S	145°00.000′E	East along the Australian EEZ to the start point
Three Kings	1	28°00.000′S	172°20.000′E	
Three Kings	2	28°00.000′S	175°40.000′E	
Three Kings	3	31°00.000′S	175°40.000′E	
Three Kings	4	31°00.000′S	173°32.686′E	West along the New Zealand EEZ
Three Kings	5	30°47.558′S	172°20.000′E	
West Norfolk	1	34°30.000′S	168°01.318′E	Start on the New Zealand EEZ
West Norfolk	2	34°30.000′S	166°30.000′E	
West Norfolk	3	32°30.000′S	166°30.000′E	
West Norfolk	4	32°30.000′S	168°10.000′E	
West Norfolk	5	33°19.412′S	168°10.000′E	South along the New Zealand EEZ to the start point
Westpac Bank	1	39°31.000′S	166°30.000′E	
Westpac Bank	2	39°31.000′S	168°08.176′E	South-west along the New Zealand EEZ
Westpac Bank	3	40°30.000′S	167°21.903′E	
Westpac Bank	4	40°30.000′S	166°30.000′E	

Figure 1: Fishery Management Areas for the Louisville Ridge



Legend:
-SPRFMO Management Areas: Louisville Ridge
-Exclusive Economic Zone
-Evaluated Area
- Fisheries Management Areas (FMAs)
-Bottom Trawl (Also allowed: Mid-water Trawl & Bottom Line)
-Mid-water Trawl (Also allowed: Bottom Line)
- Bottom Line Only

Figure 2: Fishery Management Areas for the Tasman Sea



Legend:
-SPRFMO Management Areas: Tasman Sea
-Exclusive Economic Zone
-Evaluated Area
-Fisheries Management Areas (FMAs)
-Bottom Trawl (Also allowed: Mid-water Trawl & Bottom Line)
-Mid-water Trawl (Also allowed: Bottom Line)
- Bottom Line Only

Annex XVI

List of VME indicator taxa

Taxonomic Level	Common Name	Qualifying taxa
Vulnerable taxa		
Phylum Porifera	Sponges	All taxa of the classes Demospongiae and Hexactinellidae
Phylum Cnidaria		
Class Anthozoa		
Order Scleractinia	Stony corals	All taxa within the following genera: *Solenosmilia; Goniocorella; Oculina; Enallopsammia; Madrepora; Lophelia*
Order Antipatharia	Black corals	All taxa
Order Alcyonacea	True soft corals	All taxa excluding Gorgonian Alcyonacea
Informal group Gorgonian Alcyonacea	Sea fans octocorals	All taxa within the following suborders: Holaxonia; Calcaxonia; Scleraxonia
Order Pennatulacea	Sea pens	All taxa
Order Actiniaria	Anemones	All taxa
Order Zoantharia	Hexacorals	All taxa
Class Hydrozoa	Hydrozoans	All taxa within the orders Anthoathecata and Leptothecata, excluding Stylasteridae
Order Anthoathecatae		
Family Stylasteridae	Hydrocorals	All taxa
Phylum Bryozoa	Bryozoans	All taxa within the orders Cheilostomatida and Ctenostomatida
Habitat indicators		
Phylum Echinodermata		
Class Asteroidea		
Order Brisingida	Armless stars	All taxa
Class Crinoidea	Sea lillies	All taxa

Annex XVII

Weight threshold for triggering the VME encounter protocol in any one tow for a single VME indicator taxon

Taxonomic Level	Common Name	Weight Threshold (kg)
Vulnerable taxa		
Phylum Porifera	Sponges	25
Phylum Cnidaria		
Class Anthozoa		
Order Scleractinia	Stony corals	60
Order Antipatharia	Black Corals	5
Informal group Gorgonian Alcyonacea	Seafan octocorals	15
Order Actiniaria	Anemones	35
Order Zoantharia	Hexacorals	10

Annex XVIII

Weight threshold for triggering the VME encounter protocol in any one tow for three or more different VME indicator taxa

Taxonomic Level	Common Name	Weight Threshold (kg)
Vulnerable taxa		
Phylum Porifera	Sponges	5
Phylum Cnidaria		
Class Anthozoa		
Order Scleractinia	Stony corals	5
Order Antipatharia	Black corals	1
Order Alcyonacea	True soft corals	1
Informal group Gorgonian Alcyonacea	Seafan octocorals	1
Order Pennatulacea	Sea pens	1

Taxonomic Level	Common Name	Weight Threshold (kg)
Order Actiniaria	Anemones	5
Order Zoantharia	Hexacorals	1
Class Hydrozoa	Hydrozoans	1
Order Anthoathecatae		
Family Stylasteridae	Hydrocorals	1
Phylum Bryozoa	Bryozoans	1
Phylum Echinodermata		
Class Asteroidea		
Order Brisingida	Armless stars	1
Class Crinoidea	Sea lillies	1

Annex XIX

Observer coverage levels in bottom fishing

Gear type	Minimum level of observer coverage
Vessels using bottom trawl and mid-water trawl gear	100% observer coverage
Bottom line gear	At least 10% observer coverage for the fishing year[4]

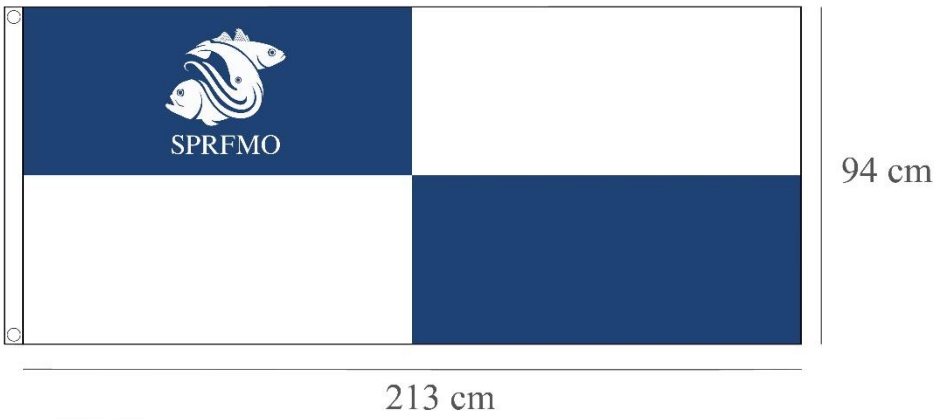
Annex XX

SPRFMO inspection flag and pennant

Figure 1: SPRFMO inspection flag

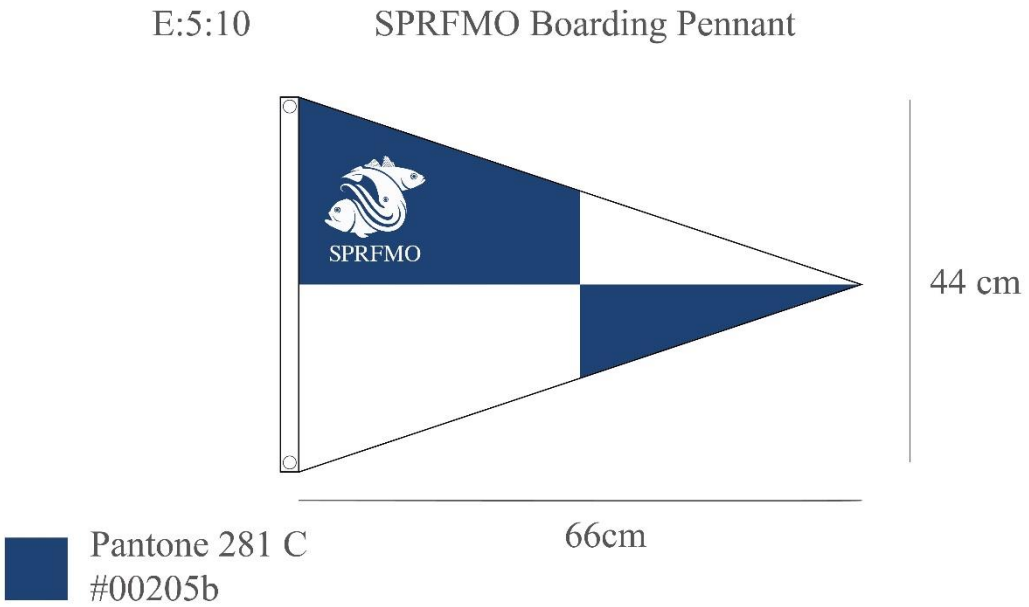
4 Expressed as the percentage of the total number of observed hooks.

E:2:10 SPRFMO Inspection Flag



Pantone 281 C
#00205b

Figure 2: SPRFMO boarding pennant



”

ANNEX II

Point (38) in the Annex of Regulation (EU) 2019/833 is replaced as follows:

“(38) Surveillance Report Form in Annex IV.A to the CEM referred to in Article 30(1) point (b) of Article 30(2) and point (a) of Article 45;”

ANNEX III

Annexes II, III, IV, V, VI, VII, VIII and IX are added to Regulation (EU) 2021/56:

“Annex II

Satellite buoy deactivation report

Member States shall report, or require their vessels to report, any deactivation of a satellite buoy to the Secretariat using the following data fields of the first communication of the buoy after being activated:

date [YYYY/MM/DD],
time [hh:mm],
buoy identifier code,
latitude [expressed in degrees and minutes in decimal values],
longitude [expressed in degrees and minutes in decimal values],
speed [knots], and
reason of deactivation: signal loss, stolen FAD, beaching, temporarily during closure periods, transferred ownership, FAD outside the areas specified in paragraph 2a of Article 6 of Regulation (EU) 2021/56.

Annex III

Satellite buoy remote reactivation report

Member States shall report, or require their vessels to report, any remote reactivation of a satellite buoy to the Secretariat using the following data fields of the last communication of the buoy before being deactivated:

date [YYYY/MM/DD],
time [hh:mm],
buoy identifier code,
latitude [expressed in degrees and minutes in decimal values],
longitude [expressed in degrees and minutes in decimal values],
speed [knots], and
reason of remote reactivation: recovery of a signal loss, after a temporary deactivation during the closure period, or transfer of ownership while FAD is at sea, other (specify).

Annex IV

Principles for non-entangling and biodegradable designs of Drifting Fish Aggregating Devices (DFADs)

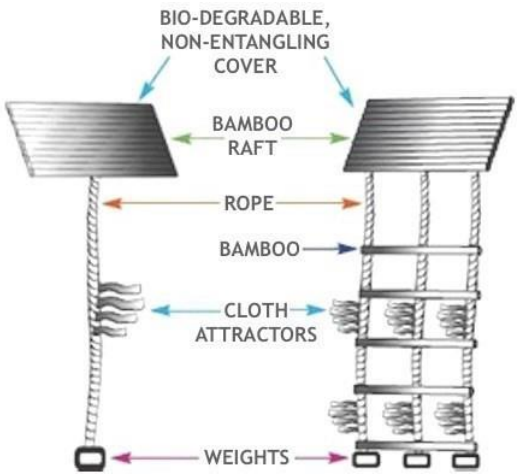


Figure: Example of a non-entangling, biodegradable FAD

Legend:

- *Biodegredable non-entanglig cover*
- *Bamboo raft*
- *Rope*
- *Bamboo*
- *Cloth Attractors*
- *Weigths*

DFADS shall be constructed with no netting or entangling material in both the surface structure (raft) and the submerged structure.

For the purposes of this Regulation, the following DFAD categories are identified, on the basis of their degree of biodegradability (from non- biodegradable to 100% biodegradable), with the understanding that the respective definitions do not apply to the electronic buoys that are attached to FADs in order to track them:

Category I. The DFAD is made of fully biodegradable materials.

Category II. The DFAD is made of fully biodegradable materials except for plastic-based flotation components (e.g., plastic buoys, foam, purse-seine corks).

Category III. The subsurface part of the DFAD is made of fully biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).

Category IV. The subsurface part of the FAD contains non-biodegradable materials, whereas the surface part is made of fully biodegradable materials, except for, possibly, flotation components.

Category V. The surface and subsurface parts of the FAD contain non-biodegradable materials.

Annex V

Definitions

1. EM (electronic monitoring): The use of EM equipment to record a vessel's activities.
2. EMS (Electronic Monitoring System): A system for implementing EM aboard vessels, and for collecting, processing, and analyzing the resulting EM records.
3. EM standards: The agreed standards, rules, and procedures governing the establishment and operation of an EMS, applicable to all components of the system as they may be used for specified vessels in a specific area and/or type of fishing activity.
4. EMS Program: A national or regional program established for implementing an EMS.
5. EM equipment: A network of electronic cameras, sensors and/or data storage devices installed on vessels and used to record these vessels' activities.
6. EM records: Images and other data recorded by the EM equipment.
7. EM data: Data resulting from analysis of EM records.
8. EM analysis: The analysis of EM records to produce EM data.
9. EM analyst: A person qualified to analyze EM records and produce EM data.
10. EM review center: A facility where EM records are analyzed to produce EM data.
11. EM coverage: The proportion of the vessels or fishing activities that is effectively covered by the EMS.
12. EM review rate: The proportion of EM records that are analyzed to produce EM data.
13. EM service provider: Provider of EM equipment and/or technical and logistical services.

Annex VI

Minimum technical requirements, performance standards, camera view of fishing activities under coverage by EMS, and recommended configurations for EM equipment for each vessel type

EM equipment

- The EM equipment shall be protected against onboard power outage, with a backup power system capable to keep operating until the vessel power is restored (e.g., 30 minutes). It shall also be capable of saving EM records collected when the vessel power is down for longer periods than the backup system was designed to withstand.

- Digital video is typically preferred for capturing information during the different phases of vessel activity, but still images can also serve as a viable option, especially due to limited storage capacity. An optimal configuration may involve a camera setting, using video for specific areas, cameras, or moments, while utilizing still photos for others.
- EM records shall include, at a minimum, location, date, and time stamps, and to the extent possible, vessel ID, and to integrate with other data collection and monitoring tools (e.g., sensors).
- The onboard interface shall include an on-board screen, or equivalent interface, to allow verification by the skipper/crew on the correct functioning of the EM equipment.
- The EM provider shall ensure that radio frequency interference from EM equipment with other on-board vessel communication, navigation, safety, geolocation devices or fishing equipment is prevented.
- EM Equipment shall automatically and autonomously collect EM records to generate the required EM data and shall be tamper-evident/resistant and record automatic alerts which shall be provided to the appropriate EM Coordinator and EM provider in near real-time in cases of malfunctions, manual activation/shutdown, manual data input, external data manipulation, or attempts to tamper with the equipment or EM records. If these recorded automatic alerts cannot be sent in near real-time to the EM program coordinator and EM provider they shall be provided as soon as possible, along with other EM records at the end of the corresponding trip. It shall also be possible for data recording to be controlled manually, but only in case the EM equipment fails to start or stop automatically, and any manual activation shall trigger an automatic alert. Manual shutdown shall not be permitted.

Cameras

- Cameras shall be sufficient in number and quality to meet the data requirements of the EMS, with high-resolution images that allow the identification of species, specific fishing activities and the vessel's surroundings.
- Onboard EM hardware components shall be sufficiently dust and water resistant and durable enough to operate reliably under the range of conditions expected in their location on vessels.
- Cameras shall be capable of recording video and/or still images, as appropriate to the purpose of the individual camera. For cameras used for species identification, video shall have a resolution no less than 720p, with a minimum frame rate of 5-10 FPS. Still images shall have a minimum capture interval of no more than 1 second and with resolution no less than 2MP.
- Placement of cameras shall provide clear and unobstructed views of the areas that are being covered.
- On purse seine vessels, the cameras shall cover, at a minimum, the working deck (both port and starboard sides), the net sack and the brailer, the foredeck or amidships, and (if applicable) the well deck and conveyor belt. Descriptions and

image for an example of camera locations in class 2-6 purse-seiners is provided in Table 1 and Figure 1.

- On longliners, the cameras shall provide, at a minimum, a view of all hooked fauna, both those brought aboard the vessel and, when possible, those discarded or released without first bringing them on the vessel. Descriptions and an image for an example of camera locations on longliners that would provide these views is provided in Table 2 and Figure 2.
- Cameras shall be able to record activities in low and very bright natural light conditions (low and high contrasts). Nocturnal fishing activities involving species captured shall be illuminated with sufficient lighting (e.g., longlines). In these cases, the EM service provider shall test the image quality to ensure there is not excessive glare.

Sensors

- EM equipment may also include sensors for recording non-visual data (e.g., vessel movement, hydraulic pressure, environmental information), and also possibly mechanisms for activating/disactivating cameras so as to focus visual data collection during activities of interest.
- A GPS sensor or equivalent shall be capable of automatically recording the position and, unless the EM equipment uses cameras that will record continuously, the speed and course of the vessel.

Data storage

- EM equipment shall include sufficient capacity to store all required EM records, including GPS (or equivalent) records, position, date, time, vessel name and sensor information where applicable at a minimum, for the duration of a fishing trip.
- Vessels shall have onboard enough blank data storage devices (preferable solid-state drives) in case these must be replaced at sea. A specially trained crew member may need to replace the devices during a fishing trip if the data storage capacity is exhausted, always in coordination with the EM service provider.
- EM equipment shall include separate duplicate backup devices, to ensure that data are not lost if one device fails.

Compatibility

- EM data shall be submitted to the IATTC in a format compatible with IATTC databases and IT resources (e.g., data structure, units, species id/other fishing activity codes, etc.).
- Recorded imagery shall be recorded in a widely used and accessible video or image file format, such as MP4 or JPEG.
- All EM Records generated by the EM system shall be compatible with EM analysis software being used by the EM Review Center where EM Records shall be sent to generate EM data.

EM equipment maintenance

- At sea, all maintenance, repairs and replacement activities of EM equipment shall be

conducted by a designated trained vessel crew member(s), only in coordination and when instructed to do so remotely by the EM service provider.

- On land, all maintenance, repairs and replacement activities of EM equipment shall be conducted a technician in coordination with EM service provider.
- Each vessel shall have a designated crew member responsible for routine camera lenses cleansing, per a specific protocol, to ensure the clarity of EM records, according to a protocol to be developed by IATTC scientific staff. Appropriate cleaning materials must be used to avoid lenses damage and shall always be available onboard.

TABLE 1. An example for the location of cameras in class 2-6 purse-seine vessels.

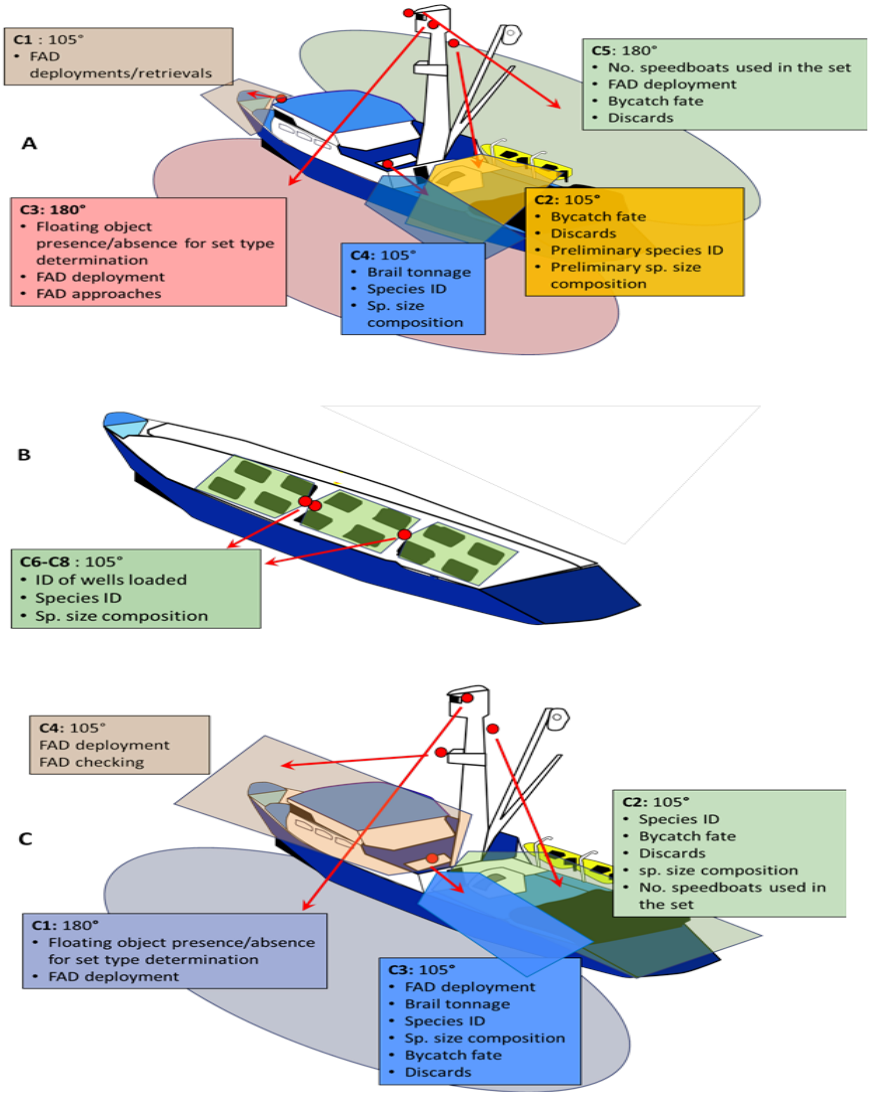
Class-6 vessels with 6 or more rows of wells
• Two panoramic cameras (e.g., 180°) on crow's nest, covering port side (floating object presence/absence for set type determination and FAD interactions with, set times) and starboard side (No. speedboats used in the set, FAD deployment, large-sized bycatch identification, discards, set times). • One camera (e.g., 105°) on back of crow's nest, covering the main deck and sack area (catch and bycatch species identification, discards). • One camera (e.g., 105°) on bridge roof, covering the bow (FAD deployments, retrievals). • One camera (e.g., 105°) on boom controls roof, covering the brailing area (total catch estimation, bycatch identification, discards). • Three cameras (e.g., 105°), each covering equal numbers of well rows (catch and bycatch identification and estimation by species, discards).
Class-5 vessels with less than 6 rows of wells
• Two panoramic cameras (e.g., 180°) on crow's nest, covering starboard and port sides. • One camera (e.g., 105°) on back of crow's nest, covering the main deck and sack area (FAD deployments, and retrievals). • One camera (e.g., 105°) on boom controls roof, covering the brailing area. • Two cameras (e.g., 105°) covering equal numbers of well rows.
Class-2 vessels with no wet deck access
• One panoramic camera (e.g., 180°) on crow's nest, covering the port side. • One camera (e.g., 105°) on back of crow's nest, covering the main deck. • One camera (e.g., 105°) on bridge roof, covering the bow. • One camera (e.g., 105°) on boom controls roof, covering the brailing area.

TABLE 2. A first example for location of cameras in longliners.

The following are examples of camera installation design, which are based on information gathered from EM service providers and international initiatives (e.g., Carnes *et al.* 2019):

Small-sized longline vessels (<20m LOA)
• One camera (e.g., 105°) on the work deck to identify species.

• One camera (e.g., 105°) mounted outside the side rail to cover the fish door, where the catch is brought aboard.
Medium (20-24m LOA) and large-sized longline vessels (> 24m LOA)
• One camera (e.g., 105°) at the stern to record the number of floats, hooks and bait used on the setting. • One camera (e.g., 105°) located amidships, covering the total catch and discards by species, size and fate. • One camera (e.g., 105°) located at the bow, covering the retained catch, by species, size and fate, during the hauling. (Optional, if necessary to achieve the required views) • One camera (e.g., 105°) mounted on boom, outside the rail where the line is hauled, to record catch evasion, line cutting, etc. (optional for 20-24m)



Legend:

A

- *C1 :105° FAD deployments/retrievals -*
- *C2 :105° Bycatch rate, Discards, Preliminary species ID, Preliminary sp. size composition-*
- *C3 :180° Floating object presence/absence for set type determination, FAD deployment, FAD approaches -*
- *C4 : 105° Brail tonnage, Species ID, Sp. size composition -*
- *C5 : 180° No. Speedbaots used in the set, FAD deployment, by-catch fate, discards -*

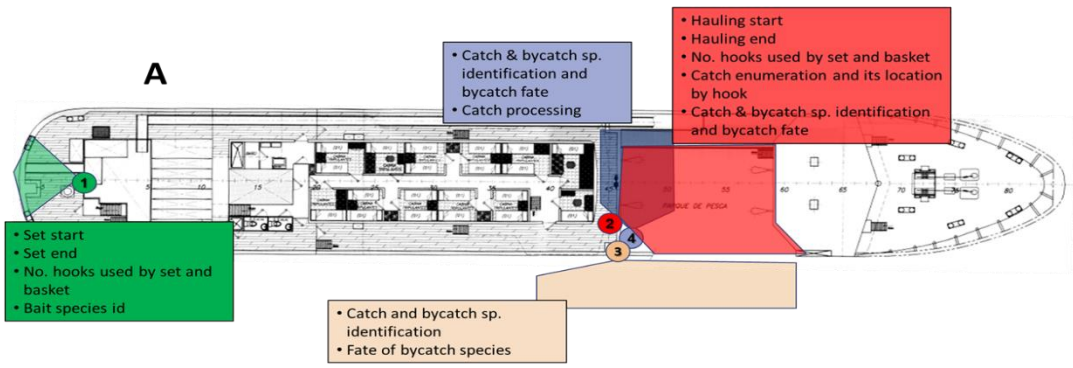
B

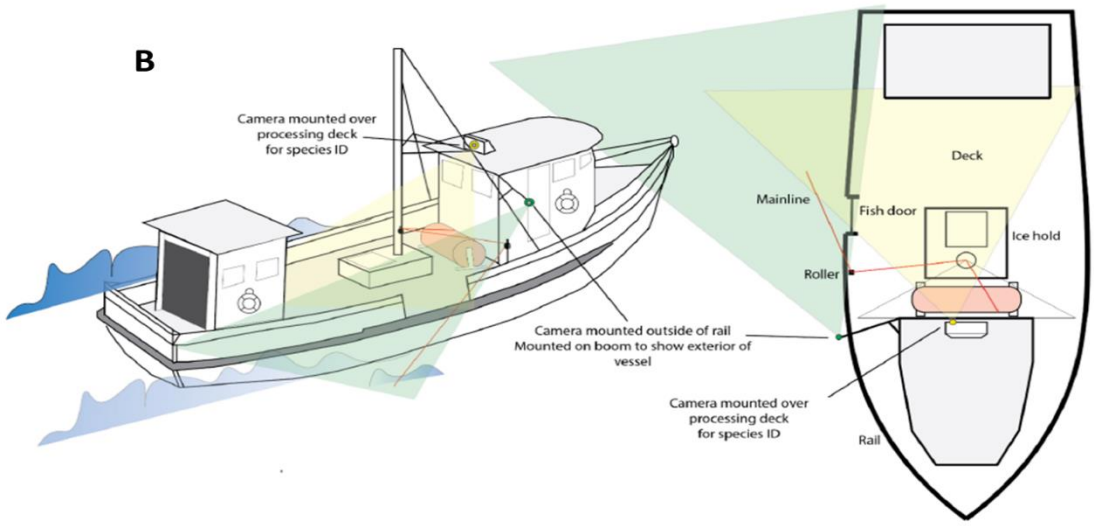
- *C6- C8 :105° ID of wells loaded, Species ID, Sp. size composition -*
- *C4: 105° FAD deployment, FAD checking -*

C:

- *C1 :180° Floating object presence/absence for set type determination, FAD deployment -*
- *C2 :105° Species ID, Bycatch fate, Discards, Sp. size composition, No. Speedbaots used in the sea -*
- *C3 :105° FAD deployment, Brail tonnage, Species ID, Sp. size composition, Bycach fate, Discards -*
- *C4 : 105° FAD deployment, FAD checking -*

FIGURE 1. Cameras' configuration and fishing activities to record on the main deck (A) and the well deck (B) of the Class-6 tuna purse-seine vessels, and on the Class-2 vessel (C).





Legend:

- *A:*
  - *1 : Set start, Set end, No. hooks used by set and basket -*
  - *2 :Hauling start, Hauling end, No. hooks used by set and basket, Catch enumaration and its location hook, Catch & bycatch sp. Identification and bycatch fate -*
  - *3 : Catch and bycatch sp. Identification, fate of bycatch species-*
  - *4 : Catch & bycatch sp. Identification and bycatch fate, catch processing-*

- *B:*
  - *Camera mounted over processing deck for species ID-*
  - *Camera mounted outside of rail, mounted on boom to show exterior of vessel -*
  - *Mainline -*
  - *Roller -*
  - *Fish door -*
  - *Deck -*
  - *Icehold -*
  - *Rail -*

FIGURE 2. Provisional cameras configuration and fishing activities to record on board a large longline vessel (A), and (B) on a small Hawaii longline vessel EM camera configuration. Bottom picture taken from Carnes *et al.* (2019).

Annex VII

Minimum data requirements for vessel type

- Minimum data fields for purse-seine activities to be collected and submitted, presented in Table 1.
- Minimum data fields for longline activities to be collected and submitted, presented in Table 2.

Table 1. Data fields to be collected, at a minimum, for the purse-seine fishery.

TRIP INFORMATION		
Depart port	Port name and country, date/time, position (latitude and longitude, in decimal degrees).	
Arrival port	Port name and country, date/time, position (latitude and longitude, in decimal degrees).	
VESSEL ACTIVITY		
Position and speed	Every 2 seconds (based on some EM equipment capability), but no less than 60 min.	
SET INFORMATION		
	Set type.	
Set start	Date/time, position (latitude and longitude, in decimal degrees).	
Rings up	Date/time.	
Set end	Date/time, position (latitude and longitude, in decimal degrees).	
Wind speed	Recorded in Beaufort scale.	
Malfunctions	Date/time, description of any major malfunction that stops or delays the setting maneuver.	
CATCH AND DISCARD		
	Target species	**Non-target species**
Species Id.	Total catch and discards, as feasible as EM technology allows. Combined catch may be reported where species identification is not possible.	Sharks, lamnid sharks, whale shark, mobulid rays, billfishes, scombrids, carangids, triggerfishes, sea turtles, sea birds, and marine mammals, where each individual shall identified to the lowest taxonomic resolution possible (i.e., species), as feasible as EM technology allows. In cases where species identification is not possible, the animal may be identified to a broader taxonomic resolution (e.g., genus, family).
Size	Weight categories shall be used whenever possible (e.g.: small size 2.5 kg. - 15 kg).	Wherever possible, individuals shall be measured to the nearest cm as follows: sharks in total length, billfishes in post-orbital

		fork length, fishes in fork length, rays in disc width, turtles in curved carapace length. In cases where individual measurement is not possible, the animal may be classified by size category (i.e., small, medium, large) following IATTC observer practices.
Condition		When possible, the estimated condition of the individual when caught, brought on deck and released.
Tag		When possible, the tag recovery information recorded.
Fate	Catch retained and discarded, by species, in metric tons.	When possible, the fate of the individual brought on deck (e.g., retained, discarded, etc.)
FLOATING OBJECTS/FADS		
Deployments	Date/time, position (latitude and longitude, in decimal degrees).	
Retrievals	Date/time, position (latitude and longitude, in decimal degrees).	
Visits	When possible - Date/time, position (latitude and longitude, in decimal degrees)	
Buoy ID	When possible – alphanumeric code of the satellite buoy attached	

Table 2. Data fields to be collected, at a minimum, for the longline fishery.

TRIP INFORMATION	
Depart port	Port name and country, date/time, position (latitude and longitude, in decimal degrees).
Arrival port	Port name and country, date/time, position (latitude and longitude, in decimal degrees).
VESSEL ACTIVITY	
Position and speed	Date/time, position (latitude and longitude, in decimal degrees).
Set end	Date/time, position (latitude and longitude, in decimal degrees).
Hauling start	Date/time, position (latitude and longitude, in decimal degrees).

Hauling end	Date/time, position (latitude and longitude, in decimal degrees).
Haul direction	Start to end; end to start
Blue-dyed bait used	Yes – No, as feasible as EM technology allows.
Baskets or floats	Total number used in the set.
Hooks	Total number used in the set.
Wire traces on any branch lines	Yes – No, as feasible as EM technology allows.
Shark lines	Number of branch lines running directly off the longline floats or drop lines, as feasible as EM technology allows.
CATCH AND DISCARD OF TARGET AND NON-TARGET SPECIES	
Species id.	The species identification of each individual caught, where each individual shall identified to the lowest taxonomic resolution possible (i.e., species), as feasible as EM technology allows.
Size	Size of each individual caught, using the recommended measurement approach and the appropriate measurement code (standard, furcal, post-orbital, width of the disc, etc.) for the species, as feasible as EM technology allows.
Condition	The estimated condition of the individual when caught, brought on deck and released, where possible.
Fate	Fate of the individual brought on deck (e.g., retained, discarded, etc.)
Tag	Tag recovery information recorded, as feasible as EM technology allows.
Catch interaction	The type of catch interaction (e.g., entangled, hooked internally, hooked externally, interaction with vessel only.)

Annex VIII

Contents of the EM Vessel Monitoring Plan (VMP)

The VMP shall meet the following conditions:

The VMP shall be developed for each vessel or group of vessels on which EM equipment is to be installed and shall be delivered to the flag CPC competent authorities.

The VMP shall be developed in collaboration with the EM service provider, vessel owner and relevant flag CPC fishing authorities.

A survey of each vessel or example vessel for a group of vessels intended for EM equipment installation shall be conducted by either the EM provider or flag Member State fishing authorities. During this survey, the following aspects shall considered in the development of

the VMP, aimed at ensuring that the system meets the minimum data collection requirements outlined in Annex 2:

Camera placement and settings.

Number of cameras to be installed to ensure optimization of the view of the catch-handling area.

Key areas to be surveyed are catch handling areas for species identification and storage of the individuals and areas of discards or release.

The minimum information to be contained in a VMP shall include:

Contact information: current contact information for the vessel owner, vessel operator and EM service provider as long as the contract lasts.

General vessel information: basic information about the vessel and its fishing activities and operations (such as vessel name, registration number, target fishery, fishing areas, fishing gear, LOA).

Fishing gear type and configuration:

Vessel layout: equipment of the vessel with detailed information, plan of the vessel disposition and different areas (such as deck, processing, storage -including number of wells,).

EM equipment set up: description of the settings of the EM equipment, such as time running, number of cameras, settings of the cameras (frame rate and resolution), and areas covered, time recording for each of the cameras, number of sensors, where applicable, software used, control box disposition, etc.

Catch handling procedures: description of the crew and their operations.

An example view from each required camera view.

Any physical changes to the vessel, modifications in vessel categorization (fleet segmentation), or adjustments to the catch handling deck, including those result in the vessel no longer belonging to its original group, shall be reported to the Flag CPC authorities. Subsequently, the VMP shall be updated accordingly before the commencement of the next fishing trip.

The VMP shall be signed off by the vessel owner and approved by the Flag CPC competent authority or its designated institutions.

The EM equipment shall not compromise vessel stability, posing risks to vessel operations, crew safety, or the environment. Additionally, it shall not hinder the vessel's safe navigation.

An example template of a VMP is presented below. **EM Vessel Monitoring Plan Part A**

Shall be provided by the vessel owner to the competent authority of flag CPC or its designated institutions

1. Information provided by the owner of the vessel

External registration:		Main fishery(es):	
Vessel name:		Gear type(s):	
IATTC vessel register No.:		Crew size:	

IRCS:		May carry an observer:	
Port base:		Owner(s) representative:	
Vessel length (m):		Phone No.:	
Vessel type:		Email:	
Net length (fathoms):		Mainline length (fathoms):	
Net depth (strips):		Hook type:	
Brail capacity (mt):		Branch line material:	

Description of the crew fish handling and any other useful details

(1) If available, copy or image of the vessel general arrangement plan

(2) General layout and handling (not necessarily to scale)

(3) General remarks

Part B

Responsibility of the flag CPC competent authority and to be validated by the flag CPC competent authority

(4) Vessel image

(5) EM equipment configuration

(6) System Operation – General Description

Sensor recording, where applicable:	Description of the settings:
Video recording:	Description of the settings:

(7) System Components Location

Control box:	User Interface:
Image of location of the control box	
GPS or equivalent:	GPS details:
Image of location of the GPS or equivalent	
Drum Rotation Sensor:	Drum Rotation Sensor details:

Image of location of drum sensor	
Hydraulic Pressure Sensor (HPS):	HPS details:
Image of location of the HPS	
Sensor XX:	XX Sensor details:
Image of location of the XX Sensor	
Sensor XX:	XX Sensor details:
Image of location of the XX Sensor	
Sensor XX:	XX Sensor details:
Image of location of the XX Sensor	

Sensor XX:	XX Sensor details:
Image of location of the XX Sensor	

Camera 1 - Deck Camera	
Image of Location of Camera 1	View and Objectives:
mage of Location of deck camera	Camera settings:
Camera 2 - Retain/General View Camera	
Image of Location of Camera 2	View and Objectives:
Image Retain/General View Camera	Camera settings:
Camera 3 - Sorting Belt Camera	
Image of Location of Camera 3	View and Objectives:
Image Sorting Belt Camera	Camera settings:
Camera 4 - Discard Camera	
Image of Location of Camera 4	View and Objectives:
Image Discard Camera	Camera settings:

Camera XX - XX Camera	
Image of Location of Camera XX	View and Objectives:

Image of XX Camera	Camera settings:
Camera XX - XX Camera	
Image of Location of Camera XX	View and Objectives:
Image of XX Camera	Camera settings:
Camera XX - XX Camera	
Image of Location of Camera XX	View and Objectives:
Image of XX Camera	Camera settings:
Camera XX - XX Camera	
Image of Location of Camera XX	View and Objectives:
Image of XX Camera	Camera settings:

Control Box Setting Summary:	Camera Setting summary:
Main configuration screen	
Sorting Area Measurement Details:	

Part C

(To be completed by the EM service provider)

(8) EM User Guide

(9) Description on how to retrieve memory devices

(10) Description on how to power up the system

(11) Description on how to do a function test

(12) Vessel-specific handling protocols

Description of any special protocols that may apply to the vessel referred in the VMP.

(13) Description and diagrams of control points with specific procedures carried out. For each area description, there must be a protocol on how to ensure the catch remains in camera view.

Part D

(To be completed by the EM service provider)

List of EMS service providers contact information:

Name and Last Name	Phone	Email	Office address

Part E

(To be completed by the vessel owner and the EM service provider)

This part shall certify that the vessel owner/operators have been trained in and understand the function and operation on the EMS installed on the vessel, and that the operator agrees to comply to the VMP.

Vessel owner/operator	EM service provider
Full name:	Full name:
Signature:	Signature:
Date and time:	Date and time:

Annex IX

Logistical and data analysis and reporting standards

Data transfer

- The vessel flag Member State authority shall allow for the recovery and secure transmission of EM Records at the end of each trip.
- A detailed protocol on how to retrieve the data from the vessel to the authorities or to the EM review center shall be established and agreed on in the VMP by both the vessel owners and the vessel authority.
- When EMS records are transmitted (via WI-FI, mobile data network or satellite, or hard disk delivery), the transmission of the data shall be done at the end of the fishing trip where possible. If not possible the data shall be securely stored and transmitted without delay/at the earliest opportunity.
- Irrespective of the data transfer method used for EM records, the transmission shall ensure the information is properly encrypted. Also, an encrypted storage device containing the same EM records information shall remain on board as backup. The deletion of records from the vessel's backup devices shall only occur once the EM records have been converted to EM data at the EM review center.

Data review

- EM data shall be generated by the program that monitored that trip. Provided that standard protocols and procedures are followed, Member State authorities may choose whether to contract the work out through a commercial EM review service provider, authorized contractor, or do it themselves.
- EM equipment shall include separate backup devices, to ensure that data are not lost if one device fails.

EM data storage and retention

- All information regarding fishing operations of the vessel shall be treated as confidential by the IATTC and subject to IATTC confidentiality rules.
- Procedures for where, how, and how long the EM records shall stored after EM analysis, shall be specified by the flag Member State. Storage decisions shall be based on the EM program’s goals and the staff who will need to access monitoring records, at what frequency, and for what purpose.

Data analysis and reporting standards

Training

- Member States shall design and organize training courses for EM analysts, with input from IATTC staff, EM service providers and other experts, where necessary.
- EM analyses shall only be conducted by qualified EM analysts, ideally possessing some experience in fishing activities, with skills on how to use the dedicated analysis software and observe and record accurately data to be collected under the program. EM analysts shall not be employees of a fishing vessel company involved in the observed fishery or have other direct conflicts of interest.

Automation

- When feasible, make EM data generation automatic and user-friendly to expedite EM analysis and directly include information in EM data or reports.
- EM records subject to EM analysis shall contain at least the vessel name and vessel ID and trip ID, camera number, geolocation data (date, time (UTC), latitude and longitude), sensor data where applicable, camera recording status and EM equipment system status, where available, and images.

Data quality

- The EM analysis shall involve a dedicated software, which shall permit the analysis of all the stored data, images, and sensor data where applicable, in a synchronized way. Member States shall ensure that data analysis procedures ensure traceability and effective analysis of data and routines to flag potential errors, and digital measuring tools.
- The EM analysis software shall allow reporting the mandatory minimum data fields requirements established in Tables 1 and 2 of part 3 of Annex 11 (Areas of fishing activities under coverage by EMS and minimum data requirements for vessel type). It may also allow reporting of the voluntary data fields.

Conversion factors

- Standardized species-specific length-weight and weight-number conversion factors, based on peer-reviewed research results and/or empirical data, shall be developed by the IATTC Secretariat, endorsed by the SAC and adopted by the Commission, and updated as necessary.

Format

- Standard formats applicable to reports submitted by human observers shall be used for generating EM data fields (e.g., dates as DDMMYY, latitude and longitude in decimal units, speeds in knots, weights in kg, lengths in centimeters) and creating resulting EM data files (e.g., csv, accdb, xlsx).

Reporting procedure

- EM data shall be submitted via a dedicated cloud-based portal which may be developed by the IATTC Secretariat, or other appropriate means. The portal shall be as user-friendly and automated as possible, and include quality control procedures (e.g., format checking, error flagging), as well as automatic reminders for the timely submission of EM data.”

ANNEX IV

Amendments to Regulation (EU) 2022/2343

Annexes to Regulation (EU) 2022/2343 are amended as follows:

1. Annex 2 is replaced by the following:

“ANNEX 2

Guidelines for preparation of drifting fish aggregating device (DFAD) management plans

The DFAD management plan (DFAD–MP) to be submitted to the Commission by Member States with fleets fishing in the IOTC area of competence, associated to DFADs, shall include:

(1) An objective

(2) Scope

Description of its application with respect to:

- vessel-types and support and tender vessels
- DFAD numbers and DFADs beacon numbers to be deployed
- reporting procedures for DFAD deployment
- incidental bycatch reduction and utilisation policy
- consideration of interaction with other gear types
- plans for monitoring and retrieval of lost DFADs
- statement or policy on "DFAD ownership"

(3) Institutional arrangements for management of the DFAD Management Plans:

- institutional responsibilities
- application processes for DFAD and /or DFAD beacons deployment approval
- obligations of vessel owners and masters in respect of DFAD and /or DFAD beacons deployment and use
- DFAD and/or DFADs beacons replacement policy
- reporting obligations

(4) DFAD construction specifications and requirements:

- DFAD design characteristics (a description)
- DFAD markings and identifiers, including DFADs beacons
- lighting requirements
- radar reflectors
- visible distance
- radio buoys (requirement for serial numbers)
- satellite transceivers (requirement for serial numbers)
- sonars (make and technical specifications)

(5) Applicable areas:

- Details of any closed areas or periods e.g. territorial waters, shipping lanes, proximity to artisanal fisheries, etc.

(6) Applicable period for the DFAD–MP.

(7) Means for monitoring and reviewing implementation of the DFAD–MP.

(8) DFAD logbook template (data to be collected specified in Annex 3).

Guidelines for preparation of anchored fish aggregating device (AFAD) management plans

AFAD Management Plans (AFAD-MP) to be submitted to the Commission by Member States with fleets fishing in the IOTC area of competence, associated to AFADs, shall include:

(9) An objective

(10) Scope:

Description of its application with respect to:

(1) Vessel types

(2) AFAD numbers and/or AFAD beacon numbers to be deployed (per AFAD type)

(3) reporting and/or recording procedures for AFAD deployments

(4) plans for monitoring and retrieval of lost AFADs

(5) statement or policy on "AFAD ownership"

(6) Institutional arrangements for management of the AFAD Management Plans:

(7) institutional responsibilities

(8) regulations applicable to the setting and use of AFADs

(9) At-sea AFAD repairs, maintenance rules and replacement policy

(10) data collection system

(11) reporting obligations

(12) AFAD construction specifications and requirements:

(13) AFAD design characteristics (a description)

(14) AFAD markings and identifiers, including AFAD beacons, if any

(15) lighting requirements, if any

(16) radar reflectors, if any

(17) radio buoys, if any (requirement for serial numbers)

(18) satellite transceivers, if any (requirement for serial numbers)

(19) echo sounder, if any

(20) Applicable areas: details of any closed areas e.g., shipping lanes, Marine Protected Areas, reserves etc.

(21) Means for monitoring and reviewing implementation of the AFAD–MP.

(22) Methodologies for recording and reporting data specified in Annex 3.

2. Annex 3 is replaced by the following**:**

"ANNEX 3

Data collection for drifting fish aggregating devices (DFADs) and their instrumented buoys

(1) For each activity on a DFAD, floating object and/or instrumented buoy, whether followed by a set or not, each fishing, supply vessel shall report the following information:

Category	Element	Element data type	Mandatory	Notes
Vessel	**Vessel IOTC ID**	Vessel identifier	Y	
	Type	Dictionary entry	Y	Can be inferred
Date	**Year**	Integer	Y	
	Month	Integer	Y	
	Day	Integer	Y	
Location of the floating object and/or instrumented buoy at the time of the operation	**Longitude**	Decimal	Y	
	Latitude	Decimal	Y	
Location of the vessel if different from the floating object or buoy	**Longitude**	Decimal	Y	
	Latitude	Decimal	Y	
Floating object	**Identifier**	Identifier	Y (when present)	In case of DFAD visit this shall be provided to the extent possible, i.e. without having to lift the DFAD out of the water
	Type	Dictionary entry	Y	As defined in paragraph 3 of this annex
	Biodegradability category (if the floating object is a DFAD)	Dictionary entry	Y	As defined in annex 3b.
	Activity type	Dictionary entry	Y	As defined in paragraph 4 of this annex
Emerged part	Is plastic present?	Boolean	Y (if clearly visible)	
	Is metal present?	Boolean		
	Length	Decimal		In cm
	Width	Decimal		In cm
	Height	Decimal		In cm
	Is mesh present?	Boolean		

	Mesh size	Decimal		In mm
Submerged part	Is plastic present?	Boolean	Y (if clearly visible)	
	Is metal present?	Boolean		
	Length	Decimal		In cm
	Width	Decimal		In cm
	Height	Decimal		In cm
	Is mesh present?	Boolean		
	Mesh size	Decimal		In mm
Buoy	Identifier	Identifier	Y (if buoy present)	
	Position known	Boolean		
	Activity type	Dictionary entry		As defined in paragraph 5 of this annex In the case of buoy deactivation, the cause for deactivation (DFAD is either retrieved from the sea, abandoned or lost) and position of the vessel.

(2) If the visit is followed by a set, the results of the set in terms of catch and bycatch, whether retained or discarded dead or alive shall be recorded according to the table below. Member States shall report these data aggregated per vessel at 1 latitude degree per 1 longitude degree (where applicable) to the Commission.

Category	Element	Element data type	Mandatory	Notes
Vessel	**Vessel IOTC ID**	Vessel identifier	Y	
	Type	Dictionary entry	Y	Can be inferred
Date	**Year**	Integer	Y	
	Month	Integer	Y	
Location	**1x1 grid**	CWP grid identifier	Y	
Floating object	**Type**	Dictionary entry	Y	As defined in paragraph 3 of this annex
	Activity type	Dictionary entry	Y	As defined in paragraph 4 of this annex
Effort	Number of activities	Integer	Y	
	Number of sets	Integer		Can be 0
	Data raised?	Boolean		
	Species code	ASFIS Identifier		Single species

Catches number 1	Fate	Dictionary entry	Y (activity followe d by set)	Retained / Disc.
	Catches / discards	Decimal		Amount
	Unit	Dictionary entry		weight or number
…	…	…	…	…
Catches number N	Species code	ASFIS Identifier	Y (activity followe dby set)	Single species
	Fate	Dictionary entry		Retained / Disc.
	Catches / discards	Decimal		Amount
	Unit	Dictionary entry		weight or number

(3) Classification of Floating Objects:

Code	English description
ANLOG	Natural log or floating debris of animal origin
DFAD	Drifting FAD
AFAD	Anchored FAD
FALOG	Artificial log or floating debris resulting from human activity (and related to fishing activities)
HALOG	Artificial log or floating debris resulting from human activity (not related to fishing activities)
VNLOG	Natural log of plant origin

(4) Classification of activities with floating object:

Code	Activity	Description
DE	Deployment	Deployment of a DFAD at sea
CO	Consolidation	Deployment of a DFAD on a floating object (e.g. to enhance floatability)
VF	Visit with fishing	Visit of a floating object resulting in a set
VI	Visit without fishing	Visit without fishing of a floating object
LO	Loss	Unvoluntary end of use of the floating object (end of transmission of the buoy)
AB	Abandonment	Deliberate end of use of the floating object due to a case of force majeure or the floating object is unreachable (buoy still present and able to transmit)
ST	Stranding	Abandonment is due to the floating object being stranded on shallow marine habitats and not drifting anymore
RE	Retrieval	Retrieval of the floating object

(5) Classification of activities with instrumented buoys

Code	Activity	Description
DE	Deployment	Deployment (tagging) of a buoy on a floating object already drifting at sea without buoy or deployment of a DFAD

		equipped with a buoy
LO	Loss	Involuntary end of use of the buoy (lost or involuntary end of transmission of the buoy)
AB	Abandonment	Voluntary end of use of the buoy (buoy still able to transmit)
RE	Retrieval	Retrieval of the buoy on a floating object drifting at sea
TR	Transfer	Replacement of the buoy owned by another vessel by a buoy of the vessel

(6) Classification of outcome of DFADs deployed:

	DFAD is deployed + buoy activated					
	Buoy is active					
	Buoy is transmitting and can be located				Buoy is not transmitting and cannot be located	
	DFAD can be retrieved		DFAD cannot be retrieved		DFAD cannot be located, so not retrievable	
Reason to deactivate buoy	DFAD and buoy are taken from the sea	Buoy owner decides not to recover the DFAD	Not reachable (e.g. in the EEZ of another country)	Buoy is robbed but is transmitting	DFAD is robbed	Buoy is broken/technical issue/sunken buoy
Final status of the DFAD	Retrieved FAD	Discarded DFAD	Abandoned DFAD	Lost DFAD		

Data collection for anchored fish aggregating devices (AFADs)

(7) Any fishing activity around an AFAD including catch and bycatch, whether retained or discarded dead or alive.

(8) For each activity on an AFAD (including repair, intervention consolidation, etc.), whether followed or not by a set or other fishing activities, the,

(9) Position (as the geographic location of the event (Latitude and Longitude) in degrees and minutes)

(10) Date (as DD/MM/YYYY, day/month/year)

(11) AFAD identifier (i.e. AFAD national identification number, beacon ID or any information allowing to identify the owner).”

3. Annex 3a is added **as follows:**

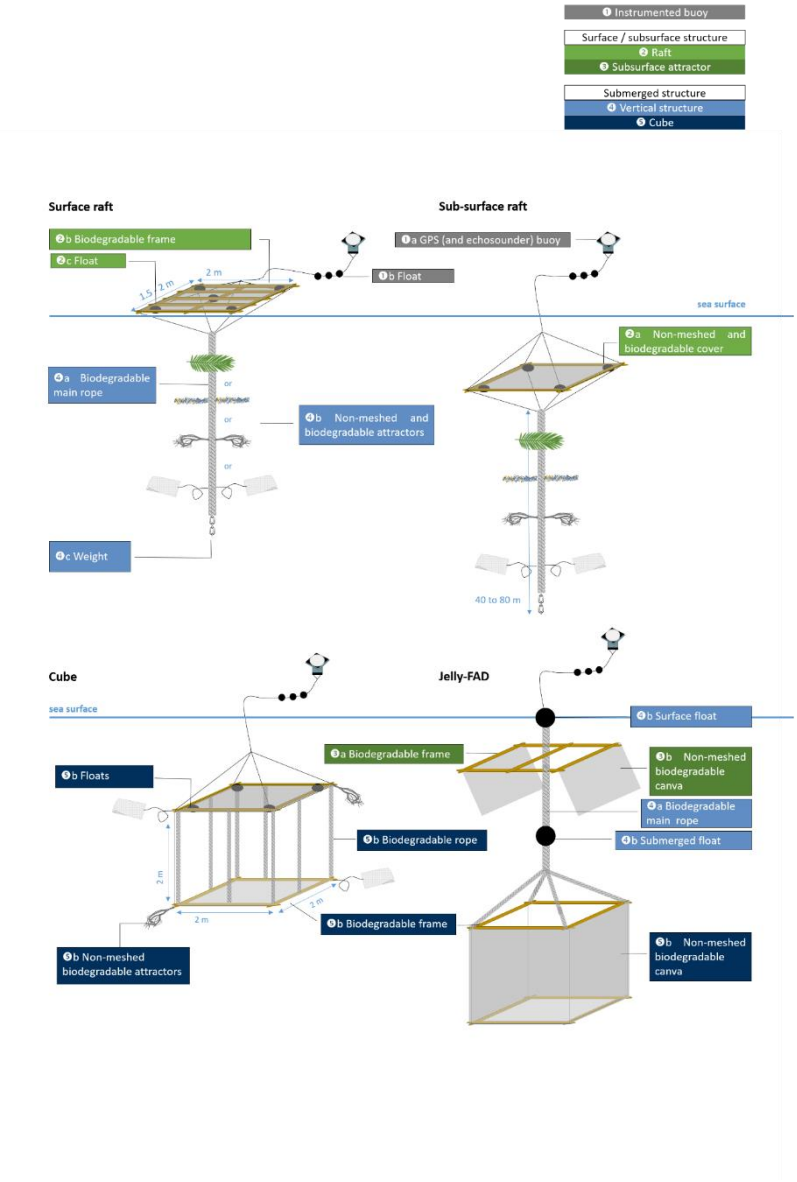
“Annex 3a

Design and construction of drifting FADs

Examples for the design and deployment of DFADs

(1) The surface structure of the DFAD shall not be covered, or only covered with non-meshed material. No shade cloth or other entangling materials such as netting shall be used in the construction of the raft. The sub-surface structure of DFADs shall not exceed a length of 50 meters.

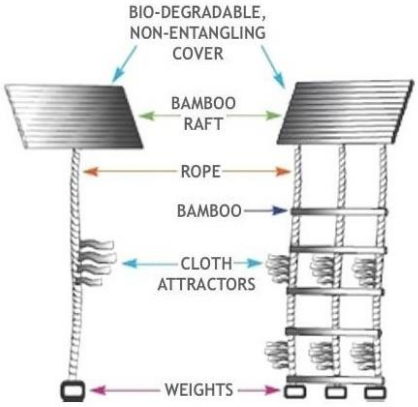
(2) If a sub-surface component is used, it shall not be made from netting but from non-meshed materials such as ropes or canvas sheets.



Legend:

– *Instrumented buoy*
– *Surface Raft*
– *Biodegradable frame*
– *Float*
– *Biodegradable main rope*
– *Non-meshed and biodegradable attractors*
– *Weigth*
– *Sub-surface raft*
– *GPS and echosounder buoy*
– *Non-meshes and biodegradable cover*

– *Cube*
– *Floats*
– *Biodegradable rope*
– *Jelly-FAD*
– *Surface float*
– *Non-meshed biodegradable canva*
– *Submered float*
– *Subsurface attractor*
– *Submerged structure*
– *Vertical Structure*
– *Subsurface structure*



Legend:

– *Biodegredable non-entanglig cover*
– *Bamboo raft*
– *Rope*
– *Bamboo*
– *Cloth Attractors*
– *Weigths*

4. Annex 3b is added as follows:

"Annex 3b

Categorisation of DFAD according to their level of biodegradability

For the purposes of this Regulation, the following are DFAD categories are identified, on the basis of their degree of biodegradability (from non- biodegradable to 100% biodegradable), with the understanding that the respective definitions do not apply the electronic buoys that are attached to DFADs in order to track them:

Category I. The DFAD is made of fully biodegradable materials.

Category II. The DFAD is made of fully biodegradable materials except for flotation components (e.g. buoys, foam, purse-seine corks).

Category III. The subsurface part of the DFAD is made of fully biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).

Category IV. The subsurface part of the DFAD contains non-biodegradable materials, whereas the surface part is made of fully biodegradable materials, except for, possibly, flotation components.

Category V. The surface and subsurface parts of the DFAD contain non-biodegradable materials."

5. In Annex 4 the following line in the table is added:

"Mitigation	Description	Specification
Hook-shielding devices	Hook-shielding devices, listed by the Parties to the Agreement on the Conservation of Albatross and Petrels as Best Practice Advice, that encase the point and barb of baited hooks to prevent seabird bycatch during setting shall be used.	Hook-shielding devices that comply with the following performance characteristics. Devices must: • encase the point and barb of the hook until it reaches a depth of at least 10 m or has been immersed for at least 10 minutes; • meet current minimum standards for branch line weighting, as follows: greater than a total of 45 g attached within 1 m of the hook or; greater than a total of 60 g attached within 3.5 m of the hook or; greater than a total of 98 g weight attached within 4 m of the hook. • be designed to be retained on the fishing gear rather than lost.

"

6. Annex 11 is added:

"Annex 11

Electronic monitoring standards for IOTC fisheries

PART 1: IOTC ELECTRONIC MONITORING PROGRAM STANDARDS

General

National/Regional data collection Programs using Electronic Monitoring Systems (EMS) that are certified by the flag Member State competent authority as meeting the minimum standards of the Electronic Monitoring Program (EMP) as adopted by IOTC may be included within IOTC Regional Electronic Monitoring Program (REMP).

Objectives

The objective of the IOTC REMP is to collect, via EMS, verified catch data and other scientific data related to the fisheries for tuna and tuna-like species in the IOTC area of competence and achieve the EM observer/review coverage to meet the requirements of IOTC Resolution on Regional Observer Scheme (ROS).

Purpose:

The purpose of IOTC REMP is to allow Member States to utilise EMS to collect data to assist the EU in meeting the requirements of IOTC Resolution on a Regional Observer Scheme, including in situations where onboard observer coverage is low or non-existent.

The REMP aims to improve the quantity and quality of fishery data and the monitoring of IOTC fisheries and address gaps in the collection and verification of fishery data. The REMP may also in the future help Member States meet the requirements of other obligations.

Scope:

IOTC's REMP provides a framework for the development of EMS in the following IOTC fisheries:

- Purse-seine vessels over 24 meters length overall and under 24 meters LOA when fishing outside their EEZs,
- Longline vessels over 24 meters length overall and under 24 meters LOA when fishing outside their EEZs,
- Gillnet vessels over 24 meters length overall and under 24 meters LOA when fishing outside their EEZs,
- Pole and line vessels over 24 meters length overall and under 24 meters LOA when fishing outside their EEZs,
- Other gear types under 24 meters length overall (when fishing in the high seas).

IOTC's REMP or any National EMP, under IOTC's REMP, shall ensure that the data collected through EMS are documented and that all ROS minimum data standard requirements (e.g., "Mandatory Reporting"), if necessary complemented with any additional monitoring program (e.g., port sampling, biological sampling, etc.), are collected by EMS.

Definitions:

Electronic Technologies (ET): any electronic tool that is used to support fisheries-dependent data collection, both on shore and at sea, including electronic reporting (ER) and electronic monitoring (EM).

Electronic Reporting (ER): the use electronic systems (application, software, form or file) to record, store, receive and transmit fisheries data.

Monitoring: the requirement for the continuous collection of fishery-related data.

Electronic Monitoring (EM): the use of electronic devices to record fishing vessel's activities using video technology linked to a Global Position System (GPS), which may include sensors.

EM Program: a process administered by a national or regional administration that regulates the use of EMS on vessels to collect and verify fisheries data and information through an implementation of an EMS in a defined area and/or fishery.

EM Program standards: the agreed standards, specifications and procedures (SSP) governing the establishment and operation of an EM Program, applicable to all components of the EMS.

EM data standards: the agreed subset of data requirements by the IOTC Regional Observer Scheme (ROS) that could be collected by the EMS.

EM records: Imagery, and possibly sensor, or raw data linked to positional data collected by an EM

equipment that can be reviewed to produce EM data.

EM data: processed/analysed data produced through review of EM records that conforms with the EM data standards.

EM equipment: a network of electronic cameras, sensors and data storage devices installed on a vessel and used to record the vessel's activities.

Vessel Monitoring Plan (VMP): The vessel's EM equipment characteristics and how the vessel's EM equipment is installed and configured to monitor fishing activities and meet the EM Program and EM Data Standards as required by the IOTC Regional Electronic Monitoring Program.

EM review: the review of EM records by EM observers/reviewers to produce EM data.

EM observer/reviewer: a person qualified to review EM records, store and produce EM data in accordance with the EM Data standards and analysis procedure.

EM review system: application software used by the EM observer to review the EM records and produce the processed EM data as per the EM data standards.

EM review center: local, national, or regional office facility where EM records are received and reviewed to produce and store EM data.

EM review provider: a third-party provider of EM review services to review EM records to produce EM data. The same third-party organization can provide both the EM equipment and EM review services but they can also be supplied by different providers.

EM installation coverage: the proportion of vessels by fleet that has EM equipment installed that is operational.

EM record coverage: the proportion of fishing effort for which EM records are collected by installed EM equipment.

EM observer/review coverage: the proportion of fishing effort for which EM records are reviewed to produce EM data and submitted to the IOTC.

EM service provider: a third-party provider of EM equipment (and/or system), technical and logistical services to maintain the EM equipment and monitor its proper functioning.

EM Systems (EMS)

EMS shall be approved and accredited by an appropriate IOTC body (e.g., IOTC Ad hoc Working Group on the Development of Electronic Monitoring Programme Standards, IOTC Working Party on Data Collection and Statistics (WPDCS)) or Member States to ensure that the minimum standards of the REMP (and ROS) are met, including EM equipment installation (through an EM Vessel Monitoring Plan), collection of data consistent with ROS minimum data standards, EM records reviewed by accredited companies/organizations and independence of EMS are maintained. In case that IOTC approved the EMS, the Member State shall submit to the Commission copies of each vessel's VMP and the Commission will present to the Scientific Committee, as an annex to the EU Reports to the Scientific Committee, a fleet level overview of the EU VMPs.

Data:

EM data submitted by Regional or National EMPs are subject to Resolution 12/02 *On data confidentiality policy and procedures* concerning the requirements for sharing data in the public domain (e.g., the level of stratification to apply in order to prevent activity from a single vessel to be clearly identified from the published data) and the procedures for the safeguard of records.

EM data collected via EM shall be provided in compliance with the requirements established by the IOTC in Resolution 15/01 *On the recording of catch and effort data by fishing vessels in the IOTC*

area of competence, Resolution 15/02 *On mandatory statistical reporting requirements for IOTC Contracting Parties and Cooperating Non-Contracting Parties (CPCs)* and IOTC Observer Resolution on Regional Observer Scheme.

EM data shall be submitted to IOTC in accordance with the electronic data format specifications provided by the IOTC Secretariat and adopted by the IOTC, in order for data to be incorporated in the IOTC Regional Observer Scheme database. The EM data shall be properly marked in the database to be distinguished from data collected through onboard human observers.

Operationalising IOTC's REMP – Accreditation and Auditing of National EMPs

Member States shall request the Commission to apply to the IOTC Secretariat to have its own National EM Program recognized as part of IOTC's REMP so as to comply with ROS data minimum standards.

IOTC shall audit the National EM Programs against the EM minimum standards.

National EM Programs shall be reviewed and subject to regular and periodic audits as agreed by the IOTC.

IOTC could authorize National EM Programs approved by other tuna RFMOs.

PART 2: IOTC electronic monitoring system and data standards

1. EM TECHNICAL MINIMUM STANDARDS

The Technical Minimum Standards shall describe the requirements of the EM. Member States shall ensure all EM equipment installed in their national or subregional programs are consistent with these technical specifications.

Customized to vessel level: there is no standard configuration that will cover all vessels from fleets operating in the Indian Ocean region, therefore each EM equipment installation must be customized at the vessel level. An EM equipment to be installed on board of a fishing vessel shall consist of a control system connecting a number of cameras, and optionally to a number of different sensors, to collect and record images to address the objectives of the EM Program. The number of cameras and sensors shall be tailored to each vessel through a Vessel Monitoring Plan to meet overall objectives of the program rather than being too prescriptive and shall include a sufficient number of cameras. Although it will depend on the configuration of each particular vessel, as a general setup, cameras shall capture the areas and activities provided in Table 1 and 2 and Figure 1 to 3 of Part 3 of this Annex 11 [5]. Each vessel shall develop a "Vessel Monitoring Plan" specifying how many and where the cameras are located, and their settings, to collect the required ROS minimum "mandatory" data fields. The collection of some of the required ROS minimum data standards may be complemented by port sampling and/or other data collection methods as described in the IOTC Regional Observer Scheme Data Collection Field[6]. Within a given EM program, a certain level of harmonisation among vessels may also be necessary (camera placement and settings).

---

[5] Annex 3 should be taken as a general guide since they are examples of existing EMS installations. The EM configuration (number of cameras, position, and monitoring objectives for each) should then be tailored to each fishery/vessel through a Vessel Monitoring Plan.

[6] EM capabilities to collect ROS minimum data requirement fields (https://iotc.org/documents/ROS/DataStandards) may vary from fleet to fleet if the catch handling and setting/hauling maneuvers differ among fleets. Therefore, these values should be taken as a general guide and subject to constant review.

Include sensor/automatic devices: since EM records require large storage capacities, most EMS are not recording vessel activities on a full-time basis. The recording of some cameras may be triggered by the detection of gear usage or fishing activity. EMS may therefore include sensors, and other procedures (Computer Vision, Artificial Intelligence), to detect when fishing or other activities of interest occur on board. This will ensure proper EM record acquisition (e.g. trigger video recording when fishing operation starts) and facilitate EM record reviewing.

Include Global Positioning System (GPS): this is required to monitor vessel position, route, speed and provide information on date/time and location of fishing activities. Fishing vessel position and date/time stamps shall be incorporated directly on images or in the metadata of images.

Compatibility: the EMS should ideally be capable of integrating with other Monitoring, Control and Surveillance (MCS) tools (e.g. Vessel Monitoring System).

Robust System: the EM equipment components installed outdoors (such as cameras/camera housing and sensors) shall be capable of resisting rough conditions at-sea and harsh environment on board the vessels.

Secure System: the EM equipment components and data need to be tamper-resistant and tamper-evident, ideally using encrypted data, such that attempts at unauthorized modifications are not possible.

Cameras: digital, high-resolution when possible, cameras covering all areas of interest on the vessel according to the vessel and fishing operations are recommended. Camera placement, settings and recording must assure the detection of vessel activities, catch and bycatch species, and enable accurate species identification (at least for all species under the IOTC mandate). The system shall be able to record activities in low and very bright natural light conditions (low and high contrasts). The cameras must be water resistant and in a self-contained, weather resistant box.

EM records: EM records shall contain the following information: EM record file name including, at a minimum, the vessel name and vessel ID, camera ID, trip ID, geolocation data (date, time (UTC), latitude and longitude), camera recording status, EM health status (when available), images, and sensor data when used.

Independence: the system needs to be self-governing with the exception of minimal maintenance by the crew (e.g., cleaning sensors and cameras). The system may include remote verification of its functionality in real time to collect all information. A designated person shall ensure that the system is working properly before leaving port and at sea, and a protocol (checklist) shall exist for that purpose.

No interference: EM equipment shall not generate or cause radio frequency interference with other on-board vessel communication, navigation, safety, geolocation devices (e.g. VMS) or fishing equipment.

Autonomy: the EM equipment shall have its own uninterruptible power supply or be connected to that of the vessel to ensure that it can work even in the event of a vessel power outage. The EM equipment shall include separate, duplicate backup devices to ensure that data are not lost if a storage device fails.

EM Data storage autonomy: the EM equipment shall have enough storage capacity to store all EM records for a certain period of time, which shall be at minimum a complete trip. The duration will depend on the vessel's operational characteristics that could range from 4 months (in the case of purse seiners) to 12 months or more (in the case of longliners).

Interoperability: EMS ideally shall generate EM records that are interoperable between different EM service and review providers and, where possible, integrate with other data collection and monitoring tools.

Maintenance: a designated person on board (and/or on land) shall be designated to maintain the equipment (e.g., clean of lenses, etc.) and report to the EM equipment provider and the competent authority (e.g., IOTC or flag state) when the system is malfunctioning at port or at sea so the system is fixed as soon as possible, and shall record any failure of the EM equipment in a dedicated form.

2. EM LOGISTICAL MINIMUM STANDARDS

EM records retrieval: the EM records shall be transmitted via mobile networks, Wi-Fi, or satellite, or storage device (i.e., SSD or HDD) exchange. For the latter, a protocol to recover and send the storage devices to the designated EM review center shall also be implemented.

EM record storage: EM records shall be stored by the vessel/company/EM service provider/EM review provider/EM program administrator for at least 1 year or for the period established in the national/regional EM programs.

EM records backup: if EM records are automatically transmitted electronically, operational procedures for their receipt and backup shall be implemented taking into account any necessary chain of custody arrangements.

Storage device chain of custody: the EMS must ensure traceability of every storage device and EM records. The chain of custody of the EMS storage devices shall be assured.

Frequency: EM programs shall include requirements on the method and frequency (e.g. after each trip) of EM records transmission to EM review centers, that shall be consistent with the minimum standards established by the Member State, the EU or IOTC.

3. EM DATA REVIEW MINIMUM STANDARDS

EM review software: EMS shall include software to facilitate the review of EM records and to produce EM data that will allow compiling and reporting in an IOTC common output format for exchange/submission to IOTC. Ideally, EM review software can be used to review EM records collected from different EM equipment providers.

EM review and EM data reporting: EM records reviewing and EM data reporting shall be done by institutions, organizations and independent companies with proven expertise and experience (e.g., work experience with onboard observers). These tasks can be centralized in a "regional EM review center" when implementing a regional program and/or can be carried out by national or independent organizations.

EM records and EM data quality check: the reviewing process of EM records shall include quality controls through EM records quality check, EM data entry checks, possible automatic error identification in EM data (e.g. incorrect fishing set positions on land, etc), debriefing of EM observers. The produced EM data shall be checked prior to reporting to the IOTC Secretariat.

EM data: EMS shall allow collecting and reporting, at a minimum, the ROS Minimum Standard Data Fields. EM data shall submitted to the IOTC Secretariat using IOTC standard forms according to the

time frame specified in Resolution 22/04, or any superseding Resolution. Data confidentiality requirements outlined in Resolution 12/02, Data Confidentiality Policy and Procedures, or any superseding Resolution, shall apply to all EM data submitted to the IOTC Secretariat.

EM observers' training: EM observers must have specific qualifications related to EM record review which shall be integrated into the regional or national EM program standards. The EM observer shall participate in specialised training courses that shall be updated upon modification of the EM review protocol to ensure EM data high-quality standards.

EM observer's qualifications: EM observers must have the ability to review EM records and produce EM data according to IOTC requirements. EM observers shall be familiar with fishing activities and be capable of identifying (i) IOTC species and species of special interest, (ii) IOTC fishing methods, and (iii) IOTC mitigation methods.

Compatibility with ongoing standardized data flow and databases: EM data shall have compatible output format (including usage of standardized, well-established code lists) to exchange collected information with current IOTC data reporting format and standards, and shall be consistent with IOTC data rules. EM data shall submitted in an approved electronic data reporting format to the IOTC Secretariat, using IOTC standard codes and units.

Data storage and retention: legal provisions on data protection, storage, and retention by IOTC shall be developed and agreed upon whether it is a REMP or EM National Programs.

EM records ownership: EM records ownership is of the vessel owner/flag state but shall provide IOTC with the EM data outputs to incorporate in the IOTC database for use, analysis, and disposal as required by the IOTC observers Resolution on Regional Observer Scheme.

Hardware/software ownership: irrespective of the scope of the EM program, it is recommended that hardware and software license ownership (and maintenance) is of the vessel owner/flag state.

PART 3: VESSEL MONITORING PLANS (VMP)

Each vessel shall develop a "Vessel Monitoring Plan" so as to describe the numbers of cameras located to collect the required ROS minimum data fields, position and settings, and key areas to be monitored for fishing activities, catch handling, species identification, fate and storage of the individuals. The VMP shall be developed in collaboration between the EM service provider, vessel owner and fishing authorities.

VMPs shall be signed off by the vessel owner and finally approved by the flag Member State competent authority, after which it is presented to the WGEMS/WPDCS to ensure it meets IOTC REMP Program and EM System and Data Standards.

The VMP shall include information on:

- Contact information: contact information for the vessel owner, vessel operator and EM service provider as long as the contract lasts.
- General vessel information: basic information about the vessel and its fishing activities and operations (e.g., vessel name, registration number, target species, areas, fishing gear, LOA…).

- Vessel layout: equipment of the vessel with detailed information, plan of the vessel disposition and different areas (decks, processing area, storage, etc.).
- EM equipment setup: description of the settings of the EM equipment, such as time running, number of cameras and areas covered, time recording for each of the cameras, number and position of sensors (if any), software used, control box location, procedures for checking the proper functioning of the EM equipment installed onboard, etc.
- A snapshot of each camera shall be inserted in the VMP.
- A record on each vessel of the vessel's EM equipment characteristics and how the vessel's EM equipment is optimized to meet the EM System and Data Standards.

On purse seine vessels, the minimum areas that cameras are recommended to cover:

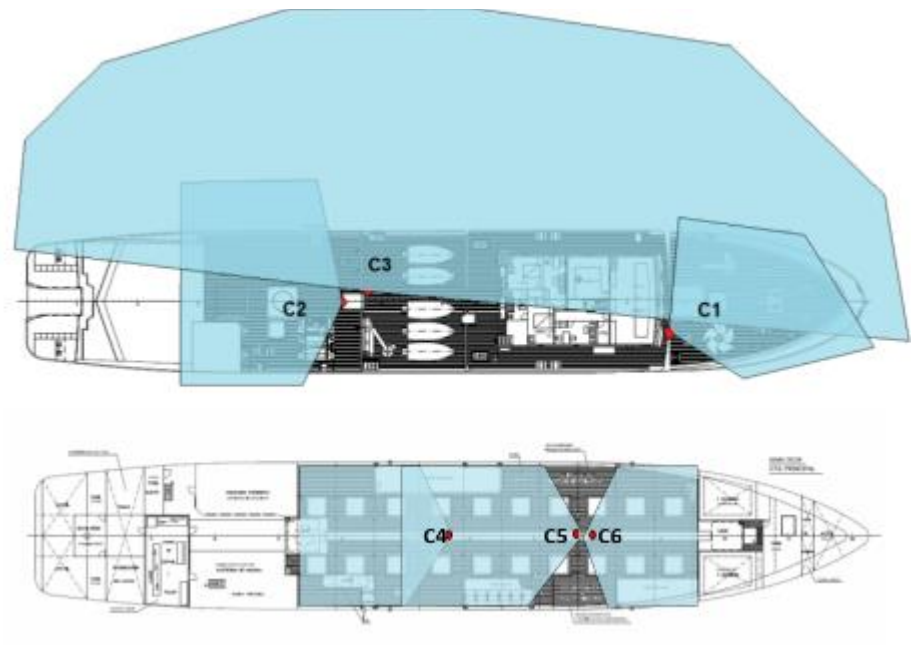
- the working deck (both port and starboard sides),
- the net sack and the brailer,
- the foredeck or amidships (e.g., FAD activity),
- and the well deck and conveyor belt (Murua et al., 2022; Restrepo et al., 2018): for the conveyor belt, in more than one place (e.g. at the beginning and at the end of the conveyour belt as a minimum). If a discard conveyor belt exists, it shall also be covered.
- Cameras must cover the following actions: fishing set, brailing, net hauling, FAD activities, total catch, catch well sorting (process of putting the catch in the hold or wells), bycatch handling and release, and tuna discards (Figure 1 and Table 1).
- In large purse seines, at least 6 cameras are needed to cover fishing and fish-handling operations; however, less fewer cameras (e.g. 4 cameras) could cover the activity to collect the data required of smaller purse seines (e.g. 300-400 tonnes capacity).

The preferred EM equipment configuration would be the one that allows a greater number of images (frames) of higher quality/resolution. Digital video is generally preferred, but still images can also be a viable option to capture information during the various phases of the vessel activity. However, considering that storage capacity is limited, an optimal configuration may have video on certain areas/cameras/moments, while still photos on others. In the case of photographs, the minimum requirement shall be that a picture is taken by the camera with viewing angle fully covering the fish management areas at least every 2 seconds when fishing action occurs (Restrepo et al., 2018). Image quality shall also be adequate enough to allow accurate collection of all required data field, such as species ID, FAD materials and design, or bait used and, hence, achieve the monitoring objectives.

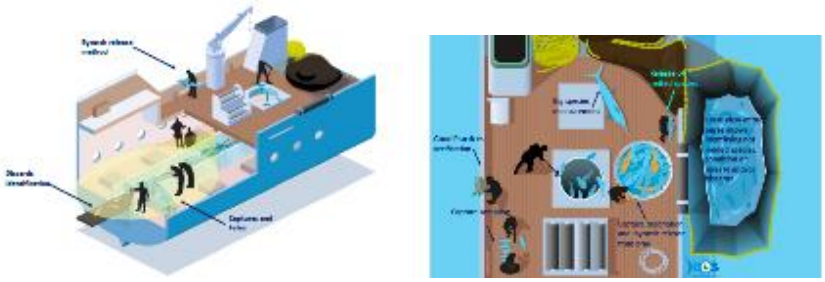
Any physical changes on a vessel that will affect EMS shall be reported to the flag Member state competent authorities. The VMP shall be updated and approved again by the competent authority as soon as possible.

Any change on the EM equipment (such as installation of a new generation of cameras) shall be reported to the flag Member state competent authorities. The VMP shall be updated and approved again by the competent authority as soon as possible.

A



B



Legend:

- *Panoramic camera: surounding activity*
- *Crows nest camera: fishing deck*
- *Bow camera: crane activity, partial view of seine*
- *Starboard camera: bycatch and discards*
- *Brailing camera: brailing and purse*
- *Bycatch release method*
- *Discards identification*
- *Captures and fates*
- *Good practices verification*
- *Capture sampling*

- *Big species measurement*
- *Capture description and bycatch release from brail*
- *Release of netted species*
- *Close view of the purse allows identifying not landed species condition on release and/or discards*

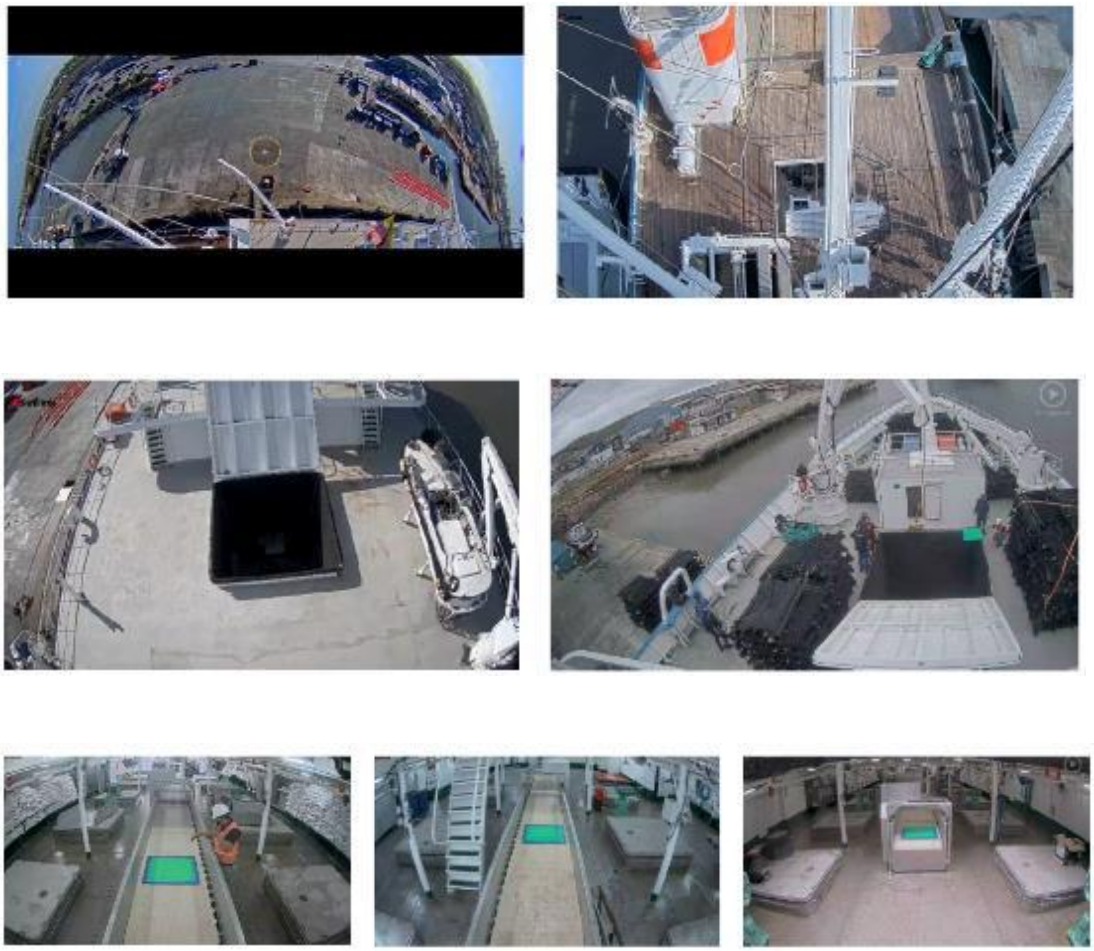


Figure 1. (A) An example of a 6-cameras EM system installed in a purse seiner covering main areas of fishing and fish handling operations (from Murua et al., 2020b) and (B) 7-cameras EM system (4 in the upper deck and 3 in the well deck) installed in a purse seine covering main areas of fishing and fishing handling operations including 1 more camera in the conveyor belt: (B1) 360˚ Panoramic view camera (e.g port side view), (B2) Crows nest stern view camera, (B3) Working deck crane camera view , (B4) Foredeck view camera, (B5) Conveyor belt stern camera view, (B6) Conveyor belt middle camera, and (B7) Conveyor belt bow camera (source: Digital Observer Services).

Table 1. Minimum areas and actions that shall be monitored.

Area covered	Action covered	Purpose	Minimum data requirements to be monitored
Work deck (port side)	Brailing	Total catch by set Species composition	Number of brails & fullness by brail. Weight, size and species of retained tuna
	Tuna discards	Total tuna discards by set	Weight, size and species of discarded tuna
	Bycatch handling	Bycatch estimation	number of individuals handling mode Species ID
Work deck (starboard side)	Bycatch handling	Bycatch estimation	Handling mode
	Bycatch release	Total bycatch by set	Number of individuals and species ID
In-water purse seine area	Brailing	Total catch by set	Number of brails & fullness by brail
	Bycatch handling and safe-release of individual animals (whale sharks, manta rays…)	Total bycatch by set . Application of handling and safe-release best practices	Handling mode
	Bycatch release of big species (whale sharks, manta rays…)	Total bycatch by set Application of handling and safe-release best practices.	Number of individuals and species ID
Foredeck or amidships	FAD activity (deploying, replacement, reparation…)	Total number of FAD deployments, FAD design and FAD activities by trip	Number, material (natural or artificial), and FAD characteristics (entangling or no entangling)
Well deck and conveyor belt	Catch well sorting	Species composition	Weight, size and species of retained tuna.
	Bycatch handling	Best practices	Handling mode
	Estimation of bycatch discards, releases or retention	Total bycatch by set Species composition Application of handling and safe-release best practices.	Number, size or weight of individuals, species ID and fate

On longline vessels, the minimum areas and activities that cameras are recommended to cover (Table, 2, Figure 2):

- The area of setting the longline (usually vessel stern site camera),
- the area of hauling the longline,
- the working deck where catch is handled,
- and the surrounding water area for those discarded species not brought onboard
- Cameras must cover the following actions: setting of the longline, bait type information, whether mitigation techniques are being used (e.g. tori lines for seabirds), hauling of the longline, all hooked species (both retained and discarded), the fate of the catch, and the size of the specimens.
- On most tuna longlines, at least 3 cameras are needed to cover fishing activities and fish handling operations: one capturing images when setting the longline, one to record the hauling and boarding of the catch, and other mounted over the processing deck to record species, size of specimens and fate. And additional camera to cover the surrounding water area for those discarded species not brought onboard is also recommended.

Legend:

- *Cam 3: Retained Captures, species, size and fate*
- *Cam 2: Captures amd discards; species, size and fate*
- *Cam 1: Floats, hooks and bait setting*
- *C1: Stern camera*
- *C2: Fishing deck 1*
- *C3: Fishing deck 2*

Figure 2. An example of a 3-cameras EM equipment installed on a longline covering main areas of fishing and fish handling operations. View of the 3 cameras: (left panel) Stern camera - setting longline providing information on hooks, floats, mitigation techniques and bait; (middle panel) Fishing deck 1 - hauling information, captures and discards, species ID, size and fate; and (right panel) Fishing deck 2 - fate of the species, size, species ID (source: Digital Observer Services).

Table 2 – General configuration and areas/activities covered by the EM system onboard tropical tuna longline vessels

Area covered	Action covered	Minimum data requirements to be monitored
Stern camera of the boat	Start and end setting operation	Position, date, and time
		Total number of hooks set and between floats
		Total number of floats set
		Bait type
		Bait species
		Bait ratio (%)
		Mitigation measures/marine pollution
Work deck	Catch onboard	Length and weight[7] by captured
		Condition
		Fate
		Predator observed
	Bycatch discarded, released, or	Total bycatch by set and species composition
Processing area	Catch	Total catch by set
		Length and weight1 by captured
		Sex
		Fate
Surrounding water area	Start and end hauling operation	Position, time and date
	Estimation of bycatch discards, releases or retention	Total bycatch by set and species composition
		Species condition and fate

On pole and line vessels, the minimum areas that cameras are recommended to cover are the area of bait fishing activity, the area of the fishing set and pole and line fishing activity (vessel stern site camera) and the working deck where catch is handled. On a typical Indian Ocean pole and line vessels, this will require at least 2 or 3 cameras to cover main fishing activity areas, fish handling operations and bait fishing.

[7] Estimated through length-weight relationships