

ASCOBANS Expert Workshop on the Requirements of Legislation to Address Monitoring and Mitigation of Small Cetacean Bycatch

Compilation of comments and recommendations emitted by different fora regarding the effectiveness of the EU regulation laying down measures concerning incidental catches of cetaceans - Regulation (EC) 812/2004

**Prepared by G. Desportes, ASCOBANS
With review comments and amendments by K. MacLeod (DEFRA, UK), Y. Morizur (IFREMER, France) and S. Köningson (Swedish University of Agricultural Science, Sweden)**

CONTENTS

1.	Introduction.....	3
2.	European regulations interplaying in addressing the bycatch of cetaceans.....	3
2.1	Habitats Directive	3
2.2	Council Regulation (EC) 812/2004.....	4
2.3	MSFD / OSPAR	5
3.	The future of regulation (EC) 812/2004	6
4.	General effectiveness of regulation (EC) 812/2004	7
5.	Detailed review of regulation 812/2004 drawbacks	10
5.1	Reporting	10
5.2	Gear definition.....	11
5.3	Monitoring.....	11
5.3.1	Monitoring focus	11
5.3.2	Monitoring level	12
5.3.3	Monitoring practicality	12
5.3.4	Monitoring cost	13
5.3.5	Monitoring combined with other observer programmes (e.g. DCF).....	13
5.4	Mitigatiing.....	14
5.4.1	Targeted fisheries	14
5.4.2	Mitigation device - ADDs	14
5.4.3	Specification of ADDs.....	15
5.4.4	Enforcement	15
6.	Recommendation for effective monitoring and mitigation of cetacean bycatch	16
6.1	General recommendations.....	16
6.2	Reporting	17
6.3	Monitoring.....	18
6.3.1	Monitoring target	18
6.3.2	Monitoring level	18
6.3.3	Enforcement	19
6.3.4	Monitoring combined with other monitoring schemes	19
6.4	Mitigation	19
6.4.1	Mitigation measures.....	19
6.4.2	Targeted fisheries	19
6.4.3	Mitigation devices	20
6.4.4	Alternative mitigation methods	20
6.4.5	Enforcement	21
7.	Recommendations for obtaining generally reliable data on [any] bycatch under the future DC-MAP..	21
7.1	ICES WKDCF-NF.....	21
7.2	NGOs.....	22
7.3	European Commission – STECF	22
8.	Conclusion	24
9.	References	24
	Annex 1.....	26

1. INTRODUCTION

This document is a compilation, likely not exhaustive, of Pros, Cons and recommendations, made regarding Regulation (EC) no 812/2004 by different bodies since Regulation (EC) 812/2004 came into place. It is intended to provide a starting point to the review that the WS will conduct.

The documents reviewed stretch over a period of 10 years. Many of the comments dealing with the same aspects of the Regulation are very similar and repeat each other and a single summary is provided. Therefore the list of the documents which have been used for this compilation is provided under point 3, but the comments listed are generally not referred to a particular document or publication.

The scope of different EU directives and regulation dealing with the conservation of cetacean species is shortly reviewed, as well as the monitoring and mitigation requirements under each of these instruments.

2. EUROPEAN REGULATIONS INTERPLAYING IN ADDRESSING THE BYCATCH OF CETACEANS

Europe's marine environment is threatened by both pollution and the dramatic loss of marine biodiversity due to human activities.

For many years, by-catch has been a major conservation issue facing a variety of cetacean species in Europe, with harbour porpoises being particularly affected. Several EU Directives and Regulations¹ require some assessment of the conservation implications of human caused mortalities on non-fisheries protected species (including for example marine mammals, birds, marine turtles, sharks), such as the EC Directive on the Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive; 92/43/EC), the Marine Strategy Framework Directive (MSFD; 2008/56/EC), and the EC Council Regulation 812/2004 within the European Common Fisheries Policy (CFP; EC 2371/2002).

Other agreements such OSPAR (Oslo-Paris convention) and ASCOBANS also require some assessment of the conservation implications of human caused mortalities.

The most relevant reporting requirements for member states concerning fishery data collection are the CFP Data requirements under the current DCF and the Marine Strategy Framework Directive (MSFD).

2.1 HABITATS DIRECTIVE²

Under the Article 12.4 of the Council Directive 92/43/EEC, so called Habitats Directive, all cetacean species benefit from a system of strict protection in their natural range. Member States shall undertake surveillance of the conservation status of cetaceans, as well as establish a system to monitor their incidental capture and killing. In the light of the information gathered, Member States are then obliged to

¹ A European Directive requires member states to implement national legislation to meet the objectives of the Directive, while a Regulation becomes law in member states as soon as it has been passed by the Council of Ministers. It seems that Council Regulation 812/2004 was put forward by the Commission in part due to the poor uptake of national obligations under the Habitats Directive.

² <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043&from=EN>

take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned. Furthermore, in accordance with

Article 6, Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of the habitats of the species, as well as the significant disturbance of the species for which those areas have been designated. A number of such areas have been designated for the species *Phocoena phocoena* and *Tursiops truncatus*.

Relevant information forms part of the reporting requirements under Article 17 of the Habitats Directive and is currently contained in an EU database³. Under Article 17, every six years Member States are required to report on the implementation of measures taken under the Directive and in particular should report on the conservation measures referred to in Article 6 and the main results of the surveillance referred to in Article 11. But there is no explicit requirement to report on Article 12, which requires member states to monitor incidental catches.

The monitoring requirements of Council Directive 92/43/EEC are not specified. However, because the stated aim of Article 12 of the habitats directive is to “ensure that incidental capture and killing does not have a significant negative impact on the [cetacean] species concerned”, monitoring schemes should at least enable authorities to determine whether or not significant negative impacts are occurring. This would imply sufficient monitoring to be reasonably sure that bycatch rates did or did not exceed some predefined bycatch ‘reference limit’.

Its scope encompasses clearly all activities where incidental capture and killing of animal species listed in Annex IV (a) occurs, and therefore all kinds of fisheries, both professional and recreational.

The interpretation that recreational fisheries also should be taken into consideration is supported by the fact that Belgium received a request from the European Union (DG ENV; EU Pilot 3801/12/ENVI) for more information about bycatch of porpoises in recreational fisheries. It was asked if the results of the assessments in the framework of the Marine Strategy Framework Directive had led to the conclusion that there was no need to take further measures to reduce bycatch (Belgium Annual Report to ASCOBANS, 2014⁴).

2.2 COUNCIL REGULATION (EC) 812/2004⁵

The EC Common Fisheries Policy (CFP) aims among other things to ensure sustainable exploitation of living aquatic resources. The Habitats Directive obliges Member States to provide strict protection to certain cetaceans and to monitor the conservation status of these species. The CFP addresses this issue through Regulation (EC) 812/2004 *Council Regulation laying down measures concerning incidental catches of cetaceans in fisheries and amending Regulation (EC) No 88/98*.

The Regulation identifies fisheries where observer schemes are to obtain representative data to assess the extent of bycatch of cetaceans where the use of acoustic deterrent devices (ADDs) is mandatory.

³ <http://eionet.europa.eu/article17>

⁴ http://www.ascobans.org/sites/default/files/document/AC21_Inf_12.1.a_National_Reports_Belgium_0.pdf

⁵ <http://faolex.fao.org/docs/pdf/eur60524.pdf>

Reg. 812/2004 had four components: mitigation, monitoring, reporting and phasing out of driftnets in the Baltic Sea.

- **Mitigation in defined fisheries**
 - Requirement of using pingers with defined technical specifications for vessels with an overall length of 12 m or more in specific fisheries, geographic areas and period of the year
 - Ensuring that ADD are fully operational when setting the gear
 - Monitoring and assessing the effects of pinger use overtime
- **Monitoring in defined fisheries - not required to use ADD**
 - Monitoring with a specific effort level vessels with an overall length of 15 m or more in defined fisheries,
 - Establishing pilot monitoring projects for vessels below 15m in the same fisheries
- **[Phasing out of the use of driftnet in the Baltic Sea]**
- **Annual reporting to the EU**
 - Annual reporting to the Commission, by June 1, for the preceding year.

Closely linked to some of the provisions in Regulation 812/2004 are the data collection requirements under Council Regulation (EC) 199/2008⁶. This Regulation requires Member States to set up coordinated programmes for collection, management and use of biological, technical, environmental and socio-economic data, on professional and - where appropriate – also on recreational fisheries. Ecosystem data should be included to allow for an estimation of the impact of fisheries on the marine ecosystem.

It should be highlighted that, whilst (EC) Regulation 812/2004 indicates the fisheries to which Member States should pay extra attention as regards to the impact on the incidental capture and killing of cetacean, measures to reduce the impacts of fisheries on cetacean species are not exclusive to this Regulation. Member States already have an obligation under Article 12 of Council Directive 92/43/EEC, the Habitats Directive, to take research or conservation measures to ensure that incidental capture of cetaceans does not have a significant negative impact on the species.

2.3 MSFD⁷ / OSPAR

The Marine Strategy Framework Directive (MSFD, 2008/55/EC) was adopted in 2008 and is the first EU binding instrument designed to make a contribution to the preservation, protection and restoration of marine ecosystems.

Under the MSFD, Member States shall take the necessary measures to achieve or maintain good environmental status in EU marine waters by 2020 at the latest, which should ensure the maintenance of ecologically healthy, clean and productive seas as well as reducing adverse human impacts on marine ecosystems to sustainable levels. The scope of the MSFD is vast, covering all aspects of biodiversity including marine mammals, and human pressures such as underwater noise, litter, commercial fishing and pollution. The protection of sensitive species is recognised as an aspect which will contribute towards the achievement of Good Environmental Status (GES). 11 descriptors of GES have been developed, a number of

⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R0199&from=EN>

⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF>

which are directly relevant for harbour porpoise, bottlenose and common dolphin management, e.g. descriptors relating to e.g. food webs and biodiversity. Member States will need to evaluate bycatch for maintaining biodiversity, according to the common mammal biodiversity (Descriptor 1) indicator.

Member States have to work to implement measures both at the national and regional scale. Regional Sea Conventions, such as HELCOM and OSPAR, play an important role in implementing MSFD and act as coordinators for the regional implementation of the MSFD.

Within OSPAR, coordination in relation to the biodiversity aspects of the MSFD is largely dealt with by the Intersessional Correspondence Group for the Coordination of Biodiversity Assessment and Monitoring (ICG-COBAM). One of the core indicators being prepared by OSPAR COBAM is “Mortality of seals and cetaceans due to bycatch” (indicator M-6). Although bycatch occurs in a wide range of species, it should only be specifically assessed for those species for which there is sufficient data. Suggested species for which the target could/should be set, are harbour seal, grey seal, harbour porpoise, short beaked common dolphin and striped dolphin.

ICG-COBAM has proposed a target that ‘The annual bycatch rate of [marine mammal species] is reduced to below levels that are expected to allow conservation objectives to be met’.

3. THE FUTURE OF REGULATION (EC) 812/2004

In light of the review of the Common Fisheries Policy (CFP), EC Regulation 812/2004 is likely to be repealed in favour of bycatch measures (monitoring and mitigating) being subsumed into measures within the new CFP. In order to fulfill the provisions of Article 37 of the CFP and align the DC-MAP (the future European data collection) with obligations under other existing EU legislative instruments, provisions for monitoring and reporting bycatch of non-fisheries by MS will be required in the DC-MAP.

Concerning bycatch monitoring, the European Commission supported by the Scientific, Technical and Economic Committee for Fisheries (STECF) subgroups are developing new data collection systems including those for cetacean bycatch.

In 2014, Regulation (EU) no 597/2014⁸, amending Regulation 812/2004, added to Article 7 “By 31 December 2015, the Commission shall review the effectiveness of the measures provided for in this Regulation and shall, if appropriate, submit to the European Parliament and to the Council an overarching legislative proposal for ensuring the effective protection of cetaceans’.

The new CFP (including collection of data) will be more regionalized and it is not clear at this stage how the collection of data for assessing the impact of fisheries on ecosystems will take place. A recent call for tenders⁹ issued by the European Commission seems to indicate that the collection for data in the field of impact on environment will concern at least one fishery by region (European Commission 2014a).

The new European Maritime and Fisheries Fund (EMFF) should contribute to placing the EU fisheries sector on a more sustainable pathway, for example by supporting the protection of marine ecosystems, provision

⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0597&from=EN>

⁹ http://ec.europa.eu/dgs/maritimeaffairs_fisheries/contracts_and_funding/calls_for_proposals/2014_19/index_en.htm

of environmental data collection, and control and enforcement. The EMFF funds for data collection will be managed by each Member State.

The cetacean mitigation aspects might be included in technical measures dealing with other aspects of selectivity. The European Commission has managed a large consultation on this possibility but at this point without communication of the results.

4. GENERAL EFFECTIVENESS OF REGULATION (EC) 812/2004

The European Commission twice reviewed the implementation and effectiveness of EC Reg. 812/2004 (EC COM (2009) 368¹⁰ and EC COM (2011) 578¹¹) as required under Article 7 of the Regulation and a review study was also prepared for the European Parliament (Dg IPOL 2010).

The effectiveness of the Regulation has also been the focus of discussion within the annual ICES Working Group on the Bycatch of Protected Species (WGBYC). Besides reviewing annually progress in the implementation of Reg. 812/2004, WGBYC also commented on the adequacy of the regulation in addressing the bycatch of small cetaceans (ICES SGBYC 2008, 2009, 2010; ICES WGBYC 2011, 2012, 2013, 2014).

ICES provided specific advice (2010a, 2013acd, 2014) and held a workshop (WKREV812) to specifically Evaluate Aspects of EC Regulation 812/2004 in 2010 (ICES 2010b). In 2013 an ICES workshop (WKBYC) was held to address three specific requests from the EC regarding monitoring schemes, ways of defining reference points to bycatch and how to best revise the technical specifications and conditions of use of Acoustic Deterrent Devices in light of technical and scientific progress (ICES 2013b).

Problems in the implementation of Reg. 812/2004 and its adequacy were summarised comprehensively by Northridge (2011). Problems inherent to the regulation were also discussed – and ways of improving the regulation proposed - within the ASCOBANS/ECS Cetacean Bycatch Mitigation Workshop (ASCOBANS 2010), the ASCOBANS Bycatch Working Group (2011, 2013, 2014), the ASCOBANS North Sea Group (Desportes 2014, ASCOBANS 2015) and ASCOBANS Jastarnia Group (period 2004-2014). ASCOBANS (2015) provides a compilation of the recommendations directly dealing with Regulation 812/2004 which have been adopted by the Group and endorsed by ASCOBANS AC.

Further inputs can be found in several studies, in terms of optimizing monitoring and mitigation, assessing the impact of bycatch and defining relevant mitigation measures to be taken in relation to specific fisheries segment (e.g., European Commission 2009, Morizur *et al* 2009, 2013, 2014, Northridge *et al* 2011, 2012, Dawson *et al* 2013, Kindt-Larsen *et al* 2013, Larsen *et al* 2013,).

The overall gaps in the Regulation that have been tabled are the following:

- Both the mitigation and the monitoring were judged to be less than optimally directed, with large segments of the fleet, known to present a risk of bycatch omitted from the regulation. In particular, this relates to gillnetters below <15 m in terms of monitoring and gillnetters below 12m in term of mitigation measures.

¹⁰ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0368:FIN:EN:PDF>

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0578:FIN:EN:PDF>

- A more flexible approach is required to ensure monitoring programmes are directed at fleets with the greatest impact on cetacean populations. A greater flexibility in the choice of fisheries requiring mitigation measures against cetacean bycatch should enable a greater reduction in overall bycatch levels.
- Cetacean bycatch in the Black Sea is outside the scope of the Regulation, although it requires monitoring as there are clearly bycatch issues.
- Requirement for mitigation and monitoring was established according to vessel length and not according to the level of risk they pose; the propensity for gillnets to entangle porpoise and other marine mammals is not related to the size of the vessel deploying such nets.
- The gears targeted were not clearly defined, so it is still currently unclear whether certain types of fishing gear known to interact with cetaceans are covered by the scope of the Regulation (e.g. trammel nets and trawls other than pelagic with a very high opening).
- The devices required for mitigation were expensive and not reliable enough, when the Regulation was adopted; fishermen were reluctant to use them. Reluctance by industry has been an important factor in the slow uptake of pingers, but industry concerns were not without foundation, which may explain the apparent low key approach to enforcement within the EU.
- There is a lack of incentives, although these exist in other data collection regulations (in the DCF there are grants from EU). In addition/or linked to the lack of incentives, there is a lack of penalties in the regulation.
- Article 2(4) stipulates that “Member States shall take necessary steps to monitor and assess, by means of scientific studies or pilot projects, the effects of pinger use over time in the fisheries and areas concerned”, but these steps are not further defined and there has been very little effort to do this and the long term effect of the mitigation measures are not known.
- Greater clarity is needed on the objectives of ‘scientific studies’ and ‘pilot projects’ that are required under 812/2004.
- No exhaustive report of fishing effort is requested in the actual regulation for set nets , and no standard format is required for the reporting of fishing effort in the in the pingered areas. Knowledge of overall fishing effort is useful for the Bycatch Risk Approach (BRA) approach.
- A concerted European approach to enforcement and control is lacking.
- A concerted European approach to assessment of significant impacts is needed.

Furthermore, the incidental catches of pinnipeds, seabirds and turtles in fishing gears in all areas are currently outside the scope of the Regulation. However, as Member States have obligations under the Habitats Directive to monitor the incidental capture and killing of all protected species and ensure that

incidental capture or killing do not have a significant impact on the populations, all fishing activities and areas where incidental catches are problematic should be covered by the/a Regulation.

There has been a very slow implementation process, in terms of mitigation, monitoring and reporting. Certain Member States do not always comply with their data collecting and reporting obligations, and in a number of cases data quality has been poor, all of which hampers possibilities for overall assessments. Bycatch estimates and implementation of bycatch mitigation measures are still very patchy, with several member states not fulfilling their monitoring obligations and few countries able to provide unequivocal confirmation that the obligations under regulation 812/2004 for pinger deployment are being met.

In its review of the implementation of certain provisions of Regulation (EC) No 812/2004, the European Commission (COM(2011) 578 final) notes in the 'Way Forward' that

“Although monitoring targets, data formats and other issues are subjects of ongoing debate, the Regulation has, according to ICES, "succeeded in providing a much more comprehensive picture of cetacean bycatch in European fisheries". Some Member States have become more knowledgeable about the impacts that their fisheries have on cetaceans, allowing them to streamline the needs for research and protection of cetaceans and improve the implementation of the Regulation.

The Regulation has been in place for 6 years, and despite these improvements it is still not fully meeting its objective of preventing the accidental capture of cetaceans in fishing gears. Bycatch is still evident in a number of fisheries in the North Atlantic, North Sea and the Baltic and according to ICES several sub-populations of harbour porpoise and common dolphin in these areas are considered as endangered. For the Mediterranean and the Black Sea it is apparent that estimates of cetacean abundance are inadequate making any assessment of population or bycatch impossible for these regions but there is enough evidence to conclude that bycatch remains high in these sea basins.”

According to ICES (2010), several sub-populations of harbour porpoise and dolphins are considered as endangered, so monitoring and mitigation measures should be continued or in the case of the Black Sea included under the Regulation. For the ASCOBANS Area, these are:

- harbour porpoises in static nets in the Baltic, Kattegat, North Sea and Skagerrak, Atlantic ,
- common and striped dolphins in static nets in the Atlantic,
- common dolphins in pelagic trawls for bass and tuna in the Atlantic.

Besides these bycatch of common dolphin should continue to be monitored for pelagic trawls for hake in the Atlantic and VHVO trawls targeting hake.

After ten years of regulation, the same conclusion can still be drawn (see e.g. ICES WGBYC 2014). Despite improvements, the regulation is still not fully meeting its objective of preventing the accidental capture of cetaceans in fishing gears. Bycatch is still evident in a number of fisheries in the North Atlantic, North Sea, the Baltic, Black Sea and Mediterranean. While we know a lot more about the nature and scale of cetacean bycatch and more is being done to alleviate its effects, than was the case before the Regulation was drafted, cetacean bycatch monitoring is still insufficient in most fisheries and areas to provide total estimates of bycatch mortality and enable adequate management decisions to be made.

ICES WGBYC (2012) in reviewing and commenting on the EU Member States' reports under council Regulation 812/2004 to assess the status of information on recent by-catch estimates and evaluate the extent of the implementation of by-catch mitigation measures noted that "(by-catch) estimates are still very patchy, and several EU member states have not fulfilled their monitoring obligations. By-catch monitoring remains less than optimally directed in many cases. Observer effort may not be representative of fleet effort and any extrapolated numbers derived solely in this report are uncertain and should be treated with care".

Concerning specifically harbour porpoises in the North Sea, ICES WGBYC (2014) concluded that "Without any measure of uncertainty, preliminary results of the Bycatch Risk Approach (BRA) show that North Sea Harbour Porpoise may be near or above sustainable removal levels". ICES (2014) noted in its advice to the Commission that "This assessment indicated that bycatch rates in some fisheries may be above any proposed reference limits, but the uncertainty is large. There may also be biases in the choice of fisheries to monitor towards fisheries with a higher bycatch. Better quality data on bycatch rates and fishing effort from more fisheries is required from EU Member Countries before this assessment can be refined and conclusions drawn as to the overall bycatch of harbour porpoise in the North Sea."

There is therefore a need to ensure that new monitoring and mitigation measures will be targeted in the areas and for the species most under threat and there is no room for complacency in collecting the data necessary to inform sound management and ensure the sustainable use of the marine ecosystem. ICES WGBYC (2013) and WKDCF-NF (ICES 2013d) provide an inventory of the main fisheries per region and identified the main bycatch issues per fishery for birds, mammals, reptiles, fish.

5. DETAILED REVIEW OF REGULATION 812/2004 DRAWBACKS

Drawbacks to the regulation are listed in more details in the following chapter under three headings *Reporting, Monitoring and Mitigating*.

[The technical developments which have occurred since the regulation was adopted and which may help alleviating some of the drawbacks are listed in blue under the relevant drawback.](#)

The comments are taken from the documents cited under point 3. Some are directly extracted, while others have been combined and reformulated.

5.1 REPORTING

The improvements to the reporting format advised by ICES and STECF and accepted by the Member States (adopted by MS in May 2010) have improved reporting under the Regulation. However, the quality and content of the reports from some Member States submitted remains inconsistent, making analysis difficult.

In particular some Member States still do not report fishing effort in the required format, preventing compilation of the data for overall analyses.

The collection/reporting of fishing efforts for set nets is not required for all the fleet segments and areas.

There is a lack of quality on detailed fishing effort for static gears because the fishing time of vessels and the fishing time of static gears are not the same.

5.2 GEAR DEFINITION

High-opening trawls (VHVO) are mentioned under Annex III(3), but it is not clear whether this refers only pelagic trawls (as the remain of ANNEX III) or also to bottom trawls. Some bottom trawls are VHVO trawls (e.g. Spain where pelagictrawls are forbidden). The 2009 national report of Spain and the part2 report of the NECESSITY project^{12 13} (Anonym 2007) clearly show an interaction between these gears and dolphins. As there is no specific code for such gears, they cannot be well distinguished inside OTB or PTB gears if there is no information on the vertical opening. This parameter is relevant for the obtaining detail data on fishing effort for VHVO trawling.

Trammel nets are not clearly mentioned in the Regulation, although they are specifically distinguished in other EU regulations, and it has therefore been interpreted differently by different Member States..

5.3 MONITORING

5.3.1 Monitoring focus

CR 812/2004 requires member states to monitor pelagic trawl fisheries throughout most European waters, but bottom set gillnet fisheries are only specified for a few places including the Bay of Biscay (ICES Divisions VIIIabc), the Baltic, the areas west of Scotland and Ireland and the Irish Sea (VIa, VIIa,b). Monitoring schemes are not stipulated for the North Sea, the English Channel, Celtic Sea, Mediterranean, Iberian Peninsula outside the Bay of Biscay, nor the Black Sea. Driftnets (which are widely used and legal provided that nets do not exceed 2.5 km in length and provided they are not targeted at certain listed large pelagic species) are also listed in Annex III of the Regulation but require monitoring only in the North Sea (IV), west of Scotland (VIa) and the Channel and Celtic Sea (VII excluding VIIc,k).

No bycatch is observed in many segments of the observed fishing fleets requiring monitoring under the Regulation. However, scientific evidence from at-sea observer schemes or from post-mortem analysis of stranded animals continues to indicate significant interactions between fisheries and cetaceans.

This was commonly explained due to minimal interaction between cetaceans and the fisheries involved (pelagic trawls), low observed coverage of the fisheries relative to actual fishing effort, or a lack of coverage of fisheries where incidental catch tends to be significant i.e. the wrong fisheries are being monitored. In this later case, this is due to fisheries with a known bycatch (static net) not being required to be monitored under the Regulation.

Among the gillnet fleets, relatively little monitoring has been done in areas where it is required, but equally none is required in many areas where cetacean bycatch is known to occur regularly because (limited) mitigation measures are supposed to be in place, and in such areas monitoring was not required by the Regulation.

¹² http://cordis.europa.eu/result/rcn/47785_en.html

¹³ <http://www.ices.dk/explore-us/projects/EU->

RFP/EU%20Repository/NECESSITY/FP6%20NECESSITY%20Final%20Activity%20Report.pdf

The activities of vessels < 15m are not adequately covered. “Member States shall take the necessary steps to collect scientific data on incidental catches of cetaceans for vessels with an overall length less than 15 m [...] by means of appropriate scientific studies or pilot projects”. There are no guidelines in the regulation to determine what levels of monitoring are required for such scientific studies or pilot projects. As a result, and just as with the Habitats Directive, this requirement appears to be given low priority by member states.

Furthermore this monitoring is only required in those fisheries that are mandatory and defined in Annex III, i.e. the ‘wrong’ fisheries.

Habitats Directive (Article 12) requires monitoring of bycatch if Member States suspect there may be an issue in addition to any provisions in 812/2004. Particular attention was drawn to the situation with set nets in ICES areas IV and VII and whether observations at sea on set nets should be required under the bycatch regulations.

Data on the extent, gear types used, and catches in recreational or semiprofessional fisheries are scarce and fragmentary. This is caused by a lack of legislation, reporting requirements, control and enforcement.

5.3.2 Monitoring level

Monitoring targets specified in the regulation (bycatch estimates with a CV of less than 0.3) appear over ambitious, due to the low level of bycatch events observed. Achieving a cv of 0.3 requires a high sampling coverage which is expensive and according to ICES is not realistic in a situation where incidental catches are sporadic (i.e. bycatch events are rare meaning a large proportion of hauls need to be observed relative to the total number of hauls carried out in the fishery to have any reasonable chance of observing such events). Achieving a CV of 0.3 from monitoring of a fishery where there has been no bycatch event is clearly unattainable.

Member States who opted to observe the required fisheries at a level of 5% of fishing effort using pilot monitoring schemes also reported difficulties in complying fully with this provision. In some cases Member States had to monitor a large number of vessels to meet the 5% target or observe multiple fisheries in which their vessels were involved. This generally resulted in some fisheries being observed at or above the 5% level while others observed at levels well below 5% or not at all.

There has been insufficient sampling in the right fisheries or areas to enabling sound management decisions to be made with respect to cetacean bycatch.

In recent years remote or recorded observations have become much more feasible due to the improvement of digital cameras and data recording systems. CCTV cameras could provide higher fleet coverage (and will possibly reduce costs).

5.3.3 Monitoring practicality

Commercial vessels are private spaces and there is no regulation to enforce observations on board. So vessels can refuse to take onboard observer/REM.

Some Member States report difficulties accessing vessels due to a lack of notification to observers of vessel movements from producer organisations or individual fishermen; misunderstanding of the role of observers leading to lack of cooperation from fishermen.

The lack of space and safety requirements prevents observers going to sea on the smaller vessels.

Remote electronic monitoring (REM) has been developed and is a cost effective way of monitoring bycatch and could also be used on smaller vessels. Furthermore REM can deal with 'combined applications' better than observers, i.e., multiple species have the potential to be monitored.

5.3.4 Monitoring cost

Some Member States pointed out that the level of observations carried out to date can no longer be supported financially in the future, particularly considering the current economic conditions. Many Member States have concluded that it is not cost effective to have dedicated observer programmes solely for this Regulation and have therefore used other observer programmes.

Development of remote electronic video recording seems likely to be a cost-effective way of assessing bycatch in the future.

5.3.5 Monitoring combined with other observer programmes (e.g. DCF)

There is no cetacean bycatch data requirement in the DCF. Cetaceans are not included in the list of species concerned with the DCF.

Several member states either do not currently have bycatch monitoring schemes at all (i.e. are ignoring the regulation), or include protected species bycatch monitoring under other monitoring activities (fish discard (DCF) or biology schemes), which may compromise its efficiency. However, there is no obligation to record the bycatch of marine mammals, seabirds or reptiles in the current DCF. Some MS, using the DCF as monitoring tool for cetacean bycatch, have not appended a marine mammal observer scheme to the DCF protocol.

There are gaps in the bycatch data for marine mammals, seabirds, reptiles, and of species indicative of benthic habitats, because there is no obligation in the current DCF to record this information. The current DCF is not designed to and does not fulfill the requirements of Regulation (EC) 812/2004 in its present shape. There is also currently a gap in information on the spatial distribution of fishing activities by vessels under 12 m (in some regions, for example the Mediterranean, VMS data from fishing vessels of less than 15 m in length are not available).

One of the main issues in using the DCF as monitoring tool is conflicting priorities in allocation of métiers, as the DCF programme's main purpose has been to monitor the discards of fish and net fisheries have had in all countries low national priority under the DCF because they do not generate much discard. However they are the gears most associated with the bycatch of harbor porpoises. This explains in part why gillnet fisheries have been so poorly covered by MS only monitoring marine mammal bycatch through DCF programmes.

Another issue is the lack of manpower (single observers) makes sampling difficult when observers are required to combine sampling of discards with monitoring cetacean bycatch. The many different tasks that DCF observers have to perform have very different aims as well as different practical locations - discards,

biological sampling (sometimes under deck), and bycatch monitoring incl. monitoring of bycatch falling out of the net. Even when MS have appended a marine mammal observer scheme to the DCF protocol, protocols are not always clearly prioritizing the tasks, which raises concerns regarding data consistency and validation, with e.g. the problem in differentiating between '0' bycatch and 'not recorded'.

5.4 MITIGATING

5.4.1 Targeted fisheries

Mitigation measures are limited to vessels of 12 m or over. Therefore only a very small minority of EU gillnet vessels are affected by the regulation, as most gillnetters in European waters are small vessels under 12m in length, and fishing in national waters (inside 12nm), where the authority for fishery management rests mainly with member states and not at a European level. Also current trend is an increase of the number of smaller vessels at sea.

The Regulation makes no mention of mitigation measures for trawls. While some bycatches of cetaceans in trawls have been reported in the past (Couperus 1997, Sweden in ASCOBANS 2004¹⁴), cetaceans bycatch in bottom trawls are rarely reported anywhere, porpoise bycatches in pelagic trawls is also relatively rare, delphinids appearing the most vulnerable, with white-sided and common dolphins being taken in the Dutch pelagic fishery operating off the west coast of Ireland. However, there are two exceptional fisheries, the pelagic pair trawl fisheries for bass and for albacore tuna in the Atlantic, both of which have been reported to have more or less regular high bycatch rates in some years. These appear more sporadic in the tuna fishery, but more consistent in the bass fishery. The VHVO bottom trawls have also been reported to have bycatch of dolphins in Spain.

[Trials of various acoustic deterrent devices have been made by Ireland, France, the UK and Italy. For the UK bass pair trawl fishery most operations use acoustic deterrent devices on a voluntary basis and the recent mitigation measures have led to a substantial reduction in the bycatch rate in the UK bass fishery.](#)

5.4.2 Mitigation device - ADDs

There has been a general reluctance by fishermen to use the devices currently available due to practical and economic reasons that have been well documented. Reports from field trials have documented a number of operational problems associated with pinger breakages and interference with fishing operations, as well as issues concerning crew safety. This includes situations where fishers have fitted pingers with no guarantee of working over a period of time, and no simple method for testing pingers onboard.

The annual cost of deploying ADDs static net fisheries (gillnets, entangling nets and trammel nets) remains an issue.

¹⁴ ASCOBANS. 2004. Annual national reports submitted to the Secretariat as of 27 April 2004 (Belgium, Germany, Sweden, UK). Document AC11/Doc. 30(S) presented at the 11th Advisory Committee meeting to ASCOBANS, Jastrzebia Góra, Poland, 27 – 29 April, 2004.

Work has been conducted by MS to improve the reliability, effectiveness and practical handling of the current ADD devices in cooperation with several manufacturers. Safety hazards with the use of ADDs that have also been considered have been largely overcome through improved design, better quality control at supplier level and also through changes to operational practice.

Several member states have been trialing alternative approaches involving louder devices (UK, France) and wider spacings (Denmark, Ireland, France) than those stipulated in Annex II. The increased reliability and longevity of ADD devices, as well the doubling of the spacing, has reduced their cost, as would also an increase of the market from a generalization of the use of ADD devices.

There has been reluctance towards ADDs from NGOs due to possible habitat exclusion and habituation environmental noise effects.

No scientific evidence of these effects has been demonstrated. So far it remains reasonable to assume that as ADDs are effective at reducing incidental catches of harbour porpoises, this outweighs any potential collateral effects.

5.4.3 Specification of ADDs

The original Annex 2 which determines the technical characteristics of mitigation systems has been criticized because such specifications don't stimulate research and development towards more efficient and/or more cost efficient devices. Further development work was needed to be encouraged to improve pinger durability, ease of use, and reliability.

The Regulation provided however the possibility of testing new types of ADDs under derogation (Art. 2(3)). Some have provided good mitigation results and have become commercially available and their use has been generalised in some MS under derogation.

In 2014, Regulation (EU) no 597/2014¹⁵ amended Regulation 812/2004 and empowered the Commission to amend Annex II by means of delegated acts adopted in accordance with Article 8a, in order to adapt that Annex to technical and scientific progress. This has allowed for example the UK and France to request derogations for the DDD-03L devices which do not meet the specifications of the original Annex II.

5.4.4 Enforcement

The Regulation did not include definition of enforcement measures or an adequate monitoring programme to ensure continuity of pinger coverage on set nets. There was no requirement for Member States for inspection of use or reliability. The masters of the vessels should simply ensure that the ADDs were fully operational when *setting the gear*.

The provisions of the Regulation were practically unenforceable given the difficulties in testing whether devices were operational or whether fishermen had actually deployed them on gear.

Monitoring devices permitting to detect at sea if ADDs have been deployed and function correctly have now been developed, rendering now control and enforcement possible.

¹⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0597&from=EN>

6. RECOMMENDATION FOR EFFECTIVE MONITORING AND MITIGATION OF CETACEAN BYCATCH

The different fora and scientists listed under point 4., who have reviewed the effectiveness of Regulation 812/2004, have also provided recommendations for the amendment of the regulation. These are listed below, first the more general recommendations then the more specific ones under the three same headings as under point 5., *Reporting, Monitoring and Mitigating*.

6.1 GENERAL RECOMMENDATIONS

New technical measures should take into account that cetacean distribution and interactions with fisheries are not constant through time. Improvement of monitoring interactions between cetaceans and fisheries in parallel with any regulative measures is necessary to insure a better understanding of those shifts and support the enhancement of sound management tools.

A more flexible approach, rather than *ad hoc* reallocation of effort towards areas outside the current scope of the regulation, should be implemented to ensure member states can react to shifts in distribution, such as those describe in the North Sea.

Vessel lengths for different requirements have varied between 10m, 12m and 15m. This has not been particularly helpful for the overall understanding, implementation and enforcement of the regulations. Some standardization would be helpful.

To avoid gears that are likely to have an impact on cetaceans falling outside the scope of the regulations, clear definitions encompassing all static nets, pelagic or semi-pelagic trawl types, and gears with very high vertical opening should be included. The Commission should refer to the FAO Gear Classification (Nédélec and Prado, 1990¹⁶) for guidance.

In future regulations, there should be incentives, as it exists in other data collection regulations. Positive and negative incentives should be explored to ensure that observers/monitoring are not prevented from sampling representative parts of fleet activities. Likely penalties should be clearly defined for MS and vessels not correctly implementing regulations.

A more general approach whereby Member States would be required to demonstrate their fisheries were not exceeding some agreed level of cetacean bycatch would be more appropriate without overburdening Member States with excessive monitoring requirements. Under this more pragmatic approach, based on the principle of sufficient sampling, monitoring schemes should be designed to provide confidence that bycatch rates are lower than some predefined bycatch reference limit. Such an approach would enable Member States to focus monitoring as and when most needed.

¹⁶ <http://www.fao.org/docrep/008/t0367t/t0367t00.htm>

Demonstrating low impact (results based monitoring) with a high degree of certainty would be the onus of member states and/or Industry. Lower certainty should be translated into more precautionary management measures.

More generally, monitoring programmes and mitigation measures should be directed at fleets believed to have the greatest impact on cetacean populations, either incidental catches of cetaceans are known to be high and/or there is a high level of fishing effort, without regards of vessel size. Member States, ICES and other bodies should collaborate to maintain an up to date list of such fisheries.

There needs to be stronger linkage among Member States activities between addressing obligations under the Habitats Directive and actions undertaken in fulfilment of Regulation 812/2004. A greater flexibility and co-ordination is required in allocating monitoring effort. Monitoring schemes should be made more efficient i.e. through cross-regulation monitoring and by aggregating national datasets.

In order to assess the total bycatch of small cetaceans and the effectiveness of bycatch mitigation measures over time, monitoring programmes or scientific studies are needed in the fisheries where mitigation measures are applied.

Given the wide-ranging nature of cetaceans, technical measures for recreational activities with an impact on internationally protected species should be coordinated in an international framework, instead of being dealt with on a national or even local basis.

Fishers (and other stakeholders) should be allowed to participate fully and from the start in the development of the revision.

6.2 REPORTING

All the national reports should be made public and put on a dedicated website to be made easily available to ASCOBANS and other end-users.

Full details of the design and implementation of the monitoring schemes should be included in annexes of national annual reports.

Annual reports using a standard format for collection of effort and bycatch data advised by EC and ICES should be asked by the regulation.

Reporting by Member States should be at a fleet segmentation level that follows the classification set out in the DCF and also with a monthly resolution.

For all fleet segments at risk and concerned with mitigation or observation, the fishing effort should deally be reported as days at sea AND as total net meter per fishing hours for passive gear ("Total soak time") and numbers of fishing hours for towed gear. It must be underlined that the any bycatch risk assessment requires a common standard unit of fishing effort.

Days at sea have to be provided in decimals days as several different gears may be hauled during the same days; and shooting may occur during the same day than hauling.

Areas with different ecotypes should not be aggregated. E.g., VIIe and VIId should not be aggregated with the remains of area VII.

Reporting should be done by precise gear type, in order to get a clearer understanding of the precise impact different gear types have on protected species.

Member States should indicate infringements in relation to national fishing vessels as well as other member states fishing vessels. Thereby, all infringement cases would be reported to the Commission.

There is a specific difficulty in assessing bycatch based on daily effort related with the dynamic nature of polyvalent fisheries. The approach to separate gear types and improve bycatch estimates could be using landings of target fish species. Also, in order to obtain better information, cooperative skippers could provide daily gear specific effort records as a reference against which the rest of the fleet can be compared.

6.3 MONITORING

6.3.1 Monitoring target

For sectors of the fleet that potentially contribute high levels of cetacean incidental bycatch, monitoring should be prioritized and the monitoring scheme should be improved to get enough samples and reliable data to establish its impact. [For the ASCOBANS Area], extension of the monitoring schemes is recommended for the Bay of Biscay (PTM bass trawling, set-nets).

In order to obtain a reliable picture of bycatch, monitoring programmes should include all set net fisheries, and include vessels <15m in areas with bycatch risk. These should cover commercial full- and part-time fisheries and recreational fisheries. Monitoring of bycatch can be conducted using electronic monitoring (REM) and/or observers aboard. It should be mandatory to have a monitoring scheme in place in fisheries with demonstrated risk of bycatch. Incentives should be provided for vessels that accept observers or REM.

For small vessels (<15m) studies to estimate bycatch should not be based on interviews with fishermen which is known not to be a reliable method. REM study used in a representative part of the fleet under contract is one method that could be applied to all vessels.

Experience has shown that bycatch rates can change, and low level monitoring of the fisheries having experienced significant bycatch rate should continue, perhaps in combination with other studies. This is especially given the uncertainty in possible bycatch levels in gillnet and other fisheries and the combined effect of the different impacts.

6.3.2 Monitoring level

It has been recommended that improved design of monitoring schemes might be based on target coverage (e.g. a required coverage rate) of fishing effort. Such targets could be defined by ICES and/or STECF.

Observers should rather be spread over the entire fleet in a (quasi)random way, which will lead to less precision in the short term but with greater accuracy in the longer term.

The more flexible approach recommended to move away from this and let MS determine where and how to sample to establish whether there is/is not a bycatch problem.

6.3.3 Enforcement

It might help to ensure an independent and logistically easier monitoring if all parts of the “European” fleet were monitored by a collective of national monitoring.

A certification scheme for observers would help to ensure that observations were compatible between European Member States and reassure Member States of the independence of observers.

6.3.4 Monitoring combined with other monitoring schemes

The Regulation should ask for the systematic inclusion of protected species in the reference list of species to be monitored under all monitoring schemes managed by Member States. This would be in addition to current requirements under the Habitats Directive.

If bycatch monitoring is done under the DCF, ICES WKBYC 2013 emphasizes the need for strict protocols and priorities for the observers (limiting the tasks), for proper training and for an adequate sampling manual and review of problems and solutions.

Data collection under the Habitats Directive and also the linkage with the Regulation needs to be clarified so the utility of the data collected is maximised and there is not duplication of effort.

6.4 MITIGATION

6.4.1 Mitigation measures

New regulation should not prescribe which measures to take but instead sets targets that need to be met in each area, thus allowing fishers to find the most suitable solutions for their specific situations.

The requirement of a ‘hard’ target for bycatch reduction (e.g. total allowable bycatch) is critical (i.e. not just reduction per se, but reduction below a defined threshold) for determining how pingers should be employed and how they should be integrated with other management approaches. Without a quantitative goal, it is impossible to assess efficacy. Setting a target for bycatch reduction also has a strong scientific benefit, as it facilitates using power analyses to design experiments that can detect meaningful effects with appropriate statistical power (Dawson et al. 2013).

The new regulation should call for financial resources to be made available for the improvement of pingers, and research into alternative mitigation measures and alternative gear types.

In some areas, effects of cetacean acoustic mitigation system on seals have to be clearly considered.

6.4.2 Targeted fisheries

To obtain a greater reduction of bycatch, a more flexible approach is required in the list of fisheries having to use acoustic mitigation. This approach should take into account the likely bycatch rate using a procedure such as the Bycatch Risk Approach suggested recently by ICES (ICES WGBYC 2014). According to that approach the fisheries in which bycatch rate are in excess of specific bycatch rate limits mitigation measures should be proposed. Such approach requires getting access to the data on fishing effort for all the countries fishing in the areas of risk.

Mitigation measures should not be defined as a function of vessel size. More precise indicators such as area, season, mesh size, or net type should be used. Fishing depth might also be a factor to consider. Net height and twine diameter have been proposed by Northridge et al (2011) as being potentially interesting in terms of developing bycatch mitigation measures.

When a fishery is identified for a mitigation necessity, the mitigation should concern all the vessels concerned by the high risk of bycatch.

6.4.3 Mitigation devices

The regulation should include an adequate monitoring and support system to ensure that mitigation devices like pingers are maintained adequately and that their efficacy is checked. It should require that ADDs are fully operational during fishing operation as a whole, not only when setting the gear.

Technical specifications of mitigation methods/ADD should not be specified by regulation but a performance standard should be set. For an ADD to become acceptable, it should have a proven ability to reduce bycatch of the relevant species in the setting of a commercial fishery. This would allow taking into account technical advancements and new findings.

ADDs would be only be considered acceptable where results of experiments have shown that the devices significantly reduce (>80%) bycatch of a cetacean species with a high level of confidence (>95%), and only if the experiment had been conducted with a rigorous design. The latter should be understood as

- The experiment should be conducted in such a way that parties with a vested interest in the results cannot influence the outcome.
- The experiment should include at least one control group and one treatment group.
- The experiment should be covered 100% by independent on-board observations.
- Bycatch rates should be based on statistically independent bycatch events.

The new 'Annex 2' should recommend only a list of devices having an efficiency demonstrated by scientific studies and the list of such devices should be updated periodically by the scientific bodies.

Randomization in the signal emission should be mandatory for ADDs as it is a way to limit potential habituation of cetaceans.

The experiences with implementing Regulation 812/2004 suggest a need for a midway approach in scale between small trials which had shown a promising technology and implementation at a European wide level.

6.4.4 Alternative mitigation methods

Noting the successful application of cod pots in Sweden, the new regulation should encourage MS in undertaking or continuing efforts to test and implement pots, traps and other porpoise-friendly gear.

The introduction of alternative gear should be favoured over set nets wherever practicable and after a study of the impact on the ecosystem. Such trials and gear exchange needed to have socio-economic benefits to be attractive for the fishers.

It might also be important to create incentives such as eco-labelling, for changes in fishing methods. These might for example allow higher quotas for responsible fisheries or allow fishing to take place in MPAs on condition that environmentally friendly gear was used. Attending workshops on environmental issues could be linked to the renewal of fishing licenses.

6.4.5 Enforcement

Small cetacean bycatch mitigation should be efficiently enforced in the fisheries that have the highest impact on populations.

Enforcement measures should be clearly defined.

7. RECOMMENDATIONS FOR OBTAINING GENERALLY RELIABLE DATA ON [ANY] BYCATCH UNDER THE FUTURE DC-MAP

7.1 ICES WKDCF-NF

The ICES Workshop on Data Collection - Assessments of non-fishery impacts (WKDCF-NF, ICES 2013e) concludes that in the current DCF, there is no obligation to record the bycatch of marine mammals, seabirds or reptiles. WKDCF-NF underlines that the current DCF does not presently fulfill the requirements of agreed and prioritised RSC indicators on the number of drowned mammals and water birds in fishing gears (HELCOM) and the numbers of individual mammals within species being bycaught in relation to population (agreed as OSPAR indicator in the North Sea).

ICES WKDCF-NF assisted in the identification of new data to be collected in support of the implementation of the Common Fisheries Policy (CFP) and the Marine Strategy Framework Directive (MSFD). The WS noted that fishing pressure continues to have a considerable impact on marine ecosystems and many problems remain despite efforts to improve management. It provides an overview of how the current Data Collection Framework (DCF) might contribute to the data collection for non-commercial fisheries issues.

WKDCF-NF provides a set of recommendations regarding the new DCF. The ones relevant to bycatch of cetaceans are listed below.

Recommendation: The detailed design of catch and by-catch observation schemes needs to integrate the needs for data both for fish stock assessment and for ecosystem purposes.

This included the assessment of the sampling intensity (% of fishing vessels/days at sea monitored) to properly monitor the by-catch incidence. Moreover a prioritization scheme according to available information should be needed in order to ensure at least the most impacting métiers would be monitored according to a robust sampling approach

Recommendation: To use CCTV cameras on board of smaller vessels the following should be taken into account:

- Vessel with gears that cause most by-catch have priority (see session 3);
- If possible, fishermen should be selected randomly (fishing federations may act as mediator);
- Cameras should be focused on the nets to guarantee the privacy of the fishermen;
- Relevant parameters should be collected, such as technical features of the fishing gear, location, frequency of the fishing activities, etc;

- Dead animals should be taken aboard for research and to avoid double catch and counting;
- If possible, fishermen should be paid for their participation in the project and their activities should regular (random) be inspected.

Recommendation: Current obligation of reporting commercial catches from fishing vessels could be extended including a selected number of by-catch species. The association of position (from integration of electronic logbook to GPS) could provide spatial details on the area where species were caught. The technical feasibility of such approach might be experimentally tested on portions of the fleets.

Recommendation: For the fisheries dependent data, catch data, including by-catch and discards, should be collected for all species listed under the Habitats and Birds Directives, and also listed under the Regional Seas conventions.

Recommendation: The revised DCF include by-catch assessment for sensitive species listed in the HD and Birds Directive as well as species listed as declining/threatened/endangered in the Regional Sea conventions for the most impacting fishing gear and revise sampling stratification in order to fulfil the requirement for sound statistical estimated of by-catch rates.

7.2 NGOS

NGOs (Anon. 2014) underline the importance of data quality to allowed final assessments on the effect of fisheries on ecosystems “Moreover, to ensure the quality and usability of data, there is an urgent need for accessible and transparent data collection as well as data usability and harmonisation in format, sampling plan and databases, and increased regional level cooperation. Regional cooperation also accords with the need for coordination with other databases, notably those of the regional seas conventions.”

In their summary of key revisions that should be sought in the new DC MAP, they include the following recommendations.

- Non-compliance of Member States with data collection should be robustly dealt with to ensure data provision and quality
- Data collection must be accessible, transparent and harmonised, not least to deliver greater regional level cooperation
- Support should increase for access of scientific observers to fishing vessels to enhance data collection on unwanted catches, overall catches, fish metrics, etc.
- To better inform the impact of fisheries on ecosystems, data collection synergies must be developed with delivering Good Environmental Status under the Marine Strategy Framework Directive

7.3 EUROPEAN COMMISSION – STECF

The Scientific, Technical and Economic Committee for Fisheries STECF-13-12 (European Commission 2013) notes that in order to fulfill the provisions of Article 37 of the CFP and align the DC-MAP with obligations under other existing EU legislative instruments, provisions for monitoring and reporting by-catch of non-fisheries by MS will thus be required in the DC-MAP.

The provision of monitoring ‘the impact that fishing activities have on the marine ecosystem’ listed in Article 37 of the CFP Political Agreement in principle covers all by-catch species. EWG 13-05 considers that the DC-MAP should primarily aim to fulfill end-user needs.

Two different approaches may be taken with regards to MS obligations on monitoring and reporting by-catch of protected non-fisheries species. Which option is selected should be based on a careful consideration of the financial resources required for implementation, and whether such information is in fact a necessary pre-requisite for the commencement of projects on designing effective by-catch mitigation measures.

- Option I: The DC-MAP could include provisions for MS to sample by-catches of certain conspicuous and sensitive non-fisheries species, for which there are end user needs, in existing sampling programmes which make use of observers at sea.
- Option II: The DC-MAP could include provisions for MS to sample by-catches of certain conspicuous and sensitive non-fisheries species, for which there are end user needs, based on dedicated sampling

The following variables shall be monitored

- i) Number of individuals caught, by species including zero observations and also indications on animals lost during hauling the gear or released alive
- ii) Date and geographic location (following the geographic stratification as listed in Appendix I, EC 93/2010)
- iii) The type of fishery/gear characteristics
- iv) Any mitigation device used

STECF-14-02 (European Commission 2014b) suggest that all marine mammals, seabirds and reptiles caught as incidental by-catch are recorded by default since the majority of these species are listed in existing instruments. In order to facilitate the process of monitoring incidental by-catch, updated lists of species relevant at a regional level should be compiled.

Suitable methods of recording incidental by-catch are the use of on-board observers, self-sampling systems or by remote electronic monitoring (REM). The exact method of monitoring should be established at a fishery / national / regional level. It should taking into account the potential impact of direct by-catch mortality rates on species groups in order to prioritise fishing gears to be monitored

The monitoring incidental bycatches may be carried out to (1) indicate fisheries, areas and seasons with a high incidental bycatch which may not be sustainable for the species involved (following the so called Bycatch Risk Approach (BRA), (e.g. ICES 2010) or (2) to estimate the number of specimens taken in a certain area. In both cases for a fishing event, it is essential to identify the species and the number of specimens. The monitoring may also be conducted with the aim of supporting evaluation of mitigation measures.

STECF-14-02 and STECF-14-07 (European Commission 2014bc) gives the table for data collection, describing the headers for the data required for the monitoring of protected, endangered or threatened species and describe (See at the end of the report).

STECF-14-07 underlines that the data to be collected may vary between regions pending on end-users need and the data to be included in the work plans may deviate from the data listed in the table according to the needs of end-users.

8. CONCLUSION

“Improved communication and coordination between those administrations responsible for the implementation of the EU Habitats Directive, the MSFD and fisheries legislation within Member States and/or the European Commission would be beneficial. The monitoring of bycatch, probably the most important anthropogenic threat to small cetaceans, is likely to be increasingly integrated into EU fisheries legislation whilst at the same time initiatives for monitoring bycatch through, for example, the Habitats Directive and MSFD continue to be developed (e.g. ASCOBANS 2014b). Coordinating these various strands will help develop a coherent approach to the monitoring of bycatch whilst ensuring the most effective use of available resources” (ASCOBANS 2014c).

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ANNEX 1. Data requirements proposed by STECF-14-02 and STECF-14-07 (European Commission 2014bc) for the monitoring of protected, endangered or threatened (PETS) species - Table 4.1

Table 4.1. Data required for the monitoring of protected, endangered or threatened (PETS) species

Description of the headers - Practical issues which should be taken in account

Vessel ID/Date/time/haul ID/% fishery operation sampled

While incidental by-catch and discards may be technically the same, the sampling approach is very different. Discards, consists by definition of large volume bulk of small specimens, comparable to the target catch. This part of the catch can be sampled by taking a small subsample (basket). For incidental by-catch this is not possible: it needs to be recorded at the haul level. This means inspection of the opening of the codend; or a scan of the catch during handling. As hauls are concurrently sampled for discards and retained catch, it is important that the sampling protocols contain a checkbox whether the haul was actually checked for incidental by-catches and – in case of a scan during hauling – an indicator of the percentage coverage. This enables the output of hauls or sets with zero by-catches.

Geographical position

In general this should be expressed in latitude/longitude (degrees and minutes). If the exact location is not known or available, the approximate location should be fit to the geographical area/grid in use by ICES, GCFM, et al. (rectangle, subdivision, division, geographical subarea).

Gear

With reference to EU Reg. 850/98 and its amendments.

Mesh size

The mesh size of gill- and trammel nets is of interest as it influences the likeliness of entanglement.

Species

If it is not possible to identify the level of identification to species, it should be recorded on a higher taxonomic level (group of species, genus -, family – or order level). This is in particular important for the recording of seabirds which includes a large number of possible species for a lot of areas. Protocols should include a list of rare species that should be recorded during trips. These species should have a code in the institute database and code lists should be available to the person who enters the data in the database. It has been recognized that most countries do not have codes for a lot of protected, endangered and threatened species, which causes data not to be stored in national databases (ICES 2012a, ICES 2013). Species lists and entry codes are provided by the AFIS List of Species for Fisheries Statistics Purposes <http://www.fao.org/fishery/collection/asfis/en>.

Number of specimens

Number of specimens by species.

Indicator of decomposition, dead or alive

Rare species are often considered to have been dead prior to the time they were by-caught. This seems to happen often in sampling on board beam trawlers where observers assume that it is impossible to catch a large, fast swimming animal, like a harbour porpoise, because of the low vertical opening of the trawl. Reference with stages as a reference to be added. Training needs to be provided.

Mitigation type

Sampling should contain information on any mitigation measures applied. Currently so called Acoustic Deterrent Devices are obligatory in some fisheries under EU Reg. 812/2004. Brand, type and indicators of adequate use should be collected as well. Other mitigation measures (i.e. for turtles, bird) may become in use in the future.

vessel ID	gear	mesh size	date	time	haul ID	% fishery operation sampled	geographical position	species	no of specimens	indicator of decomposition	mitigation type
<p>(a) In general this should be expressed in latitude/longitude (degrees and minutes). If the exact location is not known or available, the approximate location should be fit to the geographical area/grit in use by ICES, GCFM, et al (rectangle, subdivision, division, geographical subarea).</p>											
<p>(b) a table with identified stages will be available</p>											
<p>Mitigation - pinger</p>											
<p>(c) In order to be able to provide "zero-by-catches", it needs to be clear if the catch have been scanned on haul-level: e.g. check when the codend is opened or scan for incidental by-catch during hauling of set nets.</p>											
<p>Mitigation type (if Acoustic Deterrent Device)</p>											
brand	type	check box battery	distance to nearest pinger								
<p>Mitigation - TED</p>											
....										
<p>Mitigation - Circle hooks</p>											
brand	type	size									
<p>Mitigation -</p>											
.....									