

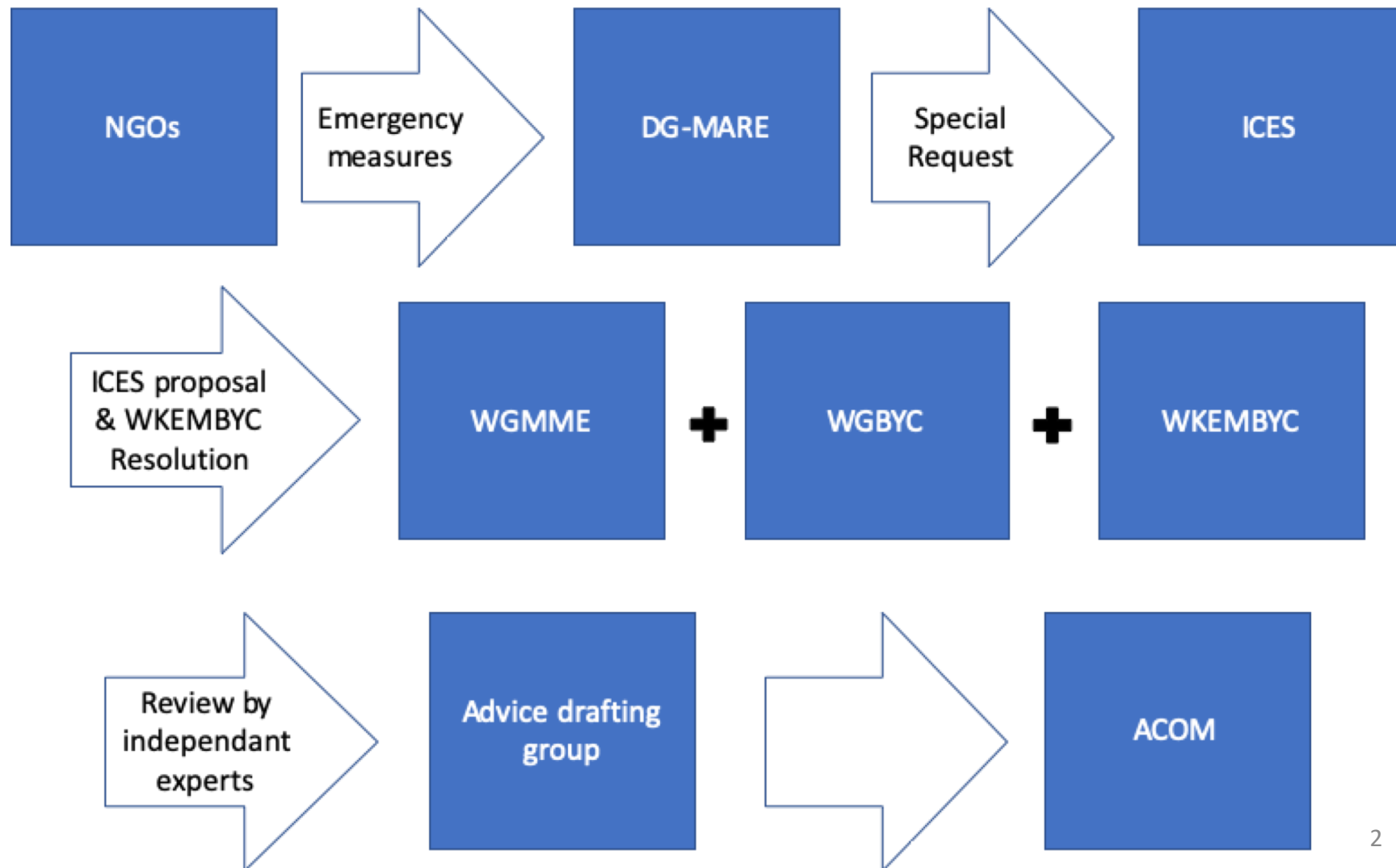
ICES Special Request Advice regarding the emergency measures to prevent bycatch of common dolphin and harbour porpoise

WKEMBYC

working group on emergency measures to reduce bycatch

Common dolphins in the Bay of Biscay

The ICES workflow to deal with the request for emergency measures



WKEMBYC Terms of Reference

- ToR a) : assess, and if applicable, propose alternative appropriate emergency measures that could be used to ensure a satisfactory conservation status of common dolphin populations;
- ToR b) : suggest emergency measures that are necessary to ensure a satisfactory conservation status of common dolphin populations;
- Central to this process are the emergency measures proposed by a consortium of European NGOs.

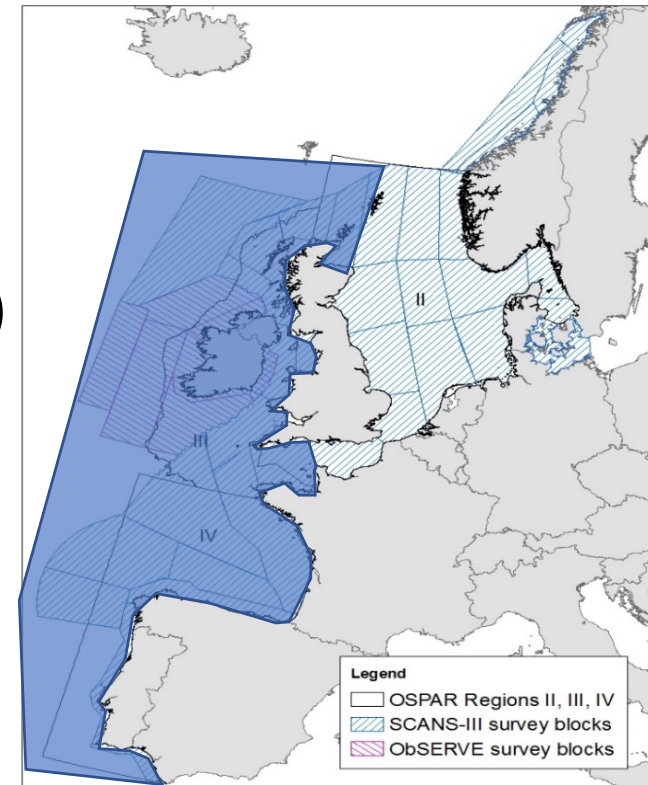
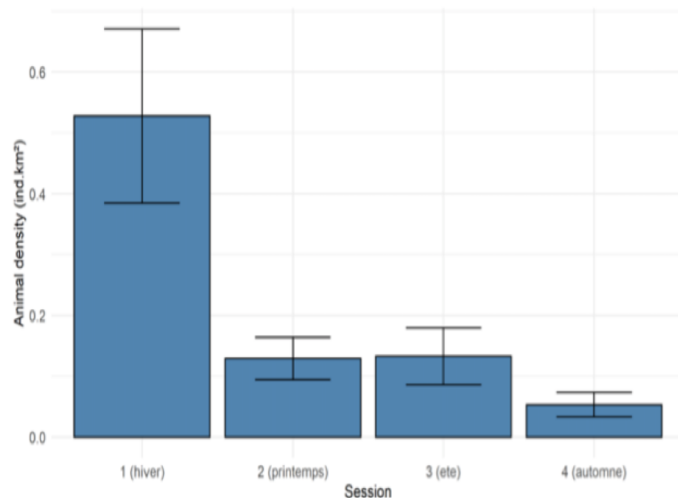
Review of existing EU regulations

Conservation objectives as from EU legislation

- Common Fishery Policy and Technical Measures refer to **minimising impact** of fishery or by-catch on cetaceans;
- MSFD and HD refer to ensuring bycatch **does not have significant negative** effect on long-term viability of populations;
- Art 12 of HD could require strict protection from killing protected species and bycatch but difficult to reconcile with the ToRs for WKEMBYC.

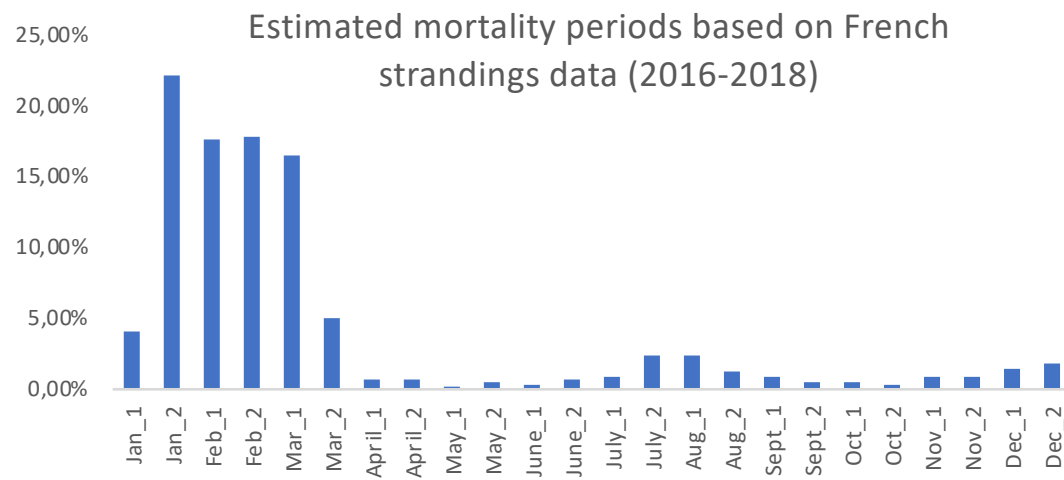
Background information from WGMME

- Single management unit, approximated by SCANS-III and ObSERVE survey areas west of British Isles and Biscay-Iberian coasts;
- Most recent abundance estimate (SCANS-III, summer 2016): $N = 634,286$ ind. ($CV = 0.307$)
- Dynamic short-term movements within MU

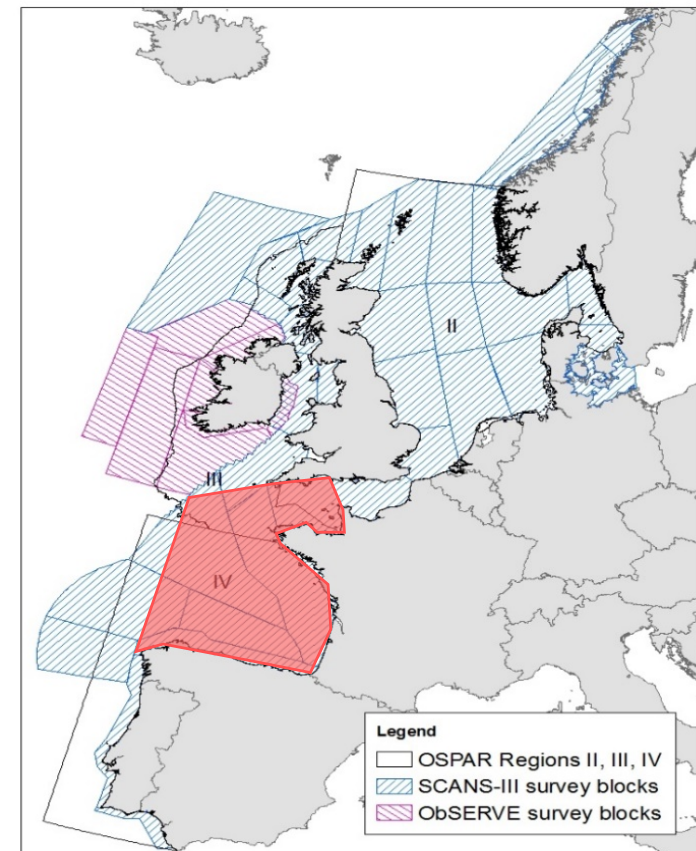


Background information from WGBYC

- Bycatch mortality temporal pattern

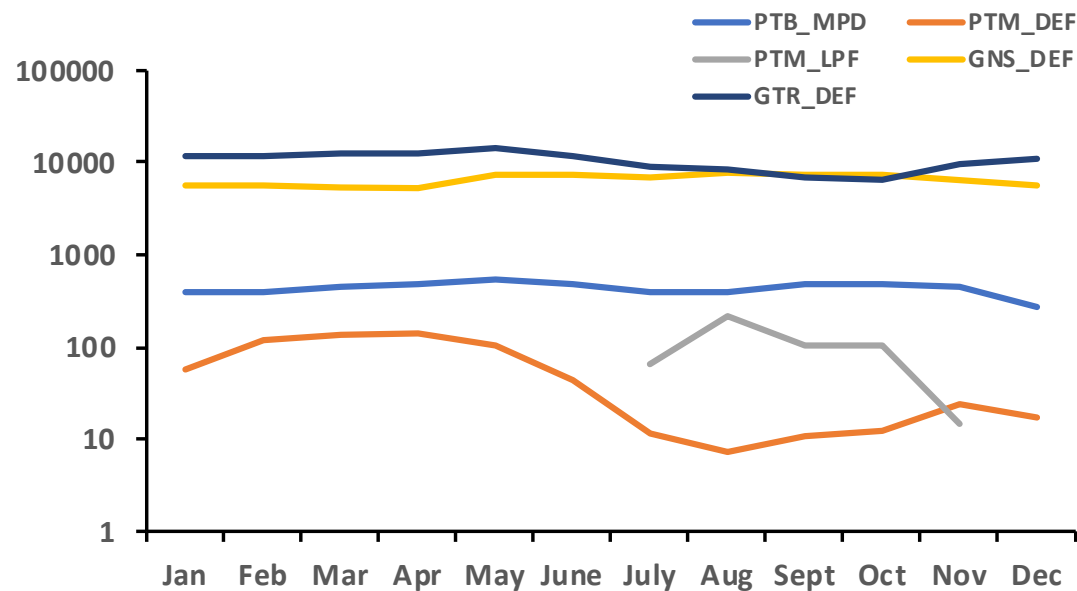


- Stranding data allow bycatch estimates from reverse carcass drift modelling

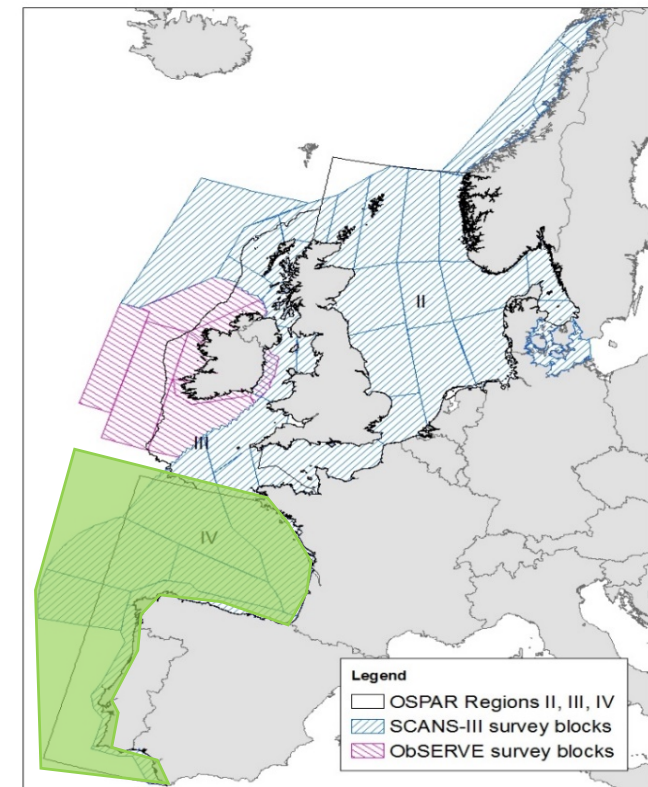


Background information from WGBYC

- Fisheries temporal pattern




- Observer data allow bycatch estimates from fishing effort and bycatch rate data



Bycatch estimates

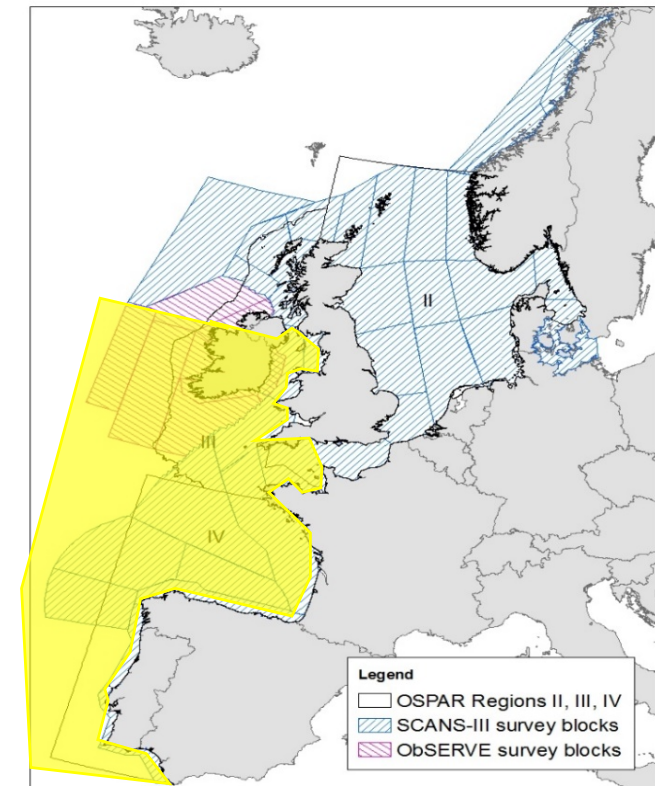
- 3 199 common dolphin bycatches (95%CI [1557; 5413]) from at-sea monitoring (mean 2016-2018)
- 6 620 common dolphin bycatches (95%CI [4 411; 10 827]) from stranding data (mean 2016-2018)

Ecoregion	Metier 4	Metier 5	RDB Fishing Effort (DaS)	At sea Monitoring estimate	Stranding estimate
Bay of Biscay & Iberian Coast	PTM	DEF	682	430	890
	PTB	MPD	5195	775	1605
	GTR	DEF	58365	1379	2856
	OTM	DEF	243	297	614
	PS	SPF	35564	207	428
	GNS	DEF	36839	106	219
	PTM	LPF	510	4	8
TOTAL				3199	6620

x 2.07


NGOs' request

- Closure of responsible fisheries (*ad minima* PTM and GNS) from Dec-Mar, NE Atlantic;
- Monitoring and dynamic closure;
- Technical measures (daylight fishing, move-on procedure);
- Enhanced monitoring.



WKEMBYC view regarding NGOs' request

- Closure of responsible fisheries (ad minima PTM and GNS) from Dec-Mar, NE Atlantic;
- Monitoring and dynamic closure
- Technical measures (daylight fishing; move-on procedure)
- Enhanced monitoring
- Responsible fisheries = PTM, PTB, OTM, OTB, OTT, GNS, GTR and PS ; should reduce bycatch significantly but other scenarios to be explored.
- Feasibility questioned
- Not enough data to evaluate suitability
- Enhanced monitoring (observer or EM) needed in particular for smaller vessels

Exploration of scenarios using PBR


Exploration of other scenarios based on various combinations of spatiotemporal closures and pingers deployment.

- Two Management objectives were used
 - 1: Reduce bycatch to 50% of PBR (approximates the '**long term viability**' conservation objective)
 - 2: Reduce bycatch to 10% of PBR (approximates the '**minimizing bycatch**' conservation objective)
- PBR (from US Marine Mammal Protection Act) ensures population above 50% of carrying capacity (K) 95% of the time;
- Bycatch values from monitoring programmes and from strandings are two views of the same phenomenon and their uncertainty ranges contain true bycatch level

Exploration of scenarios using PBR

- PBR: 4927 common dolphins used as a tool to compare scenarios;
- Management objective I: Reduce bycatch to **50% below PBR: annual bycatch threshold of 2,464 common dolphins;**
- Management objective II: Reduce bycatch to **10% below PBR: annual bycatch threshold of 493 common dolphins;**
- Effect of 15 scenarios tested against PBR thresholds, bycatch reduction rate and measure efficiency (bycatch reduction rate/ effort reduction rate) in this order.

15 scenarios tested



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Scenario	NGO proposed 4 month closure (Dec-Mar) all meters	Annual effort reduction of 40% all meters	2 month closure (mid Jan - mid Mar) all meters	6 week closure (mid Jan - end Feb) all meters	4 week closure (mid Jan - mid Feb) all meters	2 week closure (mid Jan - end Jan) all meters	Pinger PTM / PTB all year & same 6 week closure all other meters	6 week closure (mid Jan - end Feb) all meters and pinger PTM / PTB rest of year	Pinger PTM / PTB all year and same 4 week closure all other meters	Pinger PTM / PTB all year and same 2 week closure all other meters	Pinger PTM / PTB all year	2 month closure all meters + pinger PTB / PTM rest of year	4 month closure all meters + pinger PTM / PTB rest of year	3 month (Jan-Mar) + 1 month (mid-Jul-mid-Aug) closure all meters + pinger PTB / PTM rest of year	3 month (Jan-Mar) + 1 month (mid-Jul-mid-Aug) closure all meters
total resulting bycatch - monitoring mortality	441	1919	833	1357	1928	2488	1268	1026	1624	1972	2412	630	334	299	397
total resulting bycatch - strandings mortality	914	3975	1726	2811	3992	5152	2627	2125	3363	4085	4996	1306	693	619	822
Bycatch reduction obtained	0.86	0.40	0.74	0.58	0.40	0.22	0.60	0.68	0.49	0.38	0.25	0.80	0.90	0.91	0.88
Effort reduction needed	0.3	0.40	0.17	0.12	0.08	0.04	0.11	0.12	0.07	0.04	0.00	0.17	0.3	0.3	0.3
Efficiency Score	2.6	1.0	4.4	5.0	5.2	5.8	5.5	5.7	6.7	10.4	N/A	4.8	2.7	2.7	2.6

% of PBR	<10%	<50%	≥50% and ≤PBR	>PBR
Number bycaught	<493	<2464	2464 - 4927	>4927

Scenarios proposed by WKEMBYC

- Proposed emergency measures to meet annual common dolphin mortality of 50% of the PBR (*i.e.* management objective I)

L : 2 month (mid-Jan. – mid-Mar.) closure all métiers of concern + pinger PTB / PTM rest of year

- Proposed emergency measures to meet annual common dolphin mortality of 10% of the PBR (*i.e.* management objective II)

N : 3 month (Jan–Mar) + 1 month (mid-Jul–mid-Aug) closure all métiers of concern + pinger PTB / PTM rest of year

Scenarios proposed by ADGBYC

On the basis of 4 management objectives (instead of 2 in WKEMBYC)

a) to reduce annual common dolphin mortality to the PBR limit,
(to ensure that the population is at 50% of carrying capacity (K) 95% of the time): **scenarios E, B, J**

b) to reduce annual common dolphin mortality to less than 75% of the PBR, (precautionary approach because of uncertainty): **scenarios G, I, D**

c) to reduce annual common dolphin mortality to less than 50% of PBR, (precautionary approach as in WKEMBYC): **scenarios L, C, H**

d) to reduce the annual common dolphin mortality below 10% of the PBR, (minimise bycatch) : **scenarios M, N, O**

Scenarios not proposed by ADGBYC

Scenario	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Description	NGO proposed 4 month closure (Dec-Mar) all métiers	Annual effort reduction of 40% all métiers	2-month closure (mid-Jan-mid-Mar) all métiers	6-week closure (mid-Jan-end Feb) all métiers	4-week closure (mid-Jan-mid-Feb) all métiers	2-week closure (mid-Jan-end Jan) all métiers	Pinger PTM / PTB all year & same 6-week closure all other métiers	6-week closure (mid-Jan-end Feb) all métiers and pinger PTM / PTB rest of the year	Pinger PTM / PTB all year and same 4-week closure all other métiers	Pinger PTM / PTB all year and same 2-week closure all other métiers	Pinger PTM / PTB all year	2-month closure all métiers + pinger PTB / PTM rest of the year	4-month closure all métiers + pinger PTM / PTB rest of the year	3-month (Jan-Mar) + 1 month (mid-Jul-mid-Aug) closure all métiers + pinger PTB / PTM rest of the year	3-month (Jan-Mar) + 1 month (mid-Jul-mid-Aug) closure all métiers
Total resulting bycatch: monitoring mortality	548	2384	1034	1685	2392	3087	1593	1340	2077	2551	3151	824	437	391	494
Total resulting bycatch: strandings mortality	913	3975	1725	2809	3989	5148	2657	2235	3463	4254	5254	1374	729	651	824
Bycatch reduction obtained	0.86	0.40	0.74	0.58	0.40	0.22	0.60	0.66	0.48	0.36	0.21	0.79	0.89	0.90	0.88
Effort reduction needed	0.3	0.4	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.3	0.3	0.3
Efficiency score	2.6	1.0	4.4	5.0	5.2	5.8	5.4	5.5	6.5	9.7	N/A	4.8	2.7	2.7	2.6

Colour coding used in table above for PBR levels:

% of PBR	< 10% PBR	< 50% PBR	< 75% PBR	< PBR	> PBR
Number of bycaught individuals	< 493	< 2464	< 3695	< 4927	> 4927

THANK YOU

Other recommendations by WKEMBYC

Monitoring measures

- Adequate monitoring through dedicated observers or REM should be implemented in Subareas 8 and 9 ensuring representative coverage of the relevant métiers and vessel sizes; likewise, at-sea check if pingers are adequately deployed and in working order;
- For GNS and GTR, improved reporting of net dimensions (length and height); similarly vertical opening of trawls, in particular HVO and VHVO trawls;
- Encourage the use of REM on fishing vessels to ensure more complete monitoring;

Scenarios proposed by ADGBYC

Tested management objective 1: Reduce bycatch to PBR

The objective is to reduce bycatch to PBR and should ensure that the population is at 50% of carrying capacity (K) 95% of the time. This is one interpretation of "long-term viability" (EU, 2017) of the population.

Tested management objective 2: Reduce bycatch to < 75% of PBR

Given the high levels of uncertainty around the bycatch estimates and the abundance estimate used in the PBR, a "precautionary approach" was taken and the objective of achieving levels of bycatch that are below 75% of the PBR was tested.

Tested management objective 3: Reduce bycatch to < 50% of PBR

This is the "precautionary approach option" taken, using the objective of achieving levels of bycatch that are below 50% of the PBR.

Tested management objective 4: Reduce bycatch to < 10% of PBR

This quantitative objective aims to provide an interpretation of what "minimise and where possible eliminate" might mean in the context of bycatch reduction.

Bycatch temporal pattern

Ecoregion	Metier 4	Metier 5	RDB Fishing Effort (DaS)	At sea Monitoring estimate	Stranding estimate
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Bycatch estimates for each *métier* were allocated to fortnight periods by using the temporal pattern in bycatch mortality obtained from strandings

