

# ICES advice for skates and rays in 6 and 7

Presentation to NWWAC  
Skate and Rays Focus Group  
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# Summary

- Current management
- Broad advice drivers, general considerations
- Aspects of ICES advice
- Advice in 2018, for 2019 and 2020 (Sub-areas 6 and 7)
- Special request France undulate ray
- Conclusions

FAO code	L <sub>max</sub>	Scientific name	English name	Spanish name	French name	Portuguese name	Dutch name	Norwegian name
RJB	≈ 150 cm	<i>D. batis</i> <sup>††</sup>	Blue skate	Noriega	Pocheteau gris	Raia oirega	Vleet	Glattskate
	≈ 230 cm	<i>D. intermedius</i> <sup>††</sup>	Flapper skate	–	–	–	–	–
JAD	≈ 200 cm	<i>D. nidarosiensis</i> <sup>†</sup>	Norwegian skate	Raya noruega	Pocheteau de Norvège	–	Noorse rog	Svartskate
RJO	≈ 150 cm	<i>D. oxyrinchus</i>	Long-nosed skate	Raya picuda	Pocheteau noir	Raia bicuda	Scherpsnuitrog	Spisskate
RJI	≈ 120 cm	<i>L. circularis</i>	Sandy ray	Raya falsa vela	Raie circulaire	Raia-de-São-Pedro	Zandrog	Sandskate
RJF	≈ 120 cm	<i>L. fullonica</i>	Shagreen ray	Raya cardadora	Raie chardon	Raia pregada	Kaardrog	Nebbskate
RJN	72–81 cm	<i>L. naevus</i>	Cuckoo ray	Raya santiguesa	Raie fleurie	Raia-de-dois-olhos	Koekoeksrog	–
RJH	≈ 120 cm	<i>R. brachyura</i>	Blonde ray	Raya boca de rosa	Raie lisse	Raia pontuada	Blonde rog	Prikkskate
RJC	110–130 cm	<i>R. clavata</i> <sup>†</sup>	Thornback ray	Raya de clavos	Raie bouclée	Raia-brocheada	Stekelrog	Piggskate
JFY	≈ 80 cm	<i>R. maderensis</i>	Madeira skate	Raya de Madeira	Raie de Madère	Raia da Madeira	–	–
RJE	91 cm	<i>R. microocellata</i>	Small-eyed ray	Raya colorada	Raie mêlée	Raia-zimbreira	Kleinoogrog	–
JAI	≈ 60 cm	<i>R. miraletus</i>	Brown ray	Raya de espejos	Raie miroir	Raia-de-espelhos	–	–
RJM	75–80 cm	<i>R. montagui</i>	Spotted ray	Raya pintada	Raie douce	Raia manchata	Gevlekte rog	Flekkskate
RJU	114–120 cm	<i>R. undulata</i> <sup>†</sup>	Undulate ray	Raya mosaica	Raie brunette	Raia-mosaica	Golfrog	–

# Management in 6a, 6b, 7a-c and 7e-k

- Single TAC for all species.
- White skate, common skate, long-nosed skate, and undulate ray in 6, are prohibited from landing and must be returned unharmed where possible.
- Accidental bycatches of undulate ray in area 7.e of no more than 161 t may be taken or of no more than 154 t of small-eyed ray in 7.f and g.
- Advice is provided biennially for non-zero TAC stocks and applies for two years. For zero TAC stocks, the advice is biennial or triennial.
- There is a requirement to separately report catches of cuckoo, *R. clavata*, blonde, *R. montagui*, sandy and shagreen ray.
- Several stocks are defined within a single management unit. Certain stocks, e.g. cuckoo ray, may extend into other areas.

## Key drivers for advice

- Rio Earth Summit 1992: Commitment to use a precautionary approach, in EU from 1997.
- UN Straddling Stocks Agreement 1995: maximum sustainable yield (MSY)
- FAO International Plan of Action for Sharks and Rays (IPOA) 1997
- New CFP 2013: Achieve MSY by 2015 and by 2020 at the latest
  
- Not all rays and skates are endangered, but some are, and this shapes official thinking
- Endangered rays have no explicit EU protection, unlike birds, turtles, mammals
- However the endangered ones are listed as “prohibited” in TAC and quota regulations
- This was initially in response to their being listed on the C.M.S. or Bonn Convention (Convention for Migratory Species)

# Prohibited species listing

“It shall be prohibited for Union fishing vessels to fish for, to retain on board, to tranship or to land.”

*And*

“When accidentally caught, species” [...] “shall not be harmed. Specimens shall be promptly released.”

Assumes high survival for it to be effective

# General advice and policy drivers

Species	CFP*	NEA Redlist	Europe Redlist	IUCN World Redlist	OSPAR	C.M.S.	Endemic	MSFD
Angel shark	P.S.	critically endangered	critically endangered	critically endangered	Yes	App. I, II	No	Biodiversity
Flapper (common) skate	P.S.	critically endangered	critically endangered	endangered	Yes	-	No	Biodiversity
Blue (common) skate	P.S.	critically endangered	critically endangered	endangered	Yes	-	No	Biodiversity
White skate	P.S.	critically endangered	critically endangered	endangered	Yes	-	No	Biodiversity
Sandy ray	TAC species	endangered	vulnerable	endangered	No	-	Yes	Commercial
Shagreen ray	TAC species	vulnerable	vulnerable	vulnerable	No	-	Yes	Commercial
Undulate ray	No TAC in 7j	endangered	near threatened	endangered	No	-	No	Commercial
Thornback ray	TAC species	least concern	near threatened	near threatened	Yes	-	No	Both
Stingray	n.a.	near threatened	least concern	least concern	No	-	No	not mentioned
Cuckoo ray	TAC species	least concern	least concern	least concern	No	-	Yes	Comm.
Spotted ray	TAC species	least concern	least concern	least concern	Yes	-	No	Both

\* P.S. Prohibited species

Category 3 and 5 (Survey Based Assessment and Landings trends only)

Precautionary advice for endangered species, MSY “approach” advice for commercial species

No reference points (so far)

No discards included in assessments or advice (so far)

LO for 2019, with qualifications

But not explicitly considered

No survivorship assumed

Body hardness (survivability from trawling) not assumed

Not entirely consistent with ICES’ guidelines



Species	Area	Status	Advice 2019/2020	TAC 2018 (t)	Notes	TAC 2019 (t)
Thornback	Irish Sea, Celtic Sea	Increasing	20%	9,699	Generic <sup>2</sup>	10,184
Thornback	West of Scotland	Increasing	20%	9,699	Generic <sup>2</sup>	10,184
Thornback	7e western Channel	Unknown	0%	9,699	Generic <sup>2</sup>	10,184
Spotted	Irish Sea, Celtic Sea, west Channel	Increasing	8%	9,699	Generic <sup>2</sup>	10,184
Spotted	West of Scotland, west of Ireland	Increasing	20%	9,699	Generic <sup>2</sup>	10,184
Blonde	Irish Sea, Celtic Sea	Unknown	-20%	9,699	Generic <sup>2</sup>	10,184
Blonde	West of Scotland	Unknown	50%	9,699	Generic <sup>2</sup>	10,184
Blonde	Channel 7e	Unknown	-20%	9,699	Generic <sup>2</sup>	10,184
Cuckoo	6,7,8	Increasing	20%	9,699	Generic <sup>2</sup>	10,184
Small-eye (painted)	Bristol Channel, Celtic Sea 7f,g	Increasing	25%	154	sep. TAC <sup>1</sup>	
Small-eye (painted)	Channel 7de	Unknown	11%		Generic <sup>1</sup>	10,184
<i>L. fullonica</i> shagreen	6,7	Unknown	-20%		Generic	10,184
<i>L. circularis</i> sandy	6,7	Unknown	-20%		Generic	10,184
Unduate	Channel 7d,e	Increasing	77%	161	Generic <sup>1</sup>	234
Common skate	All areas	Below poss. ref. pts.	Zero catch	P.S.		P.S.
Undulate	west Ireland 7b,j	Very low	Zero catch	P.S.		P.S.
White skate	All areas	Depleted	Zero catch	P.S.		P.S.
	<sup>1</sup> 5% can be caught in 7d					
	<sup>2</sup> 5% of 7d TAC of 1,276 t can also be caught from 7d TAC (Neth, UK, Bel, Fra only)					

## Special request from France 2018: undulate ray 7d,e

- Catches in divisions 7.d–e should be no more than 2,127 tonnes in 2018 of which no more than 115 tonnes should be landed.
- ICES advises that the restriction in the amount of landings indicated above is due to the assumed high survival of discards and that landing a higher share of the catches would result in an increase in the fishing mortality for the stock.
- ICES is not in a position to evaluate if such an increase in fishing mortality is sustainable.
- ICES assumed that discards survival for rays and skates in general can be **quite high (50–80%; STECF, 2015)** although there is no specific value for undulate ray.
- Advising on catches without taking into account the survival of discards would result in unsustainable advised catches in the long term.
  - 100% survival: all of the discards survive, mortality inflicted by landings only.
  - 0% survival: no discards survive, mortality inflicted by total catches (landings and discards).
  - In the absence of a reliable estimate of survival but with information suggesting that the survival can be high, landing all the catches (zero discards) would likely pose an unsustainable increase in the mortality of the stock.

## Conclusions

- Still don't know anything about the largest, and least productive species, *R. brachyura*
- Inter-annual variation. Cuckoo ray was most concerning stock. Has increased in recent years, but there are issues including survey coverage.
- Discarding rates still unquantified.
- Potential effects of the LO are still unknown
- Survivability not explicitly considered by ICES

# STECF Long term management of skates and rays

October 2017

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# Selectivity

Technical measures for towed gears ineffective: large, flattened body shape.

Improve survival chances, by reducing the volume of catch in the codend

By-catch Reduction Devices (BRDs): Good potential for these modifications to reduce catches of skates and rays.

Static gears' options for reducing skate bycatch are limited (restricted lengths of net, limiting soak times, adjusting mesh size, hanging ratio and height of the net and modifying the thickness and colour of netting material for static nets and hook design for long lines)

Reducing skate catches is often not a specific objective of gear trials, and observations of incidental catches of skates are not always recorded

# Survivorship

Discard survival estimates are needed

Current estimates cover a limited number of métiers, areas and species, and because the factors that influence survival are poorly understood extrapolation across species, fisheries and areas is not recommended.

It is important to further encourage good practice on fish handling when discarded alive

No estimates for:

- TR1 and TR2 in Western Channel (VIIe & VIIh);
- BT1 and GN1 in the Bristol Chanel (VIIfg);
- GN1 and TR1 in the Irish Sea (VIIa) and;
- TR1 and TR2 in West of Scotland (Vb & VIab).

SPECIES	GEAR	LOCATION	REFERENCE	OBSERVATION PERIOD	SHORT TERM SURVIVAL (%)	AT VESSEL MORTALITY (%)	TOW DURATION OR SOAK TIME
<i>Leucoraja naevus</i>	Otter trawl	VII g.f (U.K. - Bristol Channel)	Enever et al. (2009)	3 days	33	NA	3.2h
<i>Raja microocellata</i>					51		3.1h
<i>Raja brachyura</i>					55		3.9h
<i>Raja clavata</i>					59		3.9h
<i>Raja microocellata</i>	Otter trawl	VII g.f (U.K. - Bristol Channel)	Enever et al. (2010)	2 days	67	NA	5.5h
<i>Leucoraja naevus</i>	Beam trawl	Dulas Bay, North Wales (UK)	Kaiser and Spencer (1995)	5 days	59	0	0.5h
<i>Raja clavata</i>	Demersal trawl	NorthEast Atlantic; southern North Sea	Ellis et al. (2008)	NA	NA	0.6	0.5-1.5h
	Longline			NA	NA	0	2-4h
	Gillnets (inshore vessels): fixed and drifters			NA	NA	2 (fixed); 0 (drifters)	overnight (fixed); 1-3h (drifters)
<i>Raja sp.</i>	Beam trawls	NorthEast Atlantic; North Sea	Depestele et al. (2014)	3-4 days	72	NA	0.17h; 1.5h
<i>Dipturus batis - complex</i>	Trammel nets and gillnets	NorthEast Atlantic; Celtic Sea	Bendall et al. (2012)	NA	NA	6.6; 8.6 (higher at longer soak time)	12-26h ; 36-48h
<i>Raja clavata</i>	Demersal trawl	Bristol Channel	Catchpole et al. (2017)	See Enever et al. (2009)	57-69	See Enever et al. (2009)	See Enever et al. (2009)
<i>Raja brachyura</i>	Beam trawl	English western channel			45 (22-65)		
<i>Leucoraja naevus</i>					34 (15-54)		
<i>Raja clavata</i>	Trammel nets	Southern North Sea	Catchpole et al. (2017)	Electronic tagging	95	NA	NA
<i>Raja clavata</i>	Otter trawl	Antalaya bay (Eastern Mediterranean)	Saygu and Deval (2014)	2 days	81	2	NA
<i>Raja miratelus</i>					21	26	

SPECIES	GEAR	LOCATION	REFERENCE	OBSERVATION PERIOD	SHORT TERM SURVIVAL (%)	AT VESSEL MORTALITY (%)	TOW DURATION OR SOAK TIME
<i>Amblyraja radiata</i>	Otter trawl	Gulf of Maine (USA)	Mandelman et al. (2012)	3 days	81; 77	<1	15-20mins; 2-4h
<i>Malacoraja senta</i>				4 days	41; 40		
<i>Leucoraja ocellata</i>				5 days	92; 91		
<i>Leucoraja erinacea</i>				6 days	86; 78		
<i>Leucoraja ocellata</i>	Scallop dredge fishery	Southern Gulf of St. Lawrence (Canada)	Benoit et al. (2010)b	2 days	62.5-100	NA	NA
<i>Amblyraja radiata</i> , <i>Malacoraja senta</i> , <i>Leucoraja ocellata</i>	Bottom trawl	Southern Gulf of St. Lawrence (Canada)	Benoit et al. (2010)a	2;>3 days	42-100	50	NA
<i>Amblyraja radiata</i> , <i>Malacoraja senta</i> , <i>Leucoraja ocellata</i>	Longline					30	
<i>Amblyraja radiata</i> , <i>Malacoraja senta</i> , <i>Leucoraja ocellata</i>	Bottom trawl	Southern Gulf of St. Lawrence (Canada)	Benoit et al. (2012)	2;>4 days (72h)	65 (43-80) (total survival estimate)	NA	1-2h
<i>Raja sp.</i>	Longline	South Georgia	Endicott and Agnew (2004)	12 hours	75 (1200m-1300m depth)- 46 (1300m-1500m)- 24(1500m-2000m); 68 (males) - 34 (females)	0	NA
<i>Leucoraja erinacea</i>	Scallop dredges	North West Atlantic	Rudders et al. (2015)	3 days	50.9	NA	0.17h; 1.5h
<i>Leucoraja ocellata</i>					34.8		NA
<i>Zoaraja maugeana</i>	Gillnets	Tasmania	Lyle et al. (2014)	NA	>87.2	0-9 (higher as soak time increases)	2-24h
<i>Raja whitleyi</i>							
<i>Leucoraja eglanteria</i>	Bottom longline	Gulf of Mexico	Scott-Denton et al. (2011)	NA	NA	4	0.9-32.2h



# Management options

- TAC: Need to be based on information on landings and discards, and not as at present landings only.
  - TAC by stock to match the ICES advice
  - TAC for *Raja* and *Leucoraja* separately
  - Sub-TACs
  - Generic TAC (as at present) doesn't regulate mortality on all species
- Effort: difficult to reconcile effort management for skates in mixed fisheries species managed with quotas.
- Spatial / temporal closures: Only effective if they control mortality.
- Prohibited species: No procedure to include or exclude species. Benefits of prohibiting are unknown without more information of the discard survival of incidental catches, and do not necessarily lead to a decrease in mortality.
- Min/max size: Need to be species specific. Would be in contradiction with LO unless with high survival exemptions.

# Overall conclusions

- ICES advice is not very precise (at advising a catch that equates to a mortality)
- Current management is even less precise (generic TAC)
- Survivorship may be high in some cases, but not all, and only subject to certain conditions (e.g. bulk catch in trawl, soak time, presence of skimmers)
- Need to consider trigger species and knowledge (e.g. cuckoo, blonde, spotted)
- Model developed by Catchpole et al. (2017) for UK waters should be extended to other areas.