

7. Small-eyed ray (*Raja microocellata*)

Sensitivity Assessment

Table A11.7. Sensitivity assessment for the small-eyed ray (*Raja microocellata*). Associated sectors include activities related to offshore renewable energy (O), Fishing (F), or shipping (S). NR = not relevant, NA = not assessed, NEv = no evidence, H = high, M = medium, L = low, VL = very low, NS = not sensitive.

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				References
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	
Physical	Physical loss (to land or freshwater habitat)	O	None	H	H	H	VL	H	H	H	H	H	H	H	-
	Physical change (to another seabed type)	O, F	M	M	H	NR	M	L	M	NR	M	M	M	NR	1, 5, 7, 9
	Physical change (to another sediment type)	O, F	M	M	H	NR	M	L	M	NR	M	M	M	NR	1, 5, 7, 9

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				References
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	
	Habitat structure change-removal of substratum (extraction)	O	M	M	H	NR	M	L	M	NR	M	M	M	NR	1, 5, 7, 9
	Abrasion/disturbance of substratum surface or seabed	O, F	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
	Penetration or disturbance of substratum subsurface	O, F	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
	Changes in suspended solids (water clarity)	O, F	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
Physical	Smothering and siltation changes (light)	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NEv	NR	NR	-

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Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				References
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	
	Smothering and siltation changes (heavy)	O	M	L	M	NR	M	L	M	NR	M	L	M	NR	-
	Underwater noise	O, F, S	H	L	L	NR	H	L	L	NR	NS	L	L	NR	-
	Electromagnetic energy	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NEv	NR	NR	-
	Barrier to species movement	O, F	M	M	H	NR	H	L	M	NR	L	L	M	NR	1, 9
	Death or injury by collision	O, F, S	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NEv	NR	NR	-
Hydrological	Water flow changes	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				References
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	
Chemical	Transition elements & organo-metal contamination	O, F, S	NEv	L	M	NR	H	L	M	NR	Sensitive	NR	NR	NR	-
	Hydrocarbon & PAH contamination	O, F, S	NEv	L	M	NR	H	L	M	NR	Sensitive	NR	NR	NR	-
	Synthetic compound contamination	O, F, S	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
	Introduction of other substances	O, F, S	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
	Deoxygenation	O	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-
Biological	Introduction or spread of invasive non-indigenous species	O, F, S	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	-

Pressures		Associated sector(s)	Resistance				Resilience				Sensitivity				References
Classification	Pressure type		Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	Score	QoE	AoE	DoC	
	Removal of target species	F	L	M	M	H	L	M	M	H	H	M	M	H	1,8
	Removal of non-target species	F	L	H	H	H	L	H	H	H	H	H	H	H	1-6

References for sensitivity assessment

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2. Griffiths, A.M., Miller, D.D., Egan, A., Fox, J., Greenfield, A., & Mariani, S. (2013). DNA barcoding unveils skate (Chondrichthyes: Rajidae) species diversity in 'ray' products sold across Ireland and the UK. *PeerJ* 1. <https://doi.org/10.7717/peerj.129>
3. Villagra, D., Van Bogaert, N., Ampe, B., Walker, P., & Uhlmann, S.S. (2022). Life-history traits of batoids (Superorder Batoidea) in the Northeast Atlantic and the Mediterranean. *Reviews in Fish Biology and Fisheries* 32, 473–495. <https://doi.org/10.1007/s11160-021-09695-3>
4. Serra-Pereira, B., Moura, T., Griffiths, A.M., Gordo, L.S., & Figueiredo, I. (2011). Molecular barcoding of skates (Chondrichthyes: Rajidae) from the southern Northeast Atlantic. *Zoologica Scripta* 40, 76–84. <https://doi.org/10.1111/j.1463-6409.2010.00461.x>
5. Gordon, C.A., Hood, A.R., & Ellis, J.R. (2016). Descriptions and revised key to the eggcases of the skates (Rajiformes: Rajidae) and catsharks (Carcharhiniformes: Scyliorhinidae) of the British Isles. *Zootaxa* 4150, 255–280. <https://doi.org/10.11646/zootaxa.4150.3.2>
6. Serra-Pereira, B., Erzini, K., Maia, C., & Figueiredo, I. (2014). Identification of Potential Essential Fish Habitats for Skates Based on Fishers' Knowledge. *Environmental Management* 53, 985–998. <https://doi.org/10.1007/s00267-014-0257-3>
7. Aragort, W., Alvarez, M., Leiro, J., & Sanmartín, M. (2005). Blood protozoans in elasmobranchs of the family Rajidae from Galicia (NW Spain). *Diseases of Aquatic Organisms* 65, 63–68. <https://doi.org/10.3354/dao065063>
8. Enever, R., Catchpole T.L., Ellis, J.R., Grant A. (2009). The survival of skates (Rajidae) caught by demersal trawlers fishing in UK waters. *Fisheries research* 97(1-2), 72-76.
<https://doi.org/10.1016/j.fishres.2009.01.001>
9. Simpson, S.J. (2018). *Spatial ecology and fisheries interactions of Rajidae in the UK*. PhD Thesis: the University of Southampton, UK.

Literature search

Search term output (clarified) 09/04/24

AB=("small-eyed ray" OR "Raja microocellata" OR "R. microocellata" OR "smalleyed ray" OR "owl ray" OR "painted ray" OR "sandy ray" OR "small-eyed skate" OR "smalleyed skate") AND AB=("angl*" OR "beam" OR "bottom trawl*" OR "by-catch" OR "dredge*" OR "fish*" OR "gear" OR "gillnet*" OR "hook*" OR "injury" OR "net*" OR "otter trawl*" OR "remov*" OR "aggregate*" OR "anchor*" OR "ballast" OR "barrier*" OR "beach*" OR "launch*" OR "moor*" OR "noise" OR "ship*" OR "steaming" OR "collision*" OR "construction" OR "electro*" OR "turbine*" OR "renewable*" OR "wave" OR "wind" OR "wind farm*" OR "anoxia" OR "copper" OR "current*" OR "disease*" OR "disturbance" OR "endocrine disru*" OR "eutrophication" OR "exposure" OR "heavy metals" OR "hydrocarbon" OR "hypoxia" OR "litter" OR "nitrate*" OR "nitrite*" OR "noise" OR "radionuclide" OR "nutrient*" OR "oil" OR "oil" OR "PAH*" OR "pathogen*" OR "PCB*" OR "plastic*" OR "regime" OR "salinity" OR "sedimentation" OR "silt*" OR "temperatur*" OR "translocation" OR "tributyltin" OR "turbid*" OR "visual" OR "warm*")

Generic terms such as "Raia", "Skate" or "Raja" were not used here as they produced 1000s of papers which were not relevant to this specific species.

Only vernacular names ranked as commonly used by Fishbase are used in the search, which includes common French, Italian and Spanish names.

Database

ISI Web of Science

Search date

9th April 2024 - 16 results

<https://www.webofscience.com/wos/woscc/summary/3342197c-738f-4756-9f6c-19986ae4acba-dd73b97b/relevance/1>

Search output and screening process

Abstracts screened for relevance i.e. must describe small-eyed ray (including other vernacular names) and mention one of the listed sectors and/or pressures from MARESA. Workflow follows the Rapid Evidence Assessment approach. The title and all auxiliary information (including abstract) were

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downloaded from ISI Web of Science in a .ris and excel format. In Excel, abstracts were read and listed to either pass or fail the initial screening process with a reason provided.

Outcome from screening

13 (81%) abstracts passed initial screening, 1 (6%) could not be accessed and therefore applicability could not be determined, 3 (19%) were deemed not relevant after initial screening. Of the 13 abstracts that passed initial screening, 9 (69%) passed secondary screening and were accessible.

