6. Shagreen ray (*Leucoraja fullonica*)

Sensitivity Assessment

Table A11.6. Sensitivity assessment for the shagreen ray (*Leucoraja fullonica)*. 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, 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	L	M	NR	M	L	L	NR	M	L	L	NR	1, 2, 17
	Physical change (to another sediment type)	O, F	M	L	M	NR	M	L	L	NR	M	L	L	NR	1, 2, 17

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	L	NR	NR	M	L	NR	NR	M	L	NR	NR	-
	Abrasion/disturbance of substratum surface or seabed	O, F	M	L	H	NR	M	L	L	NR	M	L	L	L	1, 2, 17
	Penetration or disturbance of substratum subsurface	O, F	M	L	NR	NR	M	L	NR	NR	M	L	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	L	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**	
	Smothering and siltation changes (heavy)	O	M	L	L	NR	M	L	L	NR	M	L	NR	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	NR	NR	NR	-
	Barrier to species movement	O, F	H	L	L	NR	H	L	L	NR	NS	L	L	NR	-
	Death or injury by collision	O, F, S	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
Hydrological	Water flow changes	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
Chemical	Transition elements & organo-metal contamination	O, F, S	NEv	L	M	NR	H	L	M	NR	Sensitive	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**	
	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	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
	Deoxygenation	O	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	1
Biological	Introduction or spread of invasive non-indigenous species	O, F, S	NEv	NR	NR	NR	NEv	NR	NR	NR	NEv	NR	NR	NR	-
	Removal of target species	F	L	M	M	H	L	M	M	H	H	M	M	NR	1-3, 5, 7-8, 11-15
	Removal of non-target species	F	L	M	M	H	L	M	M	H	H	M	M	NR	1-3, 5, 11-15

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Literature search

Web of Science search terms

AB=("shagreen ray" OR “shagreen skate” OR " Leucoraja fullonica" OR "L. fullonica " OR " Dun cow" OR “Fuller's ray” OR “Fuller's shagreen ray” OR “Raie-chardon” OR “Razza spinosa” OR “Raya blanca” OR “Raya cardadora” OR “Raya morruda” OR “Sailray” OR “Rajella lintea” OR “R. lintea” OR “white skate” OR “Rostroraja alba” OR “R. alba” OR “Sandy skate” OR “Leucoraja circularis” OR “L. circularis” OR “Leucoraja circularis” OR “L. circularis” OR “small-eyed ray” AND "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.

The following species were included in the search due to taxonomic confusion with the shagreen ray: sailray (*Rajella lintea*), white skate (*Rostroraja alba*), sandy skate (*Leucoraja circularis*) and the small-eyed ray (*Raja microocellata*).

Database

ISI Web of Science

Search date

14th February 2024 – 64 results (2 review, 31 open access, 3 associated data, 12 enriched cited references)
https://www.webofscience.com/wos/woscc/summary/182e909a-e429-44a9-937e-eee708352eec-cc23878f/relevance/1

Search output and screening process

Abstracts screened for relevance i.e. must describe tope sharks and mention of 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 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

22 (34%) abstracts passed initial screening. Of these, four (18%) did not pass secondary screening (i.e., on further reading were determined as not relevant), one (5%) could not be accessed and therefore applicability could not be determined and 17 (77%) passed secondary screening and were accessible, Sensitivity assessments were therefore made based on evidence provided by the resultant 17 papers.