## Supplementary material

Table S1 Results from Web of Science “All Fields” interrogation for species-specific shark search terms, including smallspotted catshark *Scyliorhinus canicula* and nursehound *S. stellaris* (both bold; correct on 25th August 2023).

|  |  |  |  |
| --- | --- | --- | --- |
| **Search term** | **Common name** | **All results** | **Results since 2003** |
| ***“Scyliorhinus canicula”*** | **Smallspotted catshark** | **1335** | **695** |
| *“Prionace glauca”* | Blue shark | 749 | 634 |
| *“Carcharodon carcharias”* | White shark | 719 | 603 |
| *“Sphyrna lewini”* | Scalloped hammerhead shark | 519 | 455 |
| *“Galeocerdo cuvier”* | Tiger shark | 450 | 414 |
| *“Carcharhinus longimanus”* | Oceanic whitetip shark | 78 | 67 |
| ***“Scyliorhinus stellaris”*** | **Nursehound** | **124** | **51** |

Table S2 GPS locations for all baited remote underwater video stations sampled in the Cardigan Bay Special Area of Conservation, UK.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **2021** | | | | **2022** | | | | | **Site** | **Station** | **Lat** | **Long** | **Site** | **Station** | **Lat** | **Long** | | Birds Rock | 1 | 52.21707 | -4.38193 | Birds Rock | Offshore 1 | 52.22667 | -4.38569 | | Birds Rock | 2 | 52.21733 | -4.38155 | Birds Rock | Offshore 2 | 52.22643 | -4.38424 | | Birds Rock | 3 | 52.21732 | -4.37779 | Birds Rock | Offshore 3 | 52.22627 | -4.38469 | | Birds Rock | 4 | 52.21727 | -4.38104 | Birds Rock | Offshore 4 | 52.22586 | -4.38546 | | Birds Rock | 5 | 52.21732 | -4.38101 | Birds Rock | Offshore 5 | 52.22644 | -4.38682 | | Birds Rock | 6 | 52.21708 | -4.38106 | Birds Rock | Nearshore 1 | 52.21729 | -4.37614 | | Birds Rock | 7 | 52.21870 | -4.37853 | Birds Rock | Nearshore 2 | 52.21679 | -4.37497 | | Birds Rock | 8 | 52.21853 | -4.37785 | Birds Rock | Nearshore 3 | 52.21671 | -4.37789 | | Birds Rock | 9 | 52.21809 | -4.37778 | Birds Rock | Nearshore 4 | 52.21728 | -4.37664 | | Birds Rock | 10 | 52.21665 | -4.37966 | Birds Rock | Nearshore 5 | 52.21653 | -4.37659 | | Fish Factory | 1 | 52.22132 | -4.36556 | Fish Factory | Offshore 1 | 52.23051 | -4.36036 | | Fish Factory | 2 | 52.22105 | -4.36073 | Fish Factory | Offshore 2 | 52.23032 | -4.36214 | | Fish Factory | 3 | 52.22057 | -4.36033 | Fish Factory | Offshore 3 | 52.23017 | -4.35950 | | Fish Factory | 4 | 52.22129 | -4.36013 | Fish Factory | Offshore 4 | 52.23069 | -4.35994 | | Fish Factory | 5 | 52.22057 | -4.36587 | Fish Factory | Offshore 5 | 52.23083 | -4.36272 | | Fish Factory | 6 | 52.22146 | -4.35988 | Fish Factory | Nearshore 1 | 52.21979 | -4.36214 | | Fish Factory | 7 | 52.22110 | -4.36404 | Fish Factory | Nearshore 2 | 52.22066 | -4.36089 | | Fish Factory | 8 | 52.22103 | -4.36174 | Fish Factory | Nearshore 3 | 52.22011 | -4.36086 | | Fish Factory | 9 | 52.22048 | -4.36277 | Fish Factory | Nearshore 4 | 52.21987 | -4.35993 | | Fish Factory | 10 | 52.22234 | -4.36483 | Fish Factory | Nearshore 5 | 52.21979 | -4.35931 | | New Quay | 1 | 52.22160 | -4.33791 | New Quay | Offshore 1 | 52.23037 | -4.33819 | | New Quay | 2 | 52.22054 | -4.33763 | New Quay | Offshore 2 | 52.22984 | -4.33983 | | New Quay | 3 | 52.22115 | -4.33900 | New Quay | Offshore 3 | 52.22960 | -4.33833 | | New Quay | 4 | 52.21931 | -4.33207 | New Quay | Offshore 4 | 52.22976 | -4.33791 | | New Quay | 5 | 52.21954 | -4.33559 | New Quay | Offshore 5 | 52.23034 | -4.33763 | | New Quay | 6 | 52.22092 | -4.33752 | New Quay | Nearshore 1 | 52.21888 | -4.34141 | | New Quay | 7 | 52.21972 | -4.33438 | New Quay | Nearshore 2 | 52.21865 | -4.33892 | | New Quay | 8 | 52.21894 | -4.33576 | New Quay | Nearshore 3 | 52.21865 | -4.33983 | | New Quay | 9 | 52.22149 | -4.33625 | New Quay | Nearshore 4 | 52.21829 | -4.34066 | | New Quay | 10 | 52.21903 | -4.33268 | New Quay | Nearshore 5 | 52.21903 | -4.33939 | |

A close-up of a diagram

Description automatically generated

Figure S1 Top: the proportion of dataset image quality in each study site during baited remote underwater video stations sampling in Cardigan Bay Special Area of Conservation, ranked according to standardised criteria *(Jones et al. 2021)*; and, bottom: examples of datasets from this study assigned each rating (1) unusable, 2) poor, 3) good, and 4) excellent).



Figure S2 Annual variations in the percentage of deployments with sightings of smallspotted catsharks *Scyliorhinus canicula*, nursehounds *S. stellaris*, and smooth hound sharks, *Mustelus* sp., during baited remote underwater video stations sampling in the Cardigan Bay Special Area of Conservation, UK.

A graph with orange and purple lines

Description automatically generated

Figure S3 Species accumulation curve for smallspotted catsharks *Scyliorhinus canicula* and nursehounds *S. stellaris*, with deployment time for baited remote underwater video stations sampling in the Cardigan Bay Special Area of Conservation, UK.

Table S3 Residual diagnostics returned by the R package ‘DHARMa’ (Hartig 2020) for generalised linear models used to investigate the association between between sampling year, month, site, nearshore/offshore location, depth, MaxN of other shark species observed, and image quality of the dataset, and MaxN observations of smallspotted catsharks *Scyliorhinus canicula* and nursehounds *S. stellaris* recorded on baited remote underwater video stations in the Cardigan Bay Special Area of Conservation, UK.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Response** | **Error family** | **Link** | **KS test** | **Dispersion test** | **Outlier test** | **Residual vs predicted** |
| *S. canicula* | NB | Log | 0.67 | 0.23 | 1 | No sig. problems |
| *S. stellaris* | NB | Log | 0.67 | 0.23 | 1 | No sig. problems |

Table S4 Top models (∆AIC < 2) returned by the ‘dredge’ function in the R package ‘MuMIn’ (Barton, 2020) to investigate the association between sampling year, month, site, nearshore/offshore location, depth, MaxN of other shark species observed, and image quality of the dataset, and MaxN observations of smallspotted catsharks *Scyliorhinus canicula* and nursehounds *S. stellaris* recorded on baited remote underwater video stations in the Cardigan Bay Special Area of Conservation, UK.

|  |  |
| --- | --- |
| **Response = *S. canicula*** | **AIC** |
| image rank + site + nearshore/offshore + s.stellaris maxn | 137.6 |
| image rank + site + month + year | 137.8 |
| image rank + site + month + nearshore/offshore + year | 137.9 |
| image rank + site + nearshore/offshore | 138.2 |
| site + month + nearshore/offshore + s.stellaris maxn | 138.5 |
| site + nearshore/offshore + s.stellaris maxn | 138.5 |
| image rank + site + month + nearshore/offshore | 138.6 |
| site + nearshore/offshore | 138.8 |
| image rank + site + nearshore/offshore + s.stellaris maxn + year | 138.9 |
| image rank + site + nearshore/offshore + year | 139.2 |
| **Response = *S. stellaris*** | **AIC** |
| site + month + nearshore/offshore | 123.7 |
| site + month + nearshore/offshore + year | 124.6 |
| s.canicula maxn + site + month + nearshore/offshore | 124.8 |

**Table S5 Analysis of deviance table for the top model returned by the ‘dredge’ function in the R package ‘MuMIn’ (Barton, 2020) to investigate the association between sampling year, month, site, nearshore/offshore location, depth, MaxN of other shark species observed, and image quality of the dataset, and MaxN observations of smallspotted catsharks *Scyliorhinus canicula* and nursehounds *S. stellaris*, recorded on baited remote underwater video stations in the Cardigan Bay Special Area of Conservation, UK.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **df** | **Deviance** | **Resid. df** | **Resid. deviance** | **Pr(>Chi)** | **% deviance expl.** |
| **Response*: S. canicula* MaxN** | | | | | |  |
| NULL |  |  | 120 | 100.18 |  |  |
| image rank | 2 | 6.88 | 11s8 | 93.3 | < 0.05 | 6.88 |
| site | 2 | 20.52 | 116 | 72.78 | < 0.0001 | 20.48 |
| nearshore/offshore | 1 | 9.66 | 115 | 63.12 | < 0.01 | 9.64 |
| s.stellaris maxn | 1 | 2.64 | 114 | 60.48 | 0.1 | 2.64 |
|  | **Total deviance explained 39.64 %** | | | | | |
| **Response: *S. stellaris* MaxN** | | | | | |  |
| NULL |  |  | 120 | 127.87 |  |  |
| site | 2 | 57.42 | 118 | 70.46 | < 0.0001 | 44.9 |
| month | 3 | 15.36 | 115 | 55.09 | < 0.01 | 12.01 |
| nearshore/offshore | 1 | 4.53 | 114 | 50.57 | < 0.05 | 3.54 |
|  | **Total deviance explained 60.45 %** | | | | | |