

SKATE RESEARCH:

Survey in the Loch Sunart to the Sound of Jura MPA (23rd - 30th Sept 2019)



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MRV ALBA NA MARA

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Elasmobranchs

Elasmobranchs (shark, skate and ray) are important components of marine ecosystems, but globally many species have suffered major declines due to fishing and habitat loss. Elasmobranchs are typically slow growing, have a late age of sexual maturity, often in their teenage years, and produce a low number of large and well-developed young. These traits mean that populations are slow to recover from any reduction in numbers. Careful management of the remaining species and populations is of great importance to ensure their conservation for future generations and to ensure the future stability and recovery of marine ecosystems. Marine Scotland Science provides supporting analysis to Government that will help underpin such management.

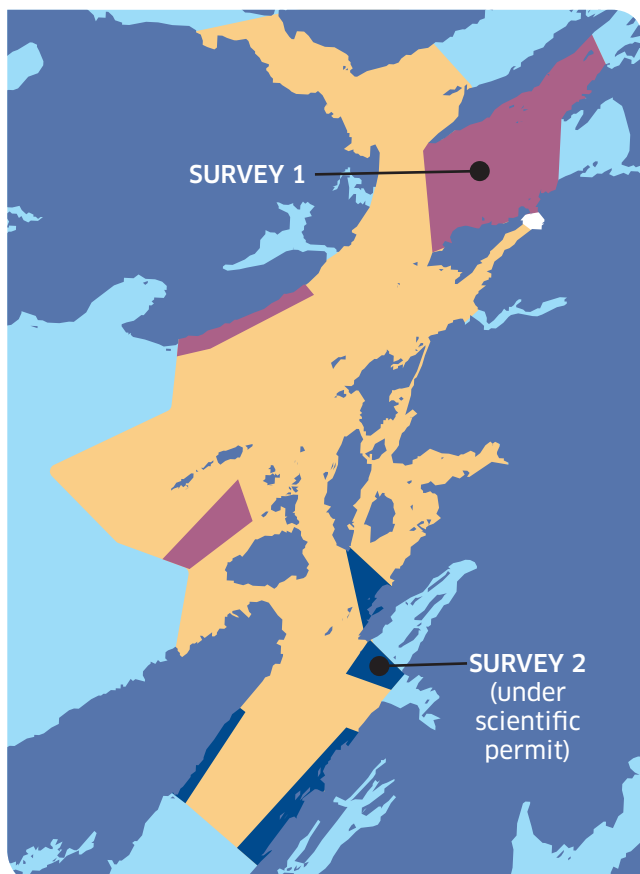
The common skate

The common skate is considered to be two separate species: the flapper skate (*Dipturus intermedius*) and the blue skate (*Dipturus batis*). The common skate was, as the name suggests,

once found throughout UK waters and was an important commercial species. However, because population growth rate in this species is so low due to its late maturation and slow body growth, it was the first case of a marine species being declared 'locally extinct' in the 1980's, having disappeared from the Irish Sea and much of the North Sea (Brander, 1981). The flapper skate is the largest species of skate in Europe, measuring more than 2 metres from wing tip to wing tip and weighing over 100 kg. It has a similar life cycle to humans, reaching ages in excess of 60 years and maturing at around 15-16 years old. Like other species of skate the flapper skate lays eggs, approximately 30-60 each year. These 'mermaid purses' can be as large as a sheet of A4 paper. The young that hatch from these eggs are approximately 20 cm across their wings, which is relatively large for a new-born skate. The large size at hatching immediately places the young skate at risk to being captured as a bycatch in fishing gear. We currently have no information about the nursery grounds used by this species or any clear idea of the areas where they lay their eggs.

The Loch Sunart to the Sound of Jura Marine Protected Area

The Loch Sunart to the Sound of Jura Marine Protected Area was designated to conserve a nationally important population of common skate, the largest remaining coastal population of the species (Pinto *et al.*, 2016). Common skate display an unusually high level of residency in the area. This has been confirmed by an analysis of angler mark-and-recapture data and an acoustic tagging project that continuously monitored the movements of tagged skate in the Sound of Jura (Neat *et al.*, 2015). These tagging projects showed that the skate either stay within or repeatedly return to the area covered by the Marine Protected Area (MPA).



SEASONAL TRAWL AND DREDGE AREAS
YEAR ROUND TRAWL AND DREDGE AREAS
CREEL AND DIVE FISHERIES ONLY

The planned research

As the marine environment does not always respond as we might anticipate, further marine science is needed if we are to ascertain if the status and condition of habitats and species is improving in response to MPAs. In order to understand if juvenile skate use the Marine Protected Area, in addition to adults, Marine Scotland Science, in collaboration with St. Andrews University and Scottish Natural Heritage, will be undertaking a survey on the research vessel *Alba na Mara* between 23 and 30 September 2019. Various methods have been tried previously, such as cameras and fish traps, but juvenile skate have proven elusive. Therefore, for this survey, trawl gear will be used at locations within the MPA where such activity can take place year round and in areas where it is restricted on a seasonal basis (a scientific permit has been issued for the latter). The seasonal restriction also maximises the chance of finding juveniles as the area has been undisturbed over the closure.

The duration of each haul will be limited, typically to 15 minutes, to minimise disturbance to the skate. Skate caught in this survey will be tagged and released so that we can monitor their ongoing movements. Genetic samples will also be taken to enable scientists to relate data on juveniles to the adult data we already have.

References

Brander, Keith. (1981). Disappearance of common skate *Raia batis* from Irish Sea. *Nature*. 290. 48-49.

Neat, F., Pinto, C., Burrett, I., Cowie, L., Travis, J., Thorburn, J., Gibb, F., Wright, P. 2015. Site-fidelity, survival and conservation options for the threatened flapper skate (*Dipturus intermedius*). *Aquatic Conservation Marine and Freshwater Ecosystems*, 25: 6-20.

Pinto, C., Thorburn, J., Neat, F., Wright, P., Wright, S., Scott, B., Cornulier, T., et al. 2016. Using individual tracking data to validate the predictions of species distribution models. *Diversity and distributions*, 22 682-693.