

Monitoring of Marine INNS using Submerged Settlement Panels

Maryport Marina - May to September 2024

Solway Firth Partnership - September 2024



Maryport Marina

Solway Firth

Partnership

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1. Introduction

The GB non-native species secretariat defined an invasive non-native species (INNS) as “any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live.” (GB NNSS, 2023) Globally, 84% of marine ecoregions have reported marine invasion (Molnar, et al., 2008). Whilst INNS have played a key role in 60% of global plant and animal extinctions and are recognised as one of the 5 main drivers of biodiversity loss. (IPES, 2023)

In the UK marine environment INNS have the potential to pose a significant threat to native marine biodiversity and commercial interests. DEFRA (Department for Environment, Food and Rural Affairs) is the overarching coordinator for INNS in England with the GB NNSS (GB Non-Native Species Secretariat) being a focal point for communication and co-ordinating reporting of INNS. (GB NNSS , n.d.)

Known impacts of INNS on native biodiversity are the spread of disease, competition for habitat and food and direct predation. (GB NNSS, 2023) As well as these serious and potentially irreversible environmental problems, they can also interfere with recreational and commercial activities by clogging propellers, damaging boats, blocking up waterways, and increasing the risk of flooding. (GB NNSS, 2017)

Direct biological impacts include biological indices displaying lower scores where INNS are present. Indirect impacts include where INNS densities are so high that there is a reduction in abundance of other taxa is observed (SEPA, 2013). The major pathways by which marine INNS are introduced include shipping, recreational boating, aquaculture stock movements and natural dispersal (GB NNSS, 2015c). Once INNS have established in a marine ecoregion, they are very difficult or even impossible to eradicate as many filter-feeding marine invertebrate animals live attached to solid surfaces and, along with algae, may be spread along coastlines marina-to-marina as fouling growth on the hulls of leisure craft. For this reason, early detection and monitoring of marine INNS is crucial.

Further details can be found in Solway Firth Partnership’s report on INNS and their impact in the Solway Firth (Solway Firth Partnership, 2024)

2. Method

Two settlement panels (Photo 1) were attached to pontoons within Maryport Marina on 8 May 2024 by SFP staff in locations highlighted in Figure 1. The panels were attached to the underside of the pontoons and submerged to around one metre depth using strong paracord and weighed down with 6 oz fishing weights (Photo 2).



Photo 1 - Complex Correx panel structure

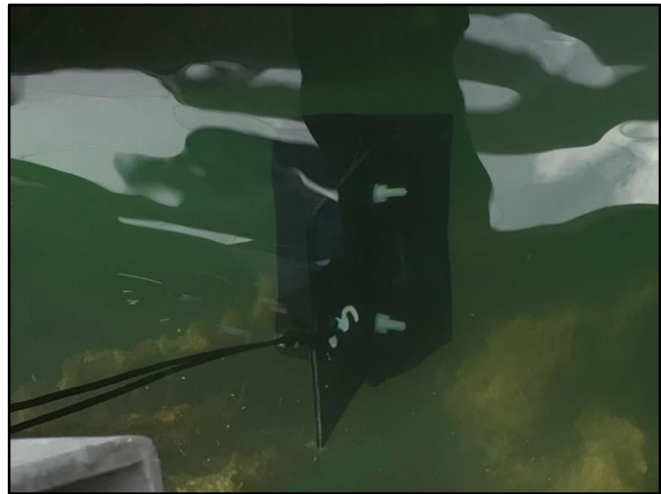


Photo 2 - Submerged complex Correx panel

Maryport was chosen as a relatively large and active but protected marina.

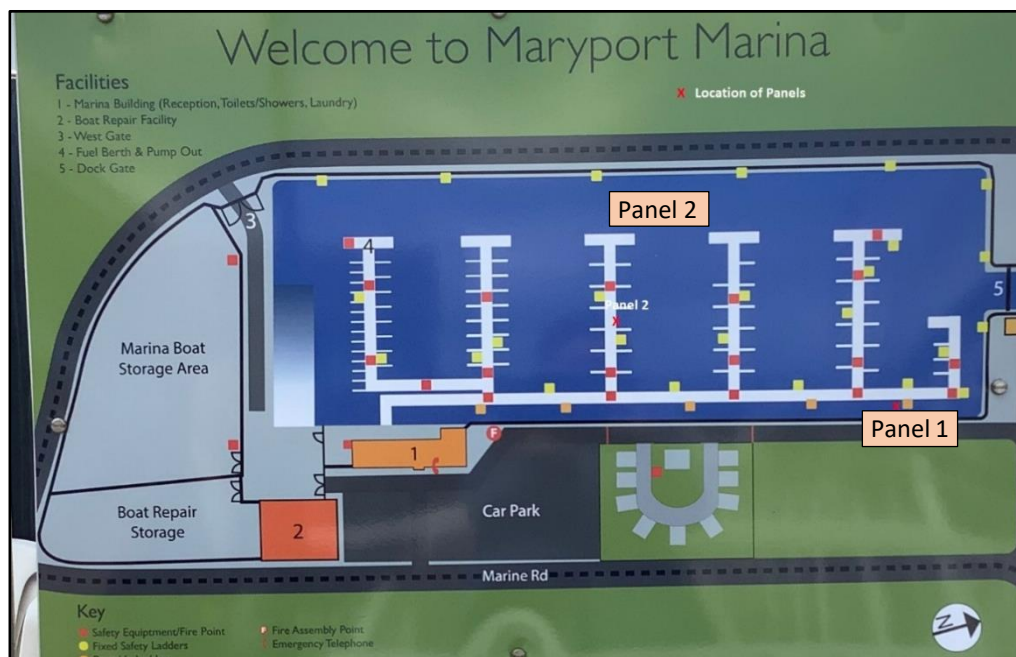


Figure 1 - Maryport Marina. Location of panels 1 & 2

At the end of the summer (18 September 2024), the panels at Maryport were collected, photographed (Photos 3, 4, 5), scored for percentage cover of surface species and then appropriately discarded. Mobile organisms, such as crabs were also noted and recorded.

Both panels were retrieved from Maryport Marina.



Photo 3 – Panel 1



Photo 4 – Panel 2



Photo 5 – Panel 1 Opened Out

3. Results

The species diversity on the panels had decreased from that recorded in the 2023 survey. There were no sea squirts present, such as *Ascidiella aspersa* or star ascidian *Botryllus shlosseri*, both of which were recorded in 2023. The sea mat, *Membranipora membranacea* was once again noted on Panel 1 (Photo 6 and 11), the same location as in 2023, alongside the bryozoan, *Conopeum reticulum* (in left on Photo 6). The non-native invasive species, trumpet tubeworm, *Ficopomatus enigmaticus* (Photo 7) was recorded for the second year although it did not appear to have increased in abundance since 2023. Other species noted were an unidentified barnacle sp. (Photo 8), which were too small to identify, an occasional tubeworm, *Pomatoceros triqueter* (Photo 9) and unidentified red algae (Photo 10).

The marina had been recently dredged which may affected the coverage of species on the settlement panels.

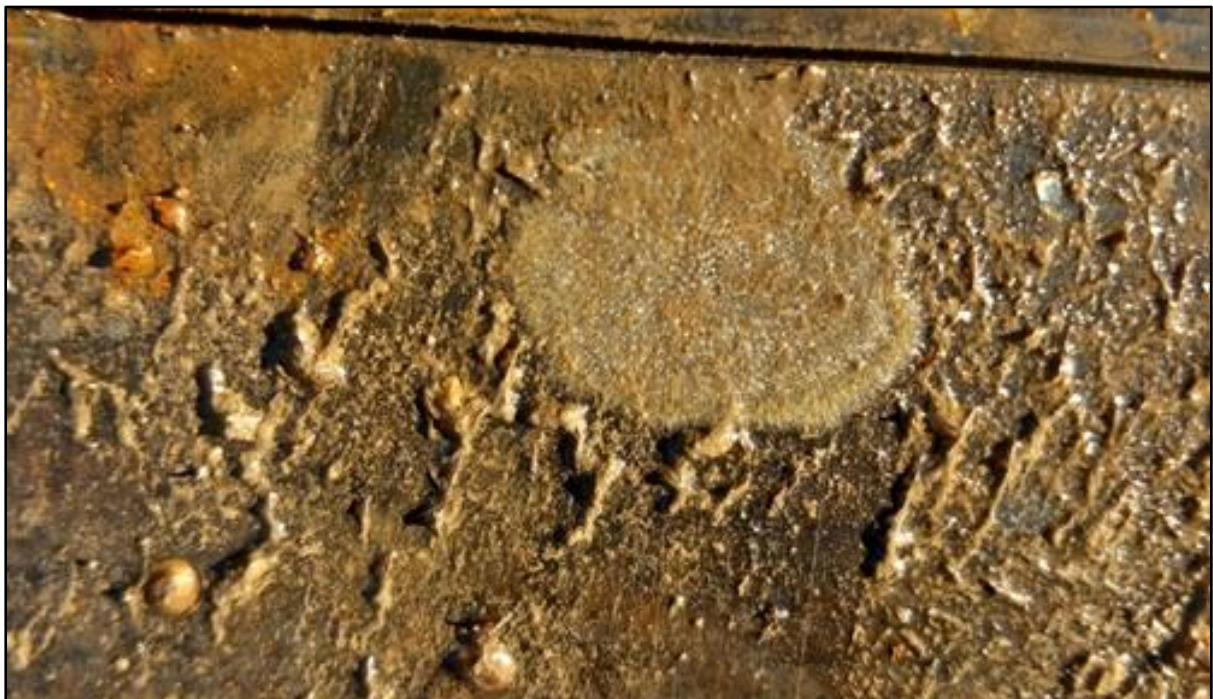


Photo 6 – Sea mat, *Membranipora membranacea*, middle; encrusting bryozoan *Conopeum reticulum* on left



Photo 7 - trumpet tubeworm, *Ficopomatus enigmaticus*



Photo - 8 - Small Unidentified barnacles



Photo 9 – Tubeworm, *Pomatoceros triqueter*



Photo 10 – Unidentified red algae



Photo 11 – Close up Sea mat, *Membranipora membranacea*

4. Conclusion

The 2024 survey of Maryport Marina appeared to be affected by the recent dredging of the marina. Very few species were recorded with much less coverage than the 2023 survey. The invasive trumpet tubeworm, *Ficopomatus enigmaticus* was once again noted and it needs to be monitored closely as it has economic consequences for users of the marina due to the cost of scraping boats. Also noted again in this survey for the second year was the sea mat, *Membranipora membranacea*. There was also a low percentage coverage of the encrusting bryozoan, *Conopeum reticulum*.

Continued awareness of INNS gained from the use of the panels and the rapid site assessments will allow for improved biosecurity control of invasives species. It is recommended the use of the current 3D scratched surface panel design is continued, as this seems to encourage a representative level of growth.

It is suggested that panels should also aim to be removed prior to any major storms, as even though this may result in a reduced soak time, it could prevent the loss of panels to the environment.

5. References

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Appendix 1: Maryport settlement panel results

MARYPORT MARINA

Panel No	Grid Ref	Species - Common Name	Species - Latin Name	Abundance	Invasive sp	Notes	Abbrev	Scale	%
1	NY0304736597	Trumpet Tube Worm	<i>Ficopomatus enigmaticus</i>	O	Y	v sparse	S	Super Abundant	80 - 100
	NY0304736597	Bryozoan	<i>Conopeum reticulum</i>	R	N		A	Abundant	40 - 80
	NY0304736597	Green seaweed	<i>Cladophora rupestris</i>	O	N		C	Common	20 - 40
	NY0304736597	Tubeworm	<i>Pomatoceros triqueter</i>	R	N		F	Frequent	10 - 20
	NY0304736597	Shrimp sp	<i>Gammarus sp</i>	R	N		O	Occasional	5 - 10
	NY0304736597	Crab sp		R	N	1	R	Rare	<5%
	NY0304736597	Sea mat	<i>Membranipora membranacea</i>	R	N				
2	NY0298936515	Trumpet Tube Worm	<i>Ficopomatus enigmaticus</i>	R	Y				
	NY0298936515	Barnacle sp	<i>Unsure of species</i>	R	N				
	NY0298936515								
	NY0298936515								
	NY0298936515								