Live Wrasse Fishery

Monitoring and Control Report 2024

A fishery for live Wrasse to supply Scottish salmon farms was developed in the Southern IFCA District in 2015. Wrasse are purchased as a natural pesticide, to remove sea lice from salmon cages. The species removed from the district include Ballan (*Labris bergylta*), Corkwing (*Symphodus melops*), Goldsinny (*Ctenolabrus rupestris*), Rock Cook (*Centrolabrus exoletus*) and Baillon wrasse (*Symphodus bailloni*). Target species have shifted between Ballan or mixed species and only mixed species throughout the years. The fishery has been managed with a Monitoring and Control Plan (MCP) and Fishery Guidance Measures alongside the Minimum Conservation Reference Size Byelaw since its implementation in 2021.

Monitoring and Control

Since 2018, further measures have been developed such as a statutory minimum conservation reference size for all previously mentioned species' aside from Baillon Wrasse. A voluntary maximum size is also employed to protect the male constituents as protogynous hermaphrodites. As the Wrasse mature, they turn from female to male. Employing a maximum size ensures that all sexually mature males remain in the ecosystem with the possibility of reproducing.

The Fishery Guidance Measures were developed with industry in 2017 to address concerns surrounding the sustainability of the fishery and wrasse populations. The first draft of the MCP was completed and implemented in 2018 and introduced trigger levels for a series of variables to be monitored during the season. The guidance includes a series of no potting and no take zones, pot limits as well as a closed season for effort limitation (Figure 1).

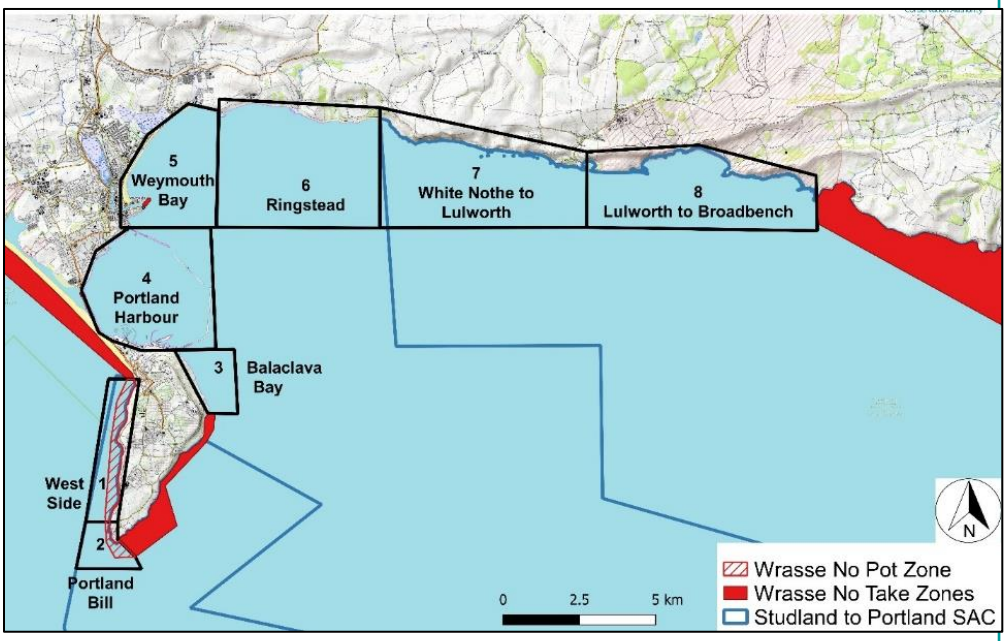

Figure 1 *The Wrasse fishing areas provided to participants in the Dorset Wrasse Fishery including no potting zones and no take zone.*

The monitoring and control plan and Wrasse fishery guidance can be viewed on the Southern IFCA website at www.southern-ifca.gov.uk/district-live-wrasse.

2024 Season Summary

Southern IFCA began engaging with wrasse fishers and buyers in May 2024 to understand the demand and scope of participants for the 2024 season. In 2024, there was only one buyer committed to purchasing wrasse from the fishery. In 2023, only one buyer operated however there was initially a historical buyer unsure as to their level of participation prior to the season. The total number of fishers participating remained at 5 from the 2023 to 2024 however the vessels and skippers operating changed.

In 2023 there was one vessel operating from Lulworth and fishing in the Studland to Portland SAC, however in 2024 all vessels operated from Weymouth or Portland and no trips occurred in the SAC.

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Fishing during the 2023 and 2024 seasons consisted of pot fishing only. Rod and line fishing is used to target Ballan wrasse however due to the feasibility and cost of arranging separate transports for Ballan and mixed species, there was a focus on mixed species only. As a result, fishers who had previously participated in the fishery solely with rod and line have not participated in the fishery since 2022.

Throughout the 8.5 week season, Southern IFCA deployed 4 patrols that coincided with wrasse collection days. A total of 15 inspections were conducted over the 4 patrols, with each participating vessel inspected 3 times. During each inspection, 20 of the smallest fish were measured, a total of 2 undersized fish were found across all fishery participants for the whole of the 2024 season.

Fishers are requested to submit monthly catch returns by the 14th of the following month. During the 2024 season, 12 of the expected 15 catch returns were submitted. Weekly landings data was also received from the buyer within approximately 5 days of the landing day, allowing up to date monitoring of the total landings of Wrasse. This frequent communication allowed Southern IFCA to proactively identify potential patterns in landings and model predicted scenarios for when the landings could reach a certain level in relation to MCP Variable 1 (trigger related to number of wrasses landed throughout the season).

The season ended in the first week of September due to the buyer sourcing the required number of wrasse to fulfil demand. The total number of wrasse landed in the 2024 season equals 32,220. The MCP Variable 1 trigger (41,031 wrasse) was not exceeded, and no other triggers under the MCP were exceeded during the 2024 season.

2024 Data Analysis

Method

Southern IFCA receives count data on the number of Wrasses landed to buyers. The buyer data is used to monitor the removal from the fishery during and at the end of the fishing season.

All fishers voluntarily submit Wrasse Catch Return Forms (CRF) throughout the season which details their daily fishing location, effort and catch. CRF data is used to calculate Landings Per Unit Effort (LPUE) for either ‘pot’ or ‘rod and line’ fishing methods. This data is used to compare fishing effort to the MCP variables.

Generalised Linear Models (GLM), run in the programming software ‘R’ are used to consider which variables (Year, Month, Day of Year or Area Fished) best describe the variation in LPUE.

Fishing Effort and Location

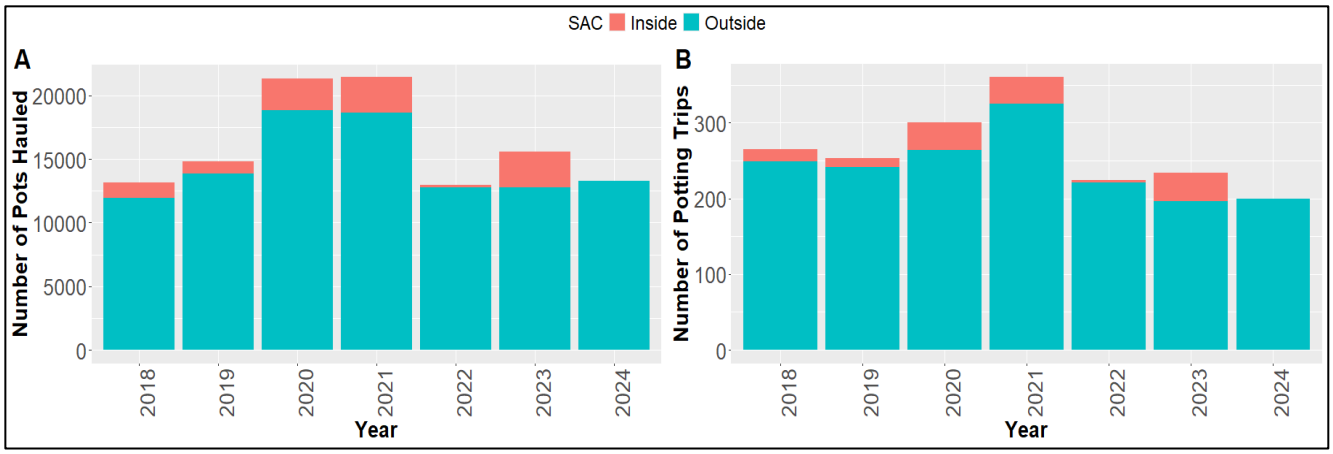

Figure 2 *The pot fishing effort from 2018 to 2024 within and outside of the Studland to Portland SAC. There was no significant increase from the baseline and the trigger threshold was not reached during the 2024 season.*

Figure 2A and B display the number of pot hauls inside vs outside the SAC (2A) as well as the number of pot fishing trips that occurred inside vs outside the SAC (2B). The number of pots hauled outside the SAC has remained stable since 2022. There has been a reduction in pot fishing trips inside the SAC from 2023 as the one fisher working in this area did not participate in the 2024 fishery.

Figure 3 displays the trends in landings for the baseline year (2018) and the most recent three years as per buyer provided records. The dashed black line displays the trigger level for MCP Variable 1. The solid red line displays the landings for 2024, landings remained under the trigger value and the fishery ceased at a total of 32,220 landed wrasse.

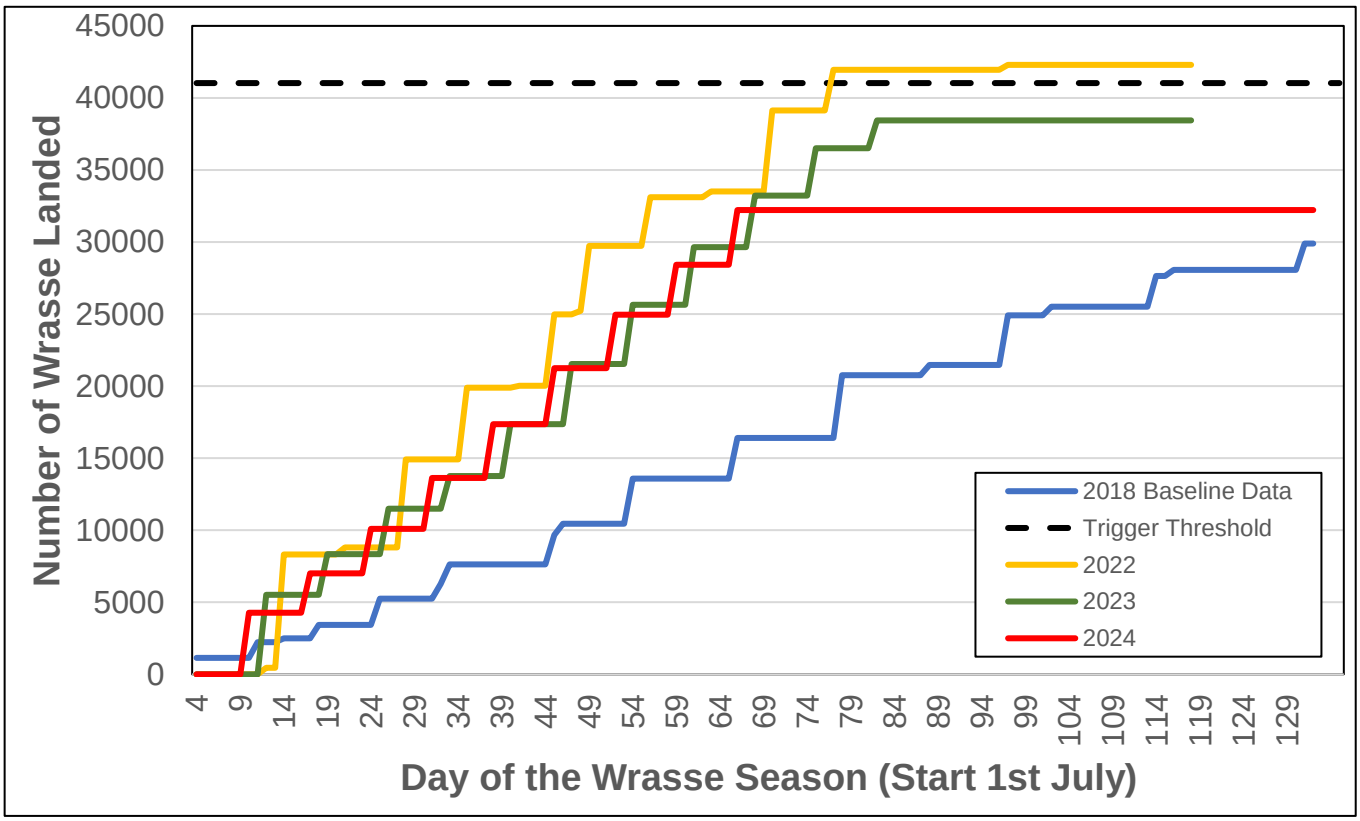

Figure 3 *The number of Wrasse landed each year in 2018 and the most recent three years of the fishery, 2022 to 2024. The dashed black line displays the 25% increase in Wrasse landings from the 2018 baseline (MCP Variable 1 trigger). The solid red line displays the trend in Wrasse landings during the 2024 season. The trigger threshold was not reached during the 2024 season.*

Landings Per Unit Effort

Landings per unit effort were subject to a generalised linear model (GLM) analysis. In previous years, the categories have been split into ballan per pot and mixed species excluding ballan per pot. Due to the addition of a separate column for Baillon midway through the 2023 season, confidence in the identification of each species remains lower for the 2024 season, therefore Total Wrasse per pot for all years has been analysed. Interspecies analyses could be recommenced following further data collection in future seasons. The following figures show the variables that best explain the variation in $LPUE_{pot}$ and the corresponding significance levels for each variable.

The predicted effects Total $LPUE_{pot}$ for 2024 is 1.63 fish per pot (Figure 4A). This is a reduction compared to 2022 and 2023; however, it is not a significant reduction and remains above the 2018 baseline of 1.36 fish per pot.

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Total $LPUE_{pot}$ is highest in areas 4&5 (Portland Harbour and Weymouth Bay) followed by area 3 (Balaclava Bay), these are all areas outside of the SAC (Figure 4B). It is important to note that areas 1 and 2 are voluntary no potting zones, hence the low number of data points.

Figure 4C displays trends in data throughout the season. Fish per pot increases from July to August before decreasing until the end of the season. The expected reasons for this are discussed below.

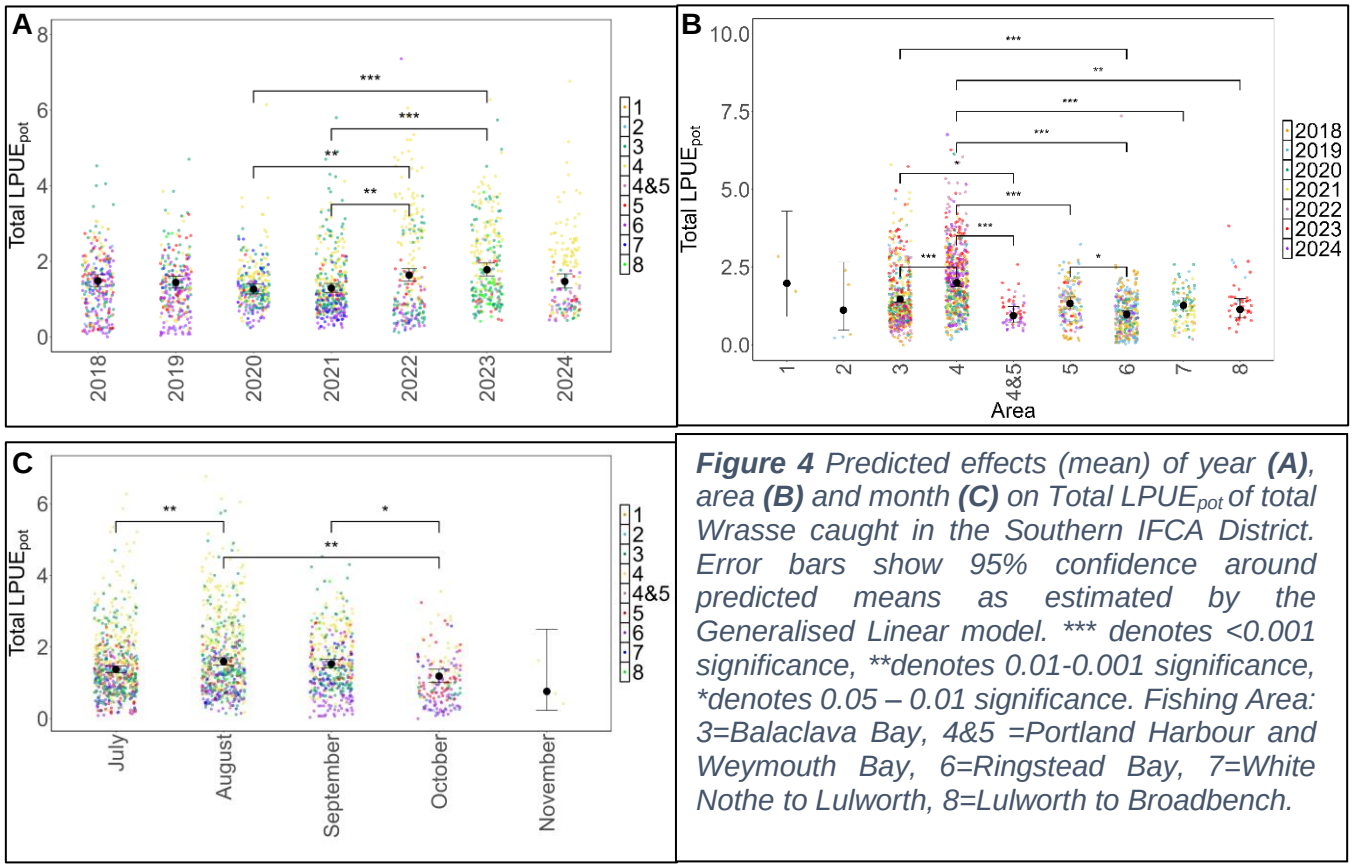

Figure 4 *Predicted effects (mean) of year* ***(A)****, area* ***(B)*** *and month* ***(C)*** *on Total $LPUE_{pot}$ of total Wrasse caught in the Southern IFCA District. Error bars show 95% confidence around predicted means as estimated by the Generalised Linear model. *** denotes <0.001 significance, **denotes 0.01-0.001 significance, *denotes 0.05 – 0.01 significance. Fishing Area: 3=Balaclava Bay, 4&5 =Portland Harbour and Weymouth Bay, 6=Ringstead Bay, 7=White Nothe to Lulworth, 8=Lulworth to Broadbench.*

Discussion

In previous years, the pot caught Wrasse have been predominantly Corkwing, anecdotally this is not thought to have differed in 2024. However, due to the large number of Baillon Wrasse witnessed in 2023, fishers were asked to add in a column for Baillon midway through the 2023 season which affected confidence in species identification for that year and the 2024 year. SIFCA will consider analysis into changes in community structure on receipt of at least one more year of data encapsulating Baillon abundance.

Due to the low confidence in identification on catch returns it is difficult to consider the species-specific impacts on the Total $LPUE_{pot}$ in the results above. However, trends in area fished and trends throughout the season do not vary from previous years.

Corkwing Wrasse are more abundant at shallower depths (Henly et al, 2021). Portland Harbour and Weymouth Bay provide a large fishing area (>5.4km^2 each) with depths of less than 10m. Other potential ground within the SAC such as areas 7 and 8, White Nothe to Broadbench have only a narrow band of shallow (<10m) depth. Therefore, it is thought that areas 4&5, Portland Harbour and Weymouth Bay have more area providing more suitable habitat for Corkwing Wrasse which, as the dominant pot fished species, may indicate why Total $LPUE_{pot}$ is highest for these sites.

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Similar to previous years, Total $LPUE_{pot}$ rises from July to August before declining. It may be that Ballan Wrasse are responsible for the rise until August, along with other nest building species, Corkwing and Rockcook (Darwell et al.,1992). However, this could also be explained by the relationship of Corkwing LPUE with temperature (Henly et al., 2021). As previously discussed, and observed in previous years, Corkwing account for the majority of pot caught species. As sea temperatures increase throughout July and August, Corkwing may become more active and enter the fishery. Halvorsen et al. (2020) found that CPUE of Corkwing and Ballan Wrasse increased between June and September, before declining in October, similar to the pattern displayed in Figure 4C.

Summary

- During the 2024 season, effective communication was maintained between Southern IFCA and fishery participants leading to high levels of compliance with Fishery Guidance and the Monitoring and Control Plan.
- The 2024 Wrasse Fishery did not exceed any of the trigger levels for variables defined in the Monitoring and Control Plan.
- A Generalized Linear Model was used to analyse the data submitted by fishers on monthly catch returns. The predicted effects of the Total $LPUE_{pot}$ were best explained by the variables Year, Area Fished and Month.
- Total $LPUE_{pot}$ has reduced from 2023, however results were not found to be significantly different to the previous year and remain above the 2018 baseline data.
- All wrasse fishing in 2024 occurred outside of the Studland to Portland SAC.
- Southern IFCA will continue to manage the fishery through the Wrasse Fishery Guidance, the Monitoring and Control Plan and the Minimum Conservation Reference Size Byelaw.
- In line with the current Habitats Regulations Assessment for the fishery, undertaken prior to the 2023 season, Southern IFCA will continue to keep up to date with any new external evidence which becomes available which may help inform future management of the fishery and associated monitoring.
- Southern IFCA have and will continue to support the development of the Wrasses complex FMP through the provision of data on the Dorset Live Wrasse Fishery.

References

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