

Live Wrasse Fishery

Monitoring and Control Report 2021

The wrasse fishery supplies live wrasse to UK Salmon farms for use as natural pest control. In the Southern IFCA District, wrasses are removed from the Weymouth and Portland area, in and around the Studland to Portland Special Area of Conservation (SAC). In accordance with requirements under the Conservation of Habitats and Species Regulations 2019, the fishery has been assessed through Habitats Regulations Assessments (HRA) in order to ensure, the fishery does not lead to an adverse effect on the site's integrity. The fishery is managed through Minimum Conservation Reference Size (MCRS) and 'Wrasse Fishery Guidance' and, it is monitored in line with a Monitoring and Control Plan (MCP). This fishery report describes the outcomes of the data analysis for the 2021 season used to assess the indicators specified in the MCP.

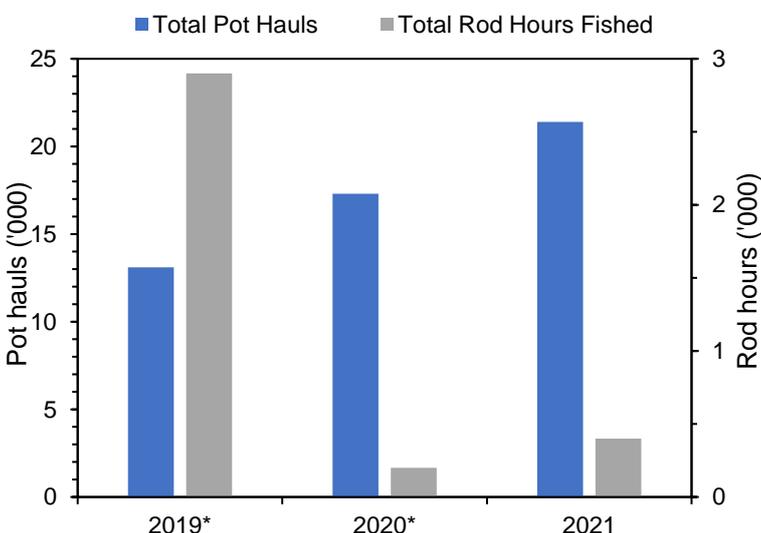
Fishing Compliance, Effort and Location

Southern IFCA compliance inspections in 2021 showed adherence to the MCRS and wrasse fishery guidance. Ten fishing vessels harvested wrasse in 2021, two of which fished for only one month. Eleven percent more wrasses were removed from the fishery than the 2018 baseline (*Table 1*).

Table 1. Comparative fishing effort levels for the Southern IFCA wrasse fishery 2018 to 2021.

| | 2018 | 2019 | 2020 | 2021 |
|----------------------------|--------|--------|--------|--------|
| No. fish landed | 32,825 | 42,295 | 34,299 | 36,331 |
| No. fishing vessels | 9 | 11 | 9 | 10 |

Similar fishing effort (number of trips by location) occurred in 2021 to 2020, with most trips taking place outside of the SAC, in Balaclava Bay and Portland Harbour/ Weymouth Bay. In 2021, the number of pot fishing trips recorded on CRFs increased most notably outside of the SAC. However, two catch return forms (CRF) were not received in 2020 and therefore effort is anticipated to have remained stable since 2020. Rod and line fishing trips remained at levels significantly less than in 2019. In 2021, the number of rods fished within the SAC and the wrasse fishery remained the same as 2020. The number of pots used within the SAC has risen slightly from 70 to 80 in 2021 although, overall, the total number of pots fished in the fishery has reduced by 15 %. Total Pot Hauls and Rod Hours (Figure 1) cannot be compared to previous years however, data from 2021 does not suggest that either has increased significantly.



*Figure 1. Total pot hauls and rod hours fished in the Southern IFCA live wrasse fishery. * All data from Catch Return Forms which were incomplete in 2019 and 2020. Note: separate axis for different fishing methods.*

Method

Southern IFCA receive 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 CRF throughout which details their fishing activity, effort and catch on a daily basis. CRF data is used to calculate Landings Per Unit Effort (LPUE) for either 'pot' or 'rod and line' fishing methods. The LPUE is calculated for 'ballan' and 'mixed' wrasse groups.

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

Further information on methodology is available on the Southern IFCA website 'Live Wrasse Fishery' page.

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NEW Minimum Conservation Reference Size Byelaw

In July 2021, Southern IFCAs 'MCRS Byelaw' came into force. This byelaw introduced new statutory MCRS for the following wrasse species, replacing those applied through the Wrasse Fishery Guidance:

- Ballan wrasse: 180 mm
- Corkwing wrasse: 140 mm
- Goldsinny and Rock cook wrasse: 120 mm



Landings Per Unit Effort (LPUE)

For the GLM analysis number of wrasse landed are separated into five categories: Total wrasse LPUE per pot (^{pot}), mixed wrasse LPUE per pot (^{pot}) (excludes ballan), Ballan wrasse LPUE per pot (^{pot}), Corkwing wrasse LPUE per pot (^{pot}), and Ballan wrasse LPUE per rod hour fished (^{rod}). The following figures show the variables which best explain the variation in LPUE and the corresponding significance levels for each level of a variable. Note, colours indicate either year or area fished.

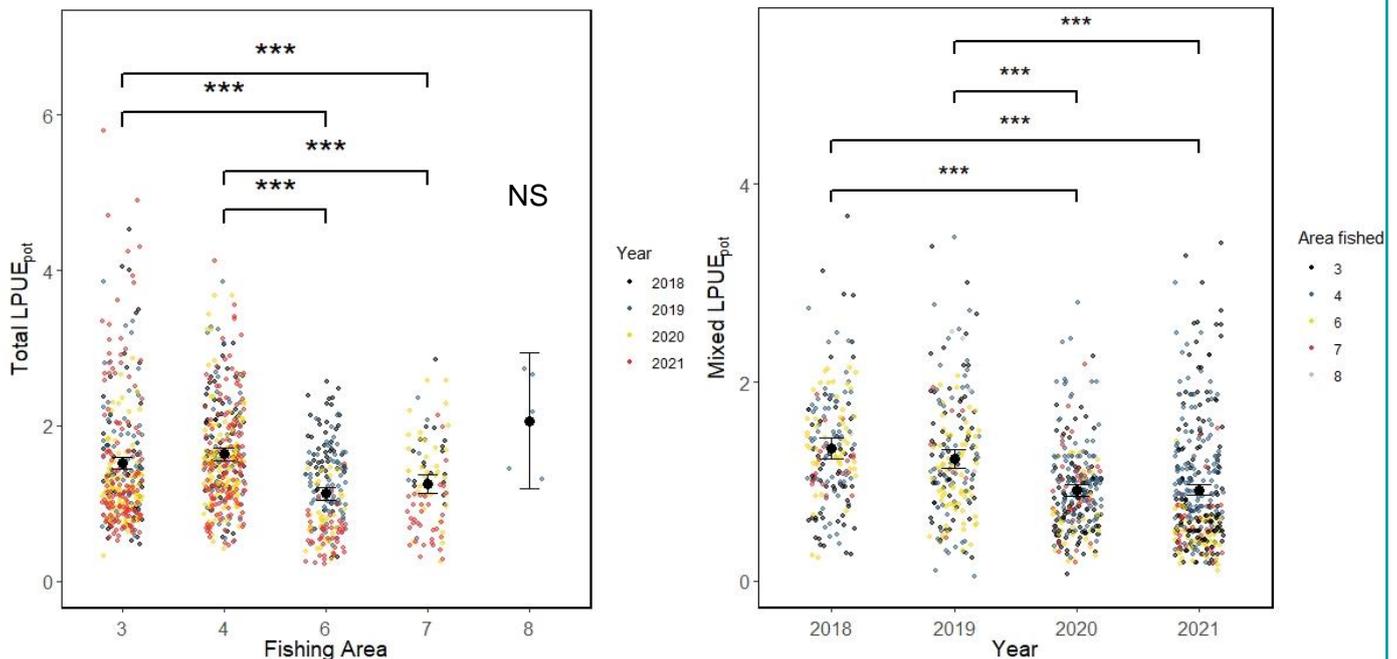


Figure 1. Predicted effects (mean) of fishing area (left) on Landings Per Unit Effort (pot) of total wrasses and, year (right) on Landings Per Unit Effort (pot) of mixed wrasses caught in the Southern IFC District. Error bars show 95% confidence intervals around predicted means as estimated by the Generalised Linear Models. *** denotes <0.001 significance, NS=Not significant. Fishing Area: 3=Balaclava Bay, 4=Portland Harbour/Weymouth, 6=Ringstead Bay, 7=White Nothe to Lulworth, 8=Lulworth to Broadbench

Total and mixed wrasse LPUE^{pot}

Similar to the results from 2020, analysis by Year did not explain the variation in total wrasse LPUE^{pot}, whilst neither did Day Of Year. Area fished significantly explained the variation, with Balaclava Bay and Portland Harbour/ Weymouth Bay showing higher LPUE^{pot} than Ringstead Bay and White Nothe to Lulworth (Figure 1).

For mixed wrasse LPUE^{pot}, the variable year explained the variation, with 2018 and 2019 LPUE higher than 2020 and 2021 (Figure 1). However, no significant difference was seen between 2020 and 2021.

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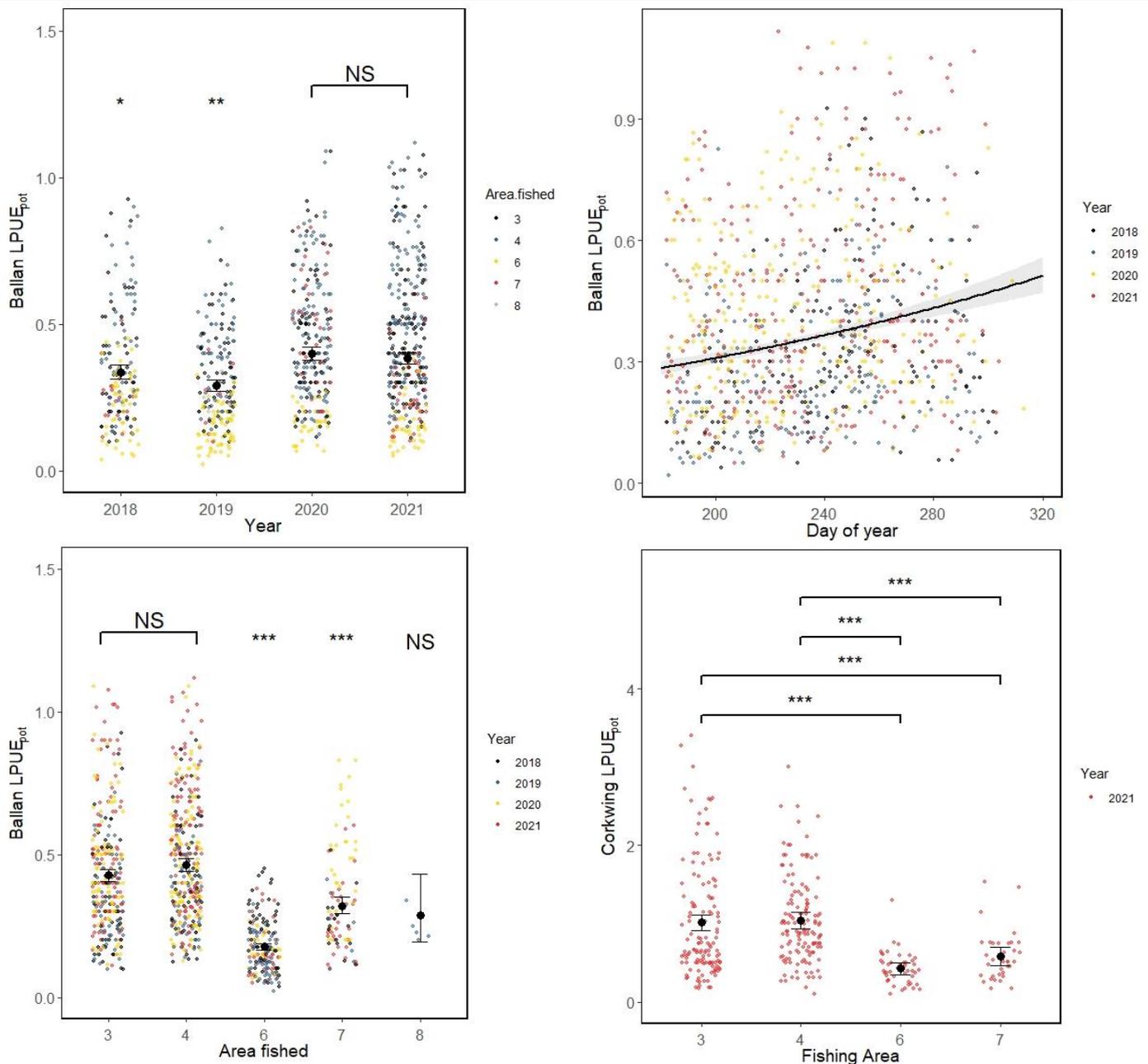


Figure 2. Predicted effects (mean) of year (top left), day of Year (top right) and fishing area (bottom left) on Landings Per Unit Effort (pot) of ballan wrasse caught in the Southern IFC District. Predicted effects (mean) of fishing area (bottom right) on Landings Per Unit Effort (pot) of corkwing wrasse caught in the Southern IFC District. Error bars show 95% confidence intervals around predicted means as estimated by the Generalised Linear Models. * <0.05, ** <0.01, *** <0.001 denotes significance, NS=Not significant. Fishing Area: 3=Balaclava Bay, 4=Portland Harbour/Weymouth Bay, 6=Ringstead Bay, 7=White Nothe to Lulworth, 8=Lulworth to Broadbench

Ballan and corkwing wrasse LPUE^{pot}

Year, Day Of Year and Area Fished explained the variation in Ballan wrasse LPUE^{pot} (Figure 2). Significantly more ballan wrasse were caught in pots in 2020 and 21 when compared to 2018 and 19. Ballan wrasse catch in pots increased throughout the season. Significantly less Ballan wrasse are caught in the fishing areas Ringstead Bay and White Nothe to Lulworth.

For Corkwing wrasse only data from 2021 was available. Area fished explained the variation with Balaclava Bay and Portland Harbour/Weymouth Bay showing significantly higher LPUE^{pot} than Ringstead Bay and White Nothe to Lulworth (Figure 2).

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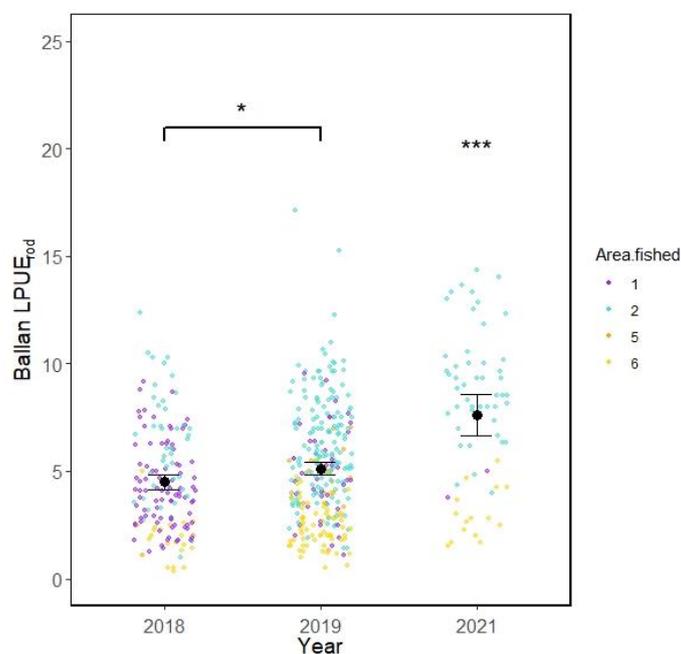


Figure 3. Predicted effects (mean) of Landings Per Unit Effort (rod) of ballan wrasse caught in the Southern IFC District. Error bars show 95% confidence intervals around predicted means as estimated by the Generalised Linear Models. * <math><0.05</math>, *** <math><0.001</math> denotes significance. Fishing Area: 1=West Side of Portland, 2=Portland Bill, 5= Weymouth Bay, 6=Ringstead

Ballan wrasse LPUE^{rod}

Year explained the variation in Ballan LPUE^{rod} with a significant increase seen in 2021 (Figure 3). Due to a lack of rod fishing data from 2020, this data could not be included in the analysis.

Discussion

In 2021, the number of fish bought and number of fishery participants remained within the range of baseline levels. Despite a small increase in pot numbers being used in the SAC, overall pot numbers in the fishery have reduced since 2020. Fishing trip effort is anticipated to have remained similar to 2020 but data cannot be directly compared due to limitations.

Once again, total pot caught wrasse LPUE was not significantly different between years indicating that landings are stable and the wrasse fishery is operating at a sustainable level. Similarly, in 2021 the LPUE for mixed pot caught wrasse remained stable strongly suggesting that the decline seen between 2019 and 2020 was due to a reduction in target wrasse species, with the focus primarily being only ballan wrasse and corkwing wrasse more recently. Pot caught ballan wrasse LPUE increased throughout the season, and remained higher in 2021 than in 2018 and 2019. Whilst natural variation in the wrasse population may explain this it is also likely that continued reduced effort in the rod and line fishery is enabling a greater proportion of the ballan wrasse stock to be caught in pots. Catches of ballan wrasse remain lowest in Ringstead Bay relative to all other areas. This is also the case for Corkwing wrasse which has been analysed for the first time.

In 2020, insufficient rod and line fishing occurred to analyse the data. However, rod and line fishing data from 2021 showed that LPUE^{rod} of ballan wrasse has increased since 2018 and 2019.

Overall, the analysis of data from the wrasse fishery does not suggest that the fishery is operating at unsustainable levels because the wrasse LPUE categories either remained stable or increased in 2021. Ringstead Bay continues to show lower LPUE when compared to other areas fished.