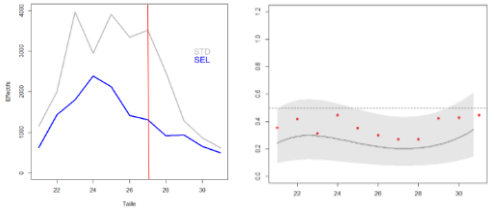
LE BREZGLOW

Species	Var. landings rate (mean)	Var. landings rate (total weight)	Var. discards rate (mean)	Var. discards rate (total weight)
Horse mackerel	**+ 125%**	**+ 58%**	**+ 2%**	**-33%**
Whiting	**+ 2%**	**-24%**	**-12%**	**-32%**



WHITING

Brezglow leads to a reduction in catches only for the fishing trip in August, but with a high level of variability within the pairs.

HORSE MACKEREL : No differencies.

4 Conclusion

This project enabled an improved understanding of the behaviour of different species in response to light to be obtained. The analyses carried out show that **whiting tends to shun the light, and that horse mackerel is equally attracted by the light but could be repelled by it when it is flashing.**

The configurations of lights/SMPs that were tested enabled **catches of whiting to be reduced over two fishing trips** (one fishing trip for each system) **for all sizes of fish – which therefore results in commercial losses.** Adjustments could be made so as to prevent individuals larger than the MCRS (Minimum Conservation Reference Size) from escaping, e.g. the use of T90 netting which is more suitable for this species. Indeed, various studies underline the efficiency of T90 for selectivity in relation to whiting, and it is considered to be more appropriate for selection roughly in line with the MCRS (as confirmed by the results of the SMP/T90 comparison carried out within this project). The efficiency of the lights could also be improved by varying their brightness and adjusting their position on the trawl net (installing them further above the selective panel).

Finally, the results may suggest the influence of criteria linked to the season or the zone such as ambient light or turbidity.

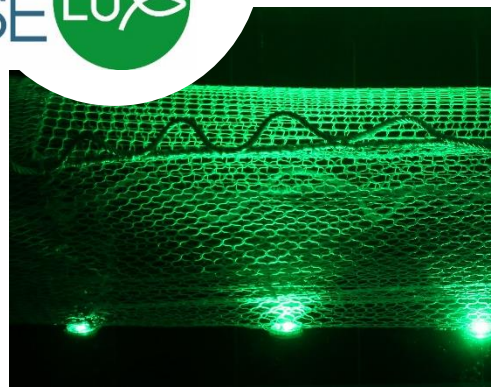
As regards horse mackerel, the configurations that were tested were unable to improve selectivity.

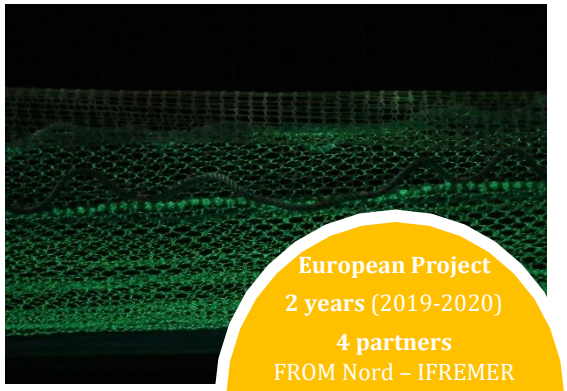
[1] *Gauduchon T., Cornou A., Quinio-Scavinner M., Goascoz N., Dubroca N. (2020). Captures et rejets des métiers de pêche français Résultats des observations à bord des navires de pêche professionnelle en 2018. OBSMER.*

THE SELUX PROJECT

Can light improve the efficiency of selective devices used by artisanal trawlers fishing in the English Channel and the southern North Sea?

Summary of the results





European Project
2 years (2019-2020)
4 partners
FROM Nord – IFREMER
Le Drezen - SafetyNet
2 systems tested
«Brezglow» - «Pisces»
9 experimental fishing trips

Selectivity is a major challenge for the artisanal trawlers fishing in the eastern English Channel and the southern North Sea. In order to comply with **the Landing Obligation** that has been in force since 2019 and to maintain the fleet's long-term **economic viability**, a significant reduction of by-catches is essential. For these ships, the by-catches which are managed by a Total Allowable Catch (TAC) system, and which are therefore affected by the landing obligation, account for up to 52.1% of their total catches (Gauduchon & Al., 2020)[1].

A project that is funded by:

Certification:

Aim of the project: To test the combining of the two lighting systems with the Square Mesh Panel (SMP) which is mandatory **in the North Sea**

Lighting systems tested:

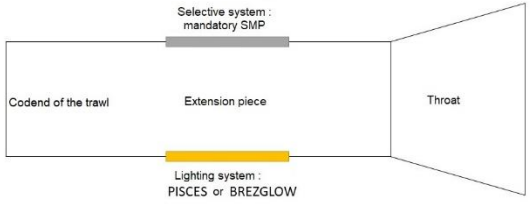
"Brezglow" phosphorescent wire
manufactured by
Le Drezen company

PISCES LED lights
manufactured by
SafetyNet company

1 Preliminary trials

Two preliminary fishing trips lasting 5 days were organised in the spring of 2019 in order to observe the behaviour of whiting and horse mackerel in response to the lighting systems and to **define the ideal location on the trawl for these lighting systems**.

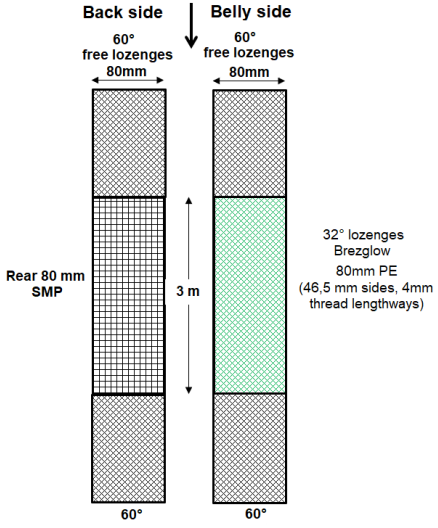
The results of these fishing trips highlight the fact that (at night) these lights and also the Brezglow phosphorescent wire **tend to repel whiting.** In order to encourage small whiting to escape, the **light must therefore be installed on the side opposite the square mesh panel.**



2 Configurations tested

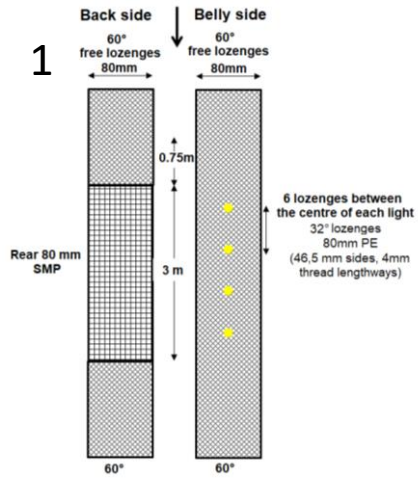
BREZGLOW

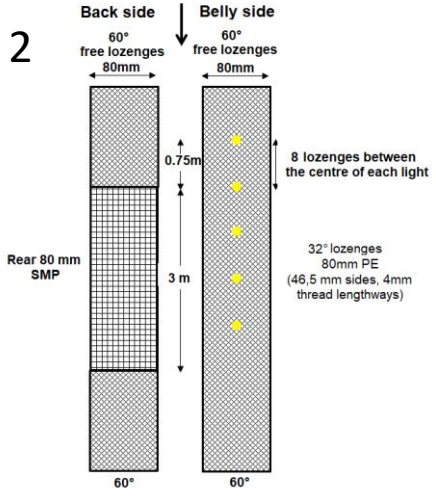
System tested in a single configuration on three 5-day fishing trips between December 2019 and September 2020 in zones 7d and 4c.



PISCES

System tested, in 2 configurations, over four 5-day fishing trips in zones 7d and 4c between October 2019 and June 2020. After the 1st fishing trip, it was decided to add another **PISCES** and **to install one of them above the SMP** so as to encourage the fish to ascend towards the SMP more quickly. It was also decided to use the PISCES in **flashing mode** because it was thought that horse mackerel tended to be repelled by flashing light.



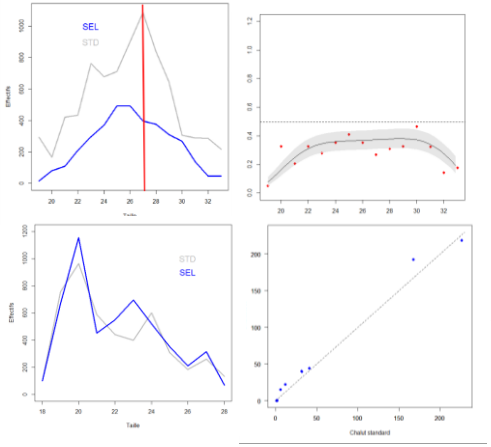


3 Results

The above results were obtained by comparing catches achieved using the test trawl to those achieved with the reference trawl.

PISCES

Species	Var. landings rate (mean)	Var. landings rate (total weight)	Var. discards rate (mean)	Var. discards rate (total weight)
Horse mackerel	+ 101%	+9%	+ 84%	+9%
Whiting	-14%	-7%	-8%	-3%



WHITING

The presence of PISCES leads to a reduction in catches only for the fishing trip in the month of March (green flashing light), and this applies to all sizes (graph).

HORSE MACKEREL

In night-time hauls the presence of PISCES leads to an increase in catches (attraction). If only the hauls using flashing PISCES devices are analysed, there is no discernible difference (graph).