



FIP Executive Report on Participation in Marine Institute UWTV Nephrops Survey Celtic Sea June 2024

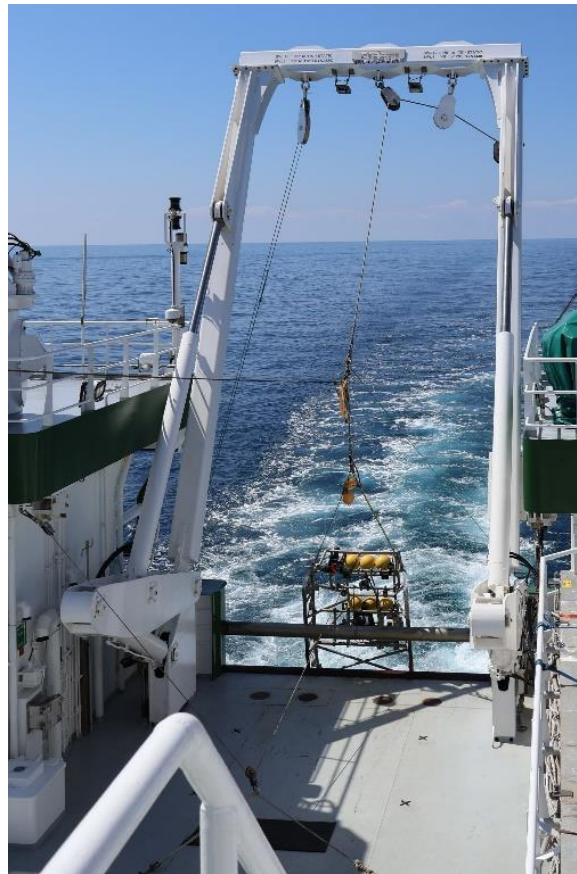




Figure 1. R.V. Tom Crean



Figure 2. *Nephrops norvegicus*

The Irish prawn fishery targets *Nephrops norvegicus* and is one of the most commercially important fisheries in Ireland. To assess and protect nephrops stocks in Irish waters, the Marine Institute conduct annual Under Water TV surveys (UWTV). These surveys are conducted per Functional Unit (FU) and are used to estimate abundance, distribution and stock size of nephrops across FUs around Ireland within ICES Area 7. As part of the Irish prawn FIP workplan, Ciara Dower, administrator with the Irish prawn FIP, joined the Marine Institute scientific research team aboard the R.V. Tom Crean to participate in a 10-day leg of the UWTV survey of nephrops stocks in June 2024. As a member of the scientific team, Ciara engaged in the following tasks:

- Video recording and data acquisition before, during and after station tow operations
- Driving the UWTV sledge during station tow
- Burrow counting to record nephrops activity in and out of burrows
- Review of footage to log presence/ absence of sea-pens, fish species anemones, squat lobster, trawl marks, marine litter and other macrobenthos
- Process, record and identify nephrops, fish, and macrobenthos samples collected using a 4m beam trawl.



Figures 3 & 4. *Nephrops* out of burrow (left) and anemone (right) viewed using HD camera, images recorded at 12 frames per second

FIP participation in the Marine Institute UWTV survey for nephrops as a member of the scientific team is directly related to the FIP prawn workplan as it helps to develop and progress FIP work under the following actions and tasks:

Action 1: To improve fisheries management data

1.1 Set up a formal communication channel between the FIP and scientists so that the FIP has access to up-to-date information regarding issues such as fishing mortality levels across all Irish prawn stocks or Functional Units.

1.5 Use additional data collected to inform protection of stocks within individual Functional Units.

Action 2: Improve management of individual prawn stocks

2.3 Monitor implementation progress of the Functional Unit protection approach with scientists examining aspects such as fishing mortality within individual Functional Units

Action 4: Habitat impact of the fishery

4.1 Reporting on findings from Marine Institute work on VMEs and Irish nephrops fisheries

This executive report aims to describe the operation of the survey as it pertains to the FIP workplan. Participation in the scientific survey gives valuable insight into the process and procedures involved in nephrops stock data collection in Ireland which can help to inform improvements to industry data collection initiatives. It also highlights the importance of industry data collection as the UWTV surveys are conducted during the summer months (May-August) giving only a seasonal snapshot of nephrops stock abundance and distribution. Industry data collection initiatives in the form of self-sampling and sampling at sea are crucial to provide year-round data on the status of nephrops stocks in Ireland and are a central pillar of Action 1 of the FIP workplan.

Active participation in the UWTV nephrops surveys allows the FIP to effectively create linkages between science and industry and to better understand what stock assessment information gaps exist.

The scope of the FIP workplan has recently expanded to incorporate an action on habitats. Tasks under this action include improved information and management of fisheries regarding interactions and impacts on the wider environment, including location of fishing activities in relation to habitats. Participation in the UWTV survey has allowed the FIP to develop our understanding on work undertaken by the Marine Institute on habitat and VME impacts of nephrops fisheries in Irish waters. It is a specific objective of the UWTV surveys to collect ancillary information from the UWTV footage on the presence of sea-pens, fish species, other macrobenthos and trawl marks on the seabed to fulfil an OSPAR Special Request (ICES, 2011).



Figure 5. Red circle identifying presence of sea-pen species *Virgularia mirabilis*.

Survey methodology and protocols are described in detail in each of the FUs UWTV survey reports published annually. The 2023 report for FU19 will be available as supporting documentation to this report. Ciara Dower of the Irish Prawn FIP also participated in that survey.

The UWTV nephrops surveys have been run annually by the Marine Institute since 2002. This consistent and long-term data collection operation provides a substantial time series for continued observation of nephrops abundance, distribution and stock size, and the provision of annual catch advice for all the FUs around Ireland. However, with any research endeavour there are potential constraints

Constraints:

- Survey area selection is set at a fixed location within the FUs. As the entire FU is not surveyed, this creates potential gaps in information on nephrops abundance and distribution.
- Surveys are conducted during a specific 3-month window. This provides little to no flexibility in the event of conditions not being suitable during the survey window which creates the risk of a gap in the data time series.
- The high-definition camera sledge cannot be deployed in swells above 2 meters, so surveys are highly weather dependent.

These constraints may be areas where the FIP can further engage with the Marine Institute to provide industry level support to expand the survey area, gather more detailed data on nephrops distribution, and provide meaningful progress under the FIP workplan. Having higher visibility on nephrops abundance and distribution within the FU is particularly

important due to the biology of nephrops. As a species, nephrops have localised distribution with noted regional differentiation between stocks per FU. There is very little to no crossover of stocks between FUs meaning an emphasis must be placed on protecting stocks in areas where the stock size is decreasing. Developing data collection efforts and using the additional data collected to inform protection of stocks within individual FUs while also being conscious of the effects of displacement of fishing efforts is a core component of many tasks within the prawn FIP workplan. Participation in a leg of the 2024 UWTV survey and the knowledge gained from the survey and the analysis of previous survey reports highlights the importance of Functional Unit-based fisheries management within an Area 7 based approach.



Figure 6. Nephrops processing during trawl tow. Nephrops in blue box are males, white box are females. Females are sectioned by maturity. All nephrops are counted, weighed, and then measured using electronic callipers.

Summary of benefits for FIP workplan of participation in UWTV survey

- Creates better link between industry and science.
- As the survey is only a snapshot of nephrops abundance at a particular time it highlights the need for ongoing industry data provision as per Action 1 of the FIP workplan.
- Participation in the survey improves our understanding of stock assessment information gaps and also whether industry data provision can help to fill such gaps.
- Participation in the UWTV survey improves our understanding of the work being done by the Marine Institute on fishery impacts on habitats and VMEs.
- Having a better understanding of the areas covered by the survey opens up the possibility that fishers involved in the FIP can provide information on potential new areas of nephrops distribution and to potentially expand the survey area coverage.

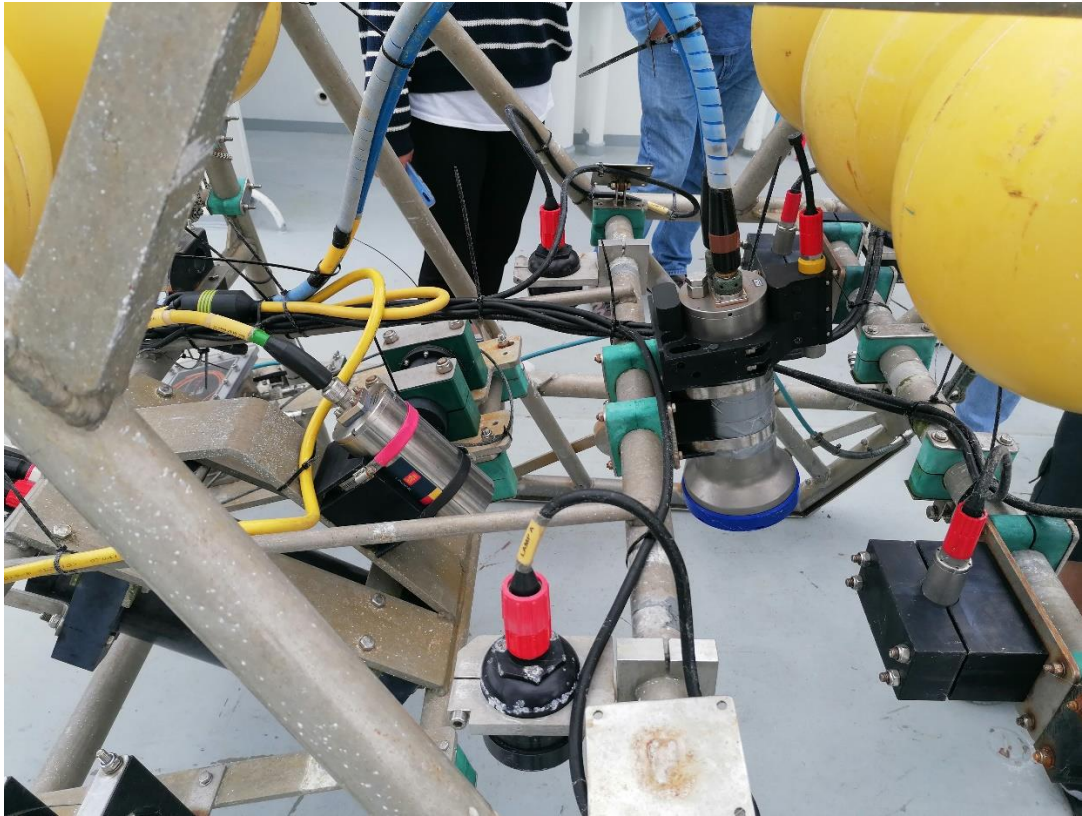


Figure 7. Close up image showing HD camera used to record burrow tows (left) and a live feed camera for driving operations (right). HD camera is set at a 75° angle for optimum view of nephrops burrows



Figure 8. Dry lab operational set up aboard the R.V. Tom Crean