



Marine
Conservation
Society



Seasearch Wales

Crawfish *Palinurus elephas* historical diver records

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1. INTRODUCTION

1.1 Crawfish

Palinurus elephas, crawfish also known as crayfish, spiny lobster or rock lobster are marine crustaceans. They are a 'lobster-like' animal but have smaller claws and are spiny. They are also bright red/orange, unlike lobsters which are blue.



Crawfish are found in the sub-tidal on exposed rocky seabeds where protective holes are numerous, in depths typically between 5-70m, but can be recorded as deep as 150m.

In the Britain and Ireland they are found along western coasts from Shetland southwards towards the Isles of Scilly.

Elsewhere in Europe, they are found along the eastern Atlantic from Norway to the Azores and in the Mediterranean. In Wales, they are found around the Llyn Peninsula and Pembrokeshire, although numbers are now very low. Commercial fishery (netting) still exists off the Pembrokeshire coast.

1.2 Current Status in Wales

Until the late 1970s, species-specific landing data for the crawfish was not collected in the UK, preventing an accurate historical documentation of the UK decline of this species, and thus the Welsh decline.

Data we do have for Wales to indicate a decline in this species:

Catch Per Unit Effort (CPUE) data available for Welsh pot-hauled crawfish fishery fell from 55,000kg in 1979 to less than 500kg in 1995 (Hunter, 1999).

An assessment by the International Council for the Exploration of the Sea (ICES) of the Celtic Sea (including the Irish Sea, the Western Channel and the west coast of Scotland) describes the current catches of the stock of the crawfish as 'residual' (ICES 2006). *A similar decline is also documented for crawfish fisheries elsewhere along the European Atlantic coast e.g. Ireland, Spain and Portugal).*

The widespread decline of the crawfish may be traced back to the period of 1960-1980 depending on the area. During these years, fishing effort increased dramatically as pots (and divers) were replaced by nets and technological advances. However, lack of reliable historical catch and effort data allows only a circumstantial cause-and-effect relationship to be identified (Goni & Latrouite, 2005).

Scuba diving for crawfish is also identified as a cause of a decline in the crawfish population. A fishery operating out of Pwllheli on the south side of the Llyn Peninsula using divers during the late 1970s led to a rapid decline in numbers in that area, within 2 years, diving for crawfish became economically unviable. A similar diving fishery operated in Pembrokeshire rapidly reducing crawfish from shallow waters.

Where this species was once taken in a targeted fishery, it is still commercially sought after but is largely caught as a by-catch in multi-species fisheries. Although a small number of fishing boats do continue target known seasonal migration areas close to the Pembrokeshire offshore islands.

1.3 Action in progress

Crawfish has now been identified as a species that needs protection and is on the UK Biodiversity Action Plan species list. During the 5th quinquennial review of the Wildlife & Countryside Act, this species was proposed by Countryside Council for Wales as candidate species for inclusion on Schedule 5 of the Wildlife & Countryside Act, 1981 where it would have full protection. The results of the 5th review have not yet been published.

1.4 Seasearch in Wales

Seasearch is a national volunteer diving project run by the Marine Conservation Society. It trains recreational divers to undertake habitat and species surveys and organises diving surveys all around the UK coast. Seasearch data is entered into the national database Marine Recorder and summary reports produced. In Wales Seasearch has completed surveys around the Welsh coast targeting both popular diving areas but also sites where very little is known. The surveys also support collecting data on both Biodiversity Action Plan marine habitats and species. This has included eelgrass beds *Zostera marina*, fan shell *Atrina fragalis*, native oyster *Ostrea edulis*, skates and rays, tidal rapid reefs and crawfish *Palinurus elephas*.



2. HISTORICAL RECORDS WELSH CRAWFISH SURVEY

2.1 Survey aims

This survey aims to collate historical records of crawfish sightings from log books and memory of recreational divers at Welsh sites.

Divers maintain logbooks for all dives completed, this includes the date, site, dive time and depth and also a record of some of the memorable things they have seen on the dive. Generally if lobsters or crawfish are seen on a dive they will be recorded by your regular diver as they are big and easily recognisable. There are around 40 dive clubs with 1600 divers in Wales which if targeted could provide a huge historical data resource.

Seasearch volunteers divers are members of many of these dive clubs and it is proposed that these volunteers run a project at their clubs to retrieve the crawfish data from the diver log books and from diver memories.

The aim is for this information to contribute to our understanding of historical distribution of crawfish (and decline) in Wales and possibly contribute to any future restoration programme.

The information will help identify sites in Wales suitable for future monitoring to assess any recovery of the crawfish population (either natural or enhanced).

2.2 Survey method

1. Produce an information resource pack that will include: introduction letter, Crawfish fact sheet, poster and recording sheets.
2. Establish an online crawfish recording system on the Seasearch website,
3. Distribute the packs to Welsh dive clubs, dive centres and dive charter operators.
4. Project to be promoted on the Welsh Association of Sub Aqua Club (WASAC) website, Welsh BSAC google group, dive centres and charter boats and national dive magazines.
5. Data entered online or sent to Seasearch West Wales co-ordinator. Data to be combined to produce a spreadsheet of historical Crawfish distribution in Welsh coastal waters. Data to be provided to CCW for production of GIS maps following CCW sensitive data guidelines.

3. RESULTS

Crawfish online recording was established July 2009 on the Seasearch website: www.seasearch.org.uk.

Crawfish project information packs, were produced and distributed to Welsh dive clubs, centres and dive charters in January 2010.

Publicity and awareness of the project was achieved through national dive magazines, BBC website, WASAC website, Radio Wales and Pembrokeshire Radio during January, February and March 2010.

3.1 Dive records

A total of 164 dive records have been received by recreational divers and entered onto a spreadsheet. The raw data has been provided to CCW, it can not be published as Crawfish are a named species on the CCW species sensitive data list, therefore access to data is restricted.

The data has been used to produce some basic distribution maps present the general location of the diver records that have been received. These maps do not provide position data, they do not reflect the numbers of crawfish recorded or represent diver effort. Figure 1 shows all the records from 1968 to 2010, the colours represent the decades the records were made which are each shown in Figures 2 to 5.

An amazing 112 dive records were provided by Ieuan Morris, he dived regularly with his club from 1968 to 1991, at sites primarily on the north Pembrokeshire coast. These records have been particularly valuable as they are for the period before and during the time of the crawfish fishery (both netting and diver caught) in the late 70's and early 80's.

38 dive records for Welsh sites have been received for 2009 and 2010 this will contribute towards current knowledge on distribution and density of Crawfish.

Figure 1. All records: Locations of diver crawfish records in Wales 1968-2010

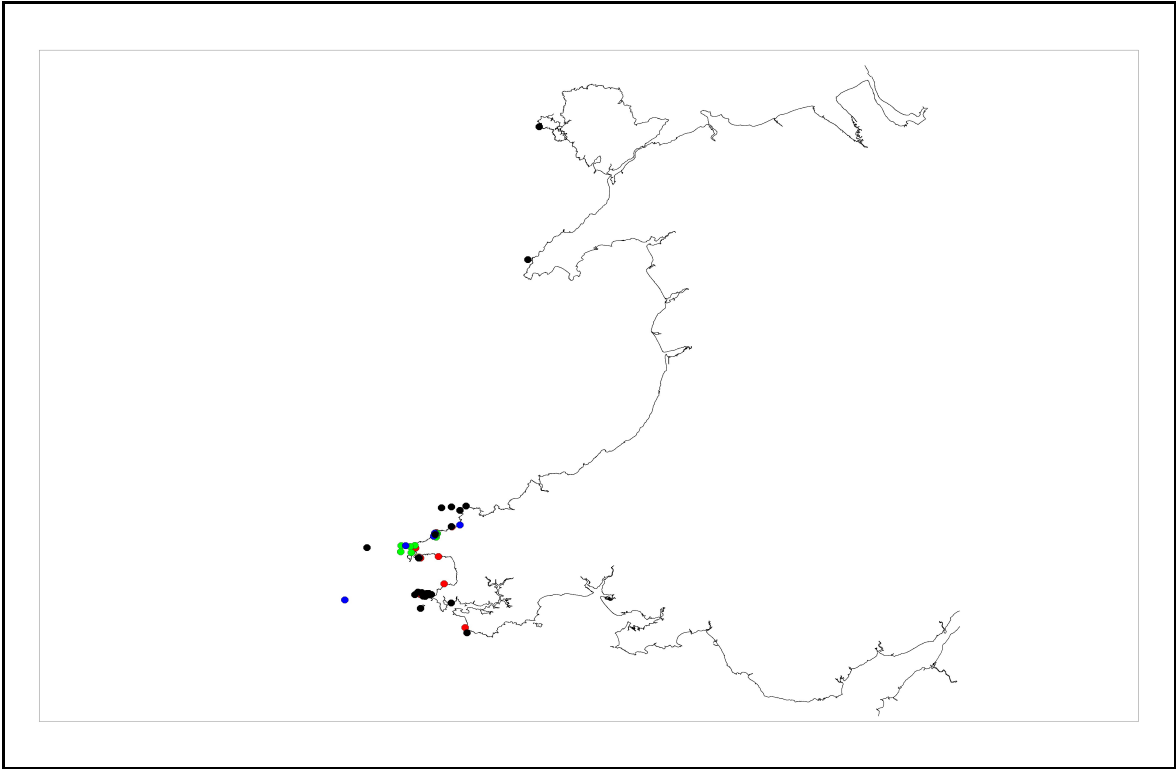


Figure 2: Location of diver records of Crawfish in Wales 1970-1979



Figure 3. Location of diver crawfish records in Wales 1980-1989

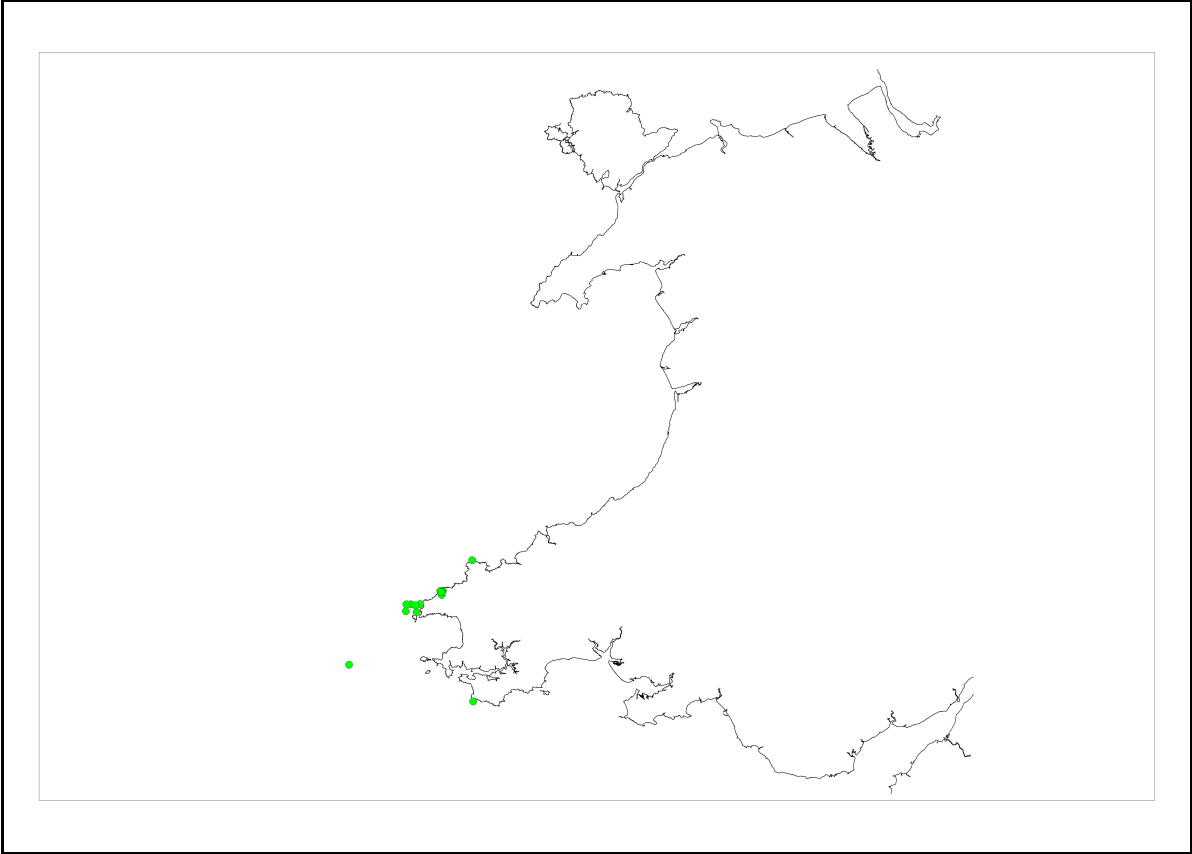


Figure 4. Location of diver crawfish records in Wales 1990-1999

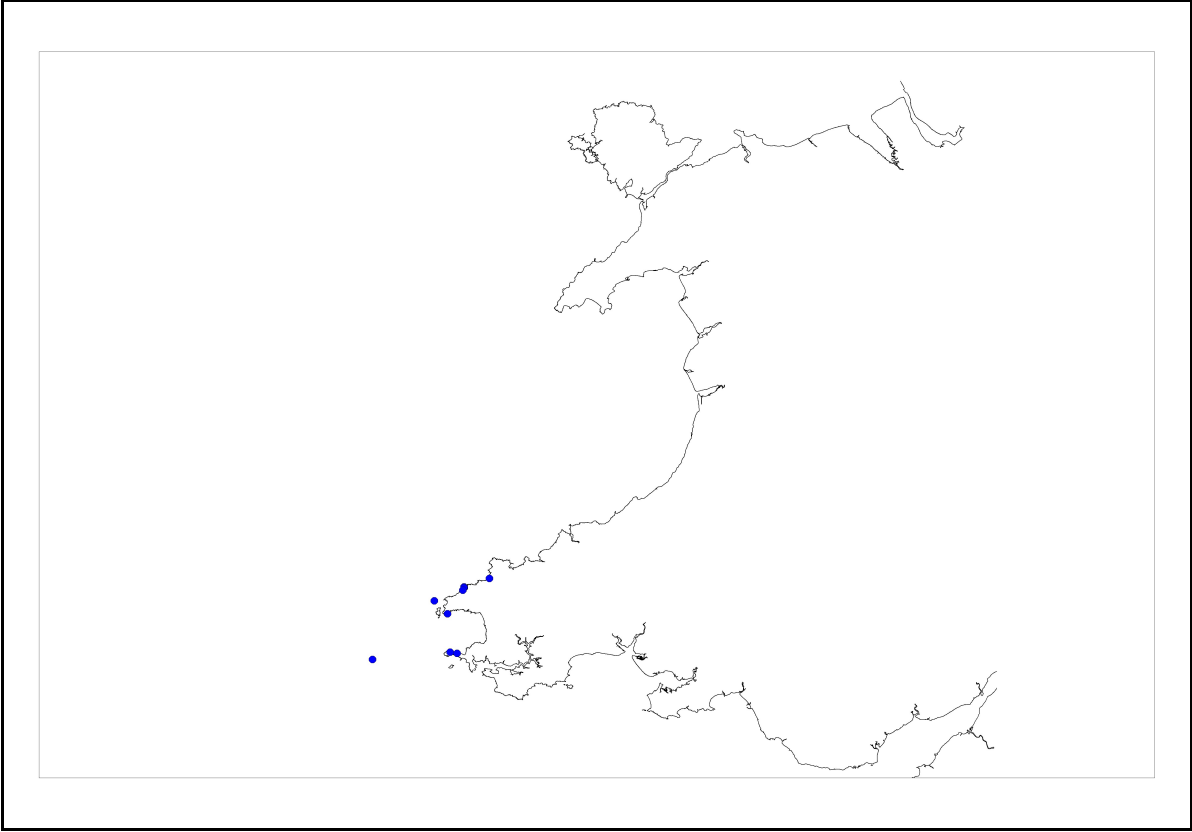
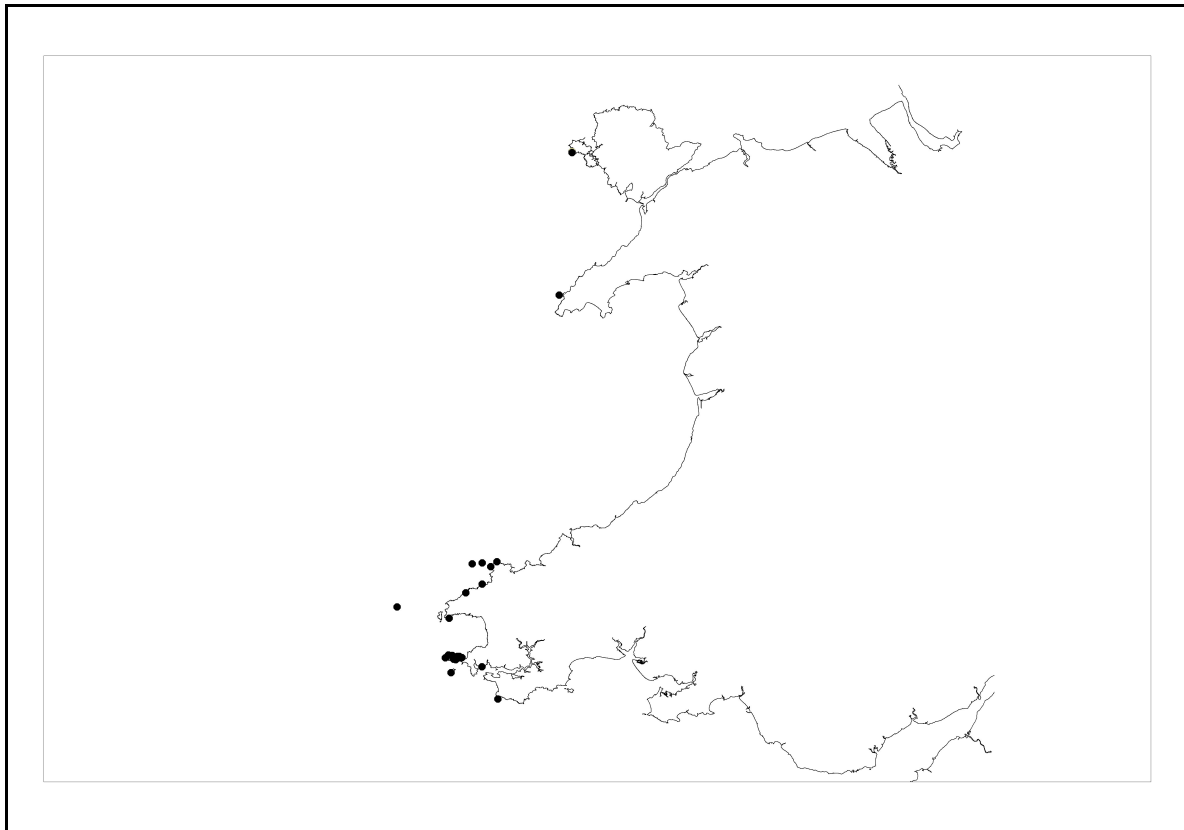


Figure 5. Location of diver crawfish records in Wales 2000 – 2010



3.2 Personal accounts

In addition to the dive records the following personal accounts were also received:

Micheal Keane: In the early 80s I used to dive around Ramsey Island, the south side of the bitches was always very productive for collecting crawfish. 1980-1981, 20 large adult crawfish.

Billy Williams: Early/mid 70's there were several boats diving out of Milford Haven - most were part time/weekenders but there were a couple of fulltime vessels. Weather and tides meant many restrictions. The main areas fished were the offshore islands and reefs - The Smalls, Grassholm, Skokholm, Hats & Barrels reef. Inshore would be Linney Head, Gateholm, West Dale. I would estimate that when conditions were favourable many dozens of fish were landed in a week all taken by hand in depths ranging between 40 & 100 feet and almost entirely on rocky ground. Prime fish were 3lb in weight and large cocks went up to 7 - 8lb and more. The 'season' lasted between May & September. Those were the times they arrived and left the shallower warmer waters. No-one I know has dived specifically for craw (or cray as they are known locally) for many years and I hope the population has recovered after the pasting it took in those years. We didn't think about stocks and, thinking about it now, some of those larger cocks must have been many years old. The craws were far, far more vulnerable than lobster. They sat in crevices or on rocks, were easily seen in reasonably clear water and usually made no attempt to evade capture.

I am honestly finding it upsetting to write this!

Lobster was elusive, camouflaged and mainly nocturnal. A few were taken but were often ignored.

The crawfish is a magnificent creature - even the youngsters - I have seen them no more than 6 inches long with antennae 24 inches!

I wish them well.

We assumed the fish came in from the deeper Atlantic waters. As you know, Milford Haven is at the extreme western limit of The Bristol Channel. I mentioned Linney Head which is about 3 miles east of Milford Haven. That seemed to be the eastern limit of the migration with none being taken along the northern shore of the Bristol Channel. I know that Lundy Island was fished but know nothing about the North Cornish and Devon area. I believe the south eastern Irish coast was also fished.

Jeremy Carroll: I remember going to Dale, Pembs with UCW Aberystwyth in 1972 - we (the Uni sub-aqua club) camped with Aber Uni sailing club in a field/bog behind the beach at Dale. I was a baby diver then but the hard cases were going out and returning with numerous crawfish from, I think, St Ann's Head. I suspect they were selling them to finance their holiday...!

4. DISCUSSION

In 2009 and 2010 the numbers of crawfish recorded on dives in Wales was critically low and the few sightings observed were at only a handful of locations. This is in contrast to the high numbers that were recorded by divers during the 1970's and into the 1980's. The reduced abundance is a direct result of over fishing by the combined efforts of the commercial fishing and diver caught methods.

Many sites in Wales where crawfish have historically been recorded by divers have been identified in this survey. It is therefore possible to select sites with suitable habitat for crawfish if any restoration programmes occur in the future.

Sites where current records of crawfish have been observed should be used as target sites for future monitoring to assess any recovery of the population. However these sites need to be protected either with a fisheries byelaw prohibiting taking of Crawfish or by locating the monitoring sites within 'Statutory No Take Zones' to ensure full protection, for example with 'Highly protected Marine Conservation Zones'.

5. RECOMMENDATIONS

1. Continue collecting diver records on the Seasearch website and through organised Seasearch diving surveys.
2. Select sites in Wales with suitable habitat to monitor any recovery of the crawfish population. These sites could also be suitable for any future restoration programmes.
3. A fisheries bylaw in Welsh waters prohibiting taking crawfish.
4. Include crawfish, *P. elephas* as a species on Schedule 5 of the Wildlife & Countryside Act, 1981 as proposed in the the 5th quinquennial review of the Act.

REFERENCES

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