Cefas G5
New fields of research

Case study

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1 Little Penguins are the first diving bird to be tagged using the G5. (Photo: © Y. Ropert-Coudert)

2 Plaice are just one fish species standing to benefit from the introduction of the new tags.

Skills and expertise employed

- Sustainable resource management
- Stock assessment expertise
- Data collection and analysis
- Hardware development
- Software production
- Customer focus

A wider range of applications

The G5 is much smaller and lighter than previous generations of Data Storage Tag (DST), yet has a much higher memory. The tag is opening up new fields of research for a wider range of species.

Picking up penguin behaviour

One of the first applications for the tags was studying Little Penguin behaviour in Australia.

Scientists studying Little Penguins on Phillip Island used G5 tags to collect their data. Large tags have the effect of introducing underwater drag, which can affect the behaviour of tagged diving birds. As the drag effect is cumulative so the behavioural effects may be increased over time, and accuracy of results diminished. The small size of the G5 means reduced drag and therefore genuine data is collected.

Tags were attached to penguins by adopting a system previously used successfully on several other seabird species. Data was collected during the day-long diving trips that the penguins undertook.

Depth and temperature information was recorded every second during the penguins' dives, before downloading and producing graphs of the results once the tags were retrieved.

Right plaice, right time

In the past, studies of plaice tagged in the North Sea have mainly been restricted to tagging mature female fish. This means there are significant gaps in our knowledge of plaice populations and behaviour. A better understanding will play an important role in safeguarding the future of the stock.

Female plaice are larger than the male, and this has allowed them to carry previous generations of DST. The small size and low weight of the G5 enable it to be used successfully to tag male (and immature female) plaice.

Male plaice tagged with G5's have already revealed new observations. Population structures are already being seen that have not been predicted in spite of 100 years of conventional tagging data. For the first time the migration of a male plaice from the southern North Sea to the western English Channel (a movement of over 500 km during nearly 200 days) has been captured by an electronic tag.

The previous studies have demonstrated that North Sea plaice have a relatively elaborate population structure, and also that the behaviour of male and juvenile fish differs from that of adult females. However, understanding of the relationship between spawning areas, nursery grounds and adult areas is limited. The G5 will provide more information and better insights into the lives of the North Sea plaice.

CTL G5 TAG

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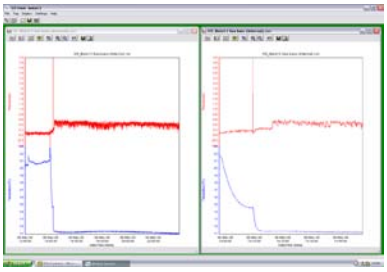

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About us

The Centre for Environment, Fisheries and Aquaculture (Cefas) is a multi-disciplinary scientific research and consultancy centre. We provide a comprehensive range of services in fisheries management, environmental monitoring and assessment, and aquaculture to a large number of clients worldwide. We have more than 500 staff based in 3 laboratories, our own ocean-going research vessel, and over 100 years of fisheries experience. We have a long and successful track record in delivering high-quality services to clients in a confidential and impartial manner. (www.cefas.co.uk)

Cefas Technology Limited (CTL) is a wholly owned subsidiary of Cefas specialising in the application of Cefas technology to specific customer needs in a cost-effective and focussed manner. CTL systems and services are developed by teams that are experienced in fisheries, environmental management and aquaculture, and in working closely with clients to ensure that their needs are fully met. (www.cefastechnology.co.uk)

Customer focus

With our unique facilities and our breadth of expertise in environmental and fisheries management, we can rapidly put together a multi-disciplinary team of experienced specialists, fully supported by our comprehensive in-house resources. Our existing customers are drawn from a broad spectrum with wide ranging interests.

Clients include:

- international and UK government departments
- the European Commission
- the World Bank
- Food and Agriculture Organisation of the United Nations (FAO)
- oil, water, chemical, pharmaceutical, agro-chemical, aggregate and marine industries
- non-governmental and environmental organisations
- regulators and enforcement agencies
- local authorities and other public bodies

We also work successfully in partnership with other organisations, operate in international consortia and have joint ventures commercialising our intellectual property.

3 Cefas G5 DST size comparison with a one Euro coin.

4 Tag output chart.

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