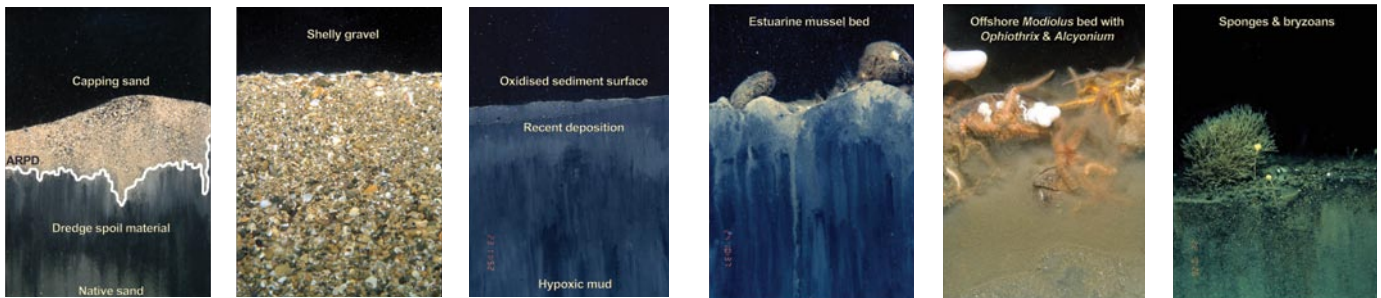


# SPI

## Sediment Profile Imagery

Sea floor mapping and monitoring technology pioneered and developed in Europe by **AQUAFAC INTERNATIONAL SERVICES LTD.**



### WHAT IS SPI?

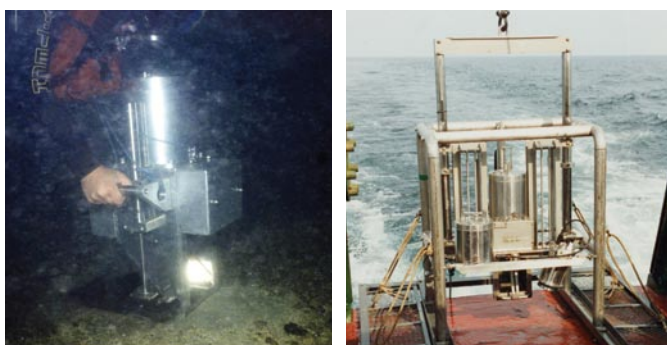
SPI or Sediment Profile Imagery is an innovative and cost-effective method of surveying and/or monitoring freshwater or marine aquatic environments with a view to establishing the environmental status of these habitats or as part of a site suitability study ([www.aquafact.ie](http://www.aquafact.ie)). Further details on the application of the technique are given in Chapter 3 of the Review of Standards and Protocol for Seabed Habitat Mapping (MESH – see [www.searchmesh.net](http://www.searchmesh.net)). This documents the most up-to-date approaches currently in use for mapping marine habitats in the waters of the North East Atlantic and North Sea.

The traditional method of benthic sample collection and subsequent laboratory analysis is time consuming and expensive and data return time to the manager and/or legislator is slow.

SPI is based on digital single lens reflex (DSLR) camera photography and computer-based image analysis which greatly accelerates the time required to write reports and can provide relevant data to the client/legislator in a matter of hours. When required, sites can be assessed on board the survey vessel.

We offer three separate systems for various deployment requirements:

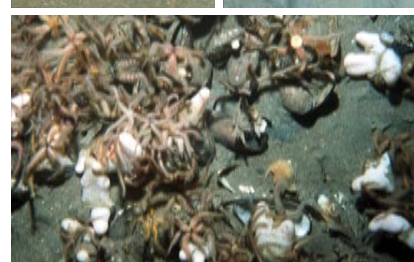
- Hand held diver operated system for use to 40m depth
- 2 × ship-deployed systems for use to 5000m depth



### HOW SPI WORKS

SPI takes images of the upper 25cm of the sea floor for later analysis in the laboratory. Physical chemical and biological parameters which can be documented include:

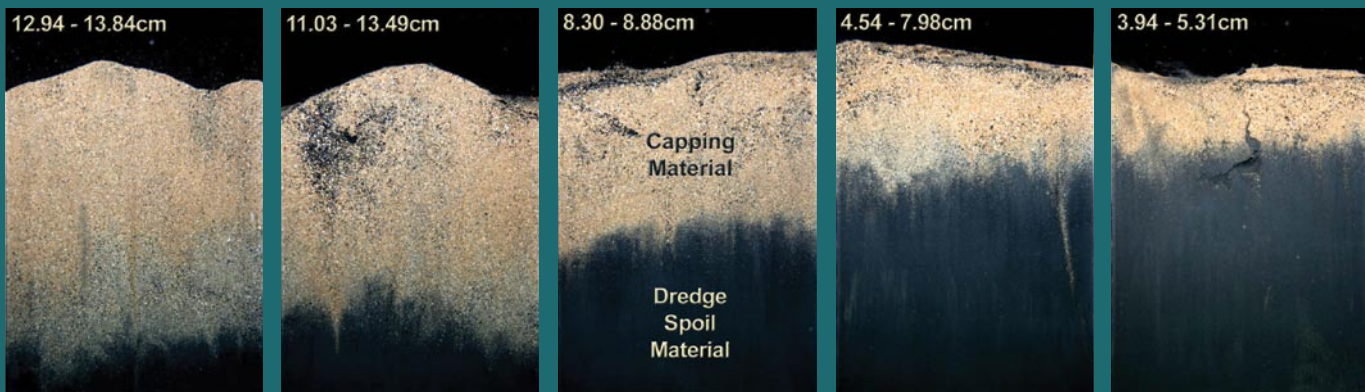
- Grain size
- Surface boundary roughness
- Mud clasts
- Redox depths
- Gas pockets
- Dredged material thickness
- Tube types and density
- Faecal pellet layer
- Feeding voids
- Bed forms
- Marine phanaerogams, seaweed and maërl
- Epibenthic/infaunal macroinvertebrates



To this basic system AQUAFAC has added an additional camera which takes a photograph of the sediment surface before the prism penetrates the sediment. This therefore allows a three dimensional appreciation of the sea bed.

Sediment profile images and representative surface shots.





## ADVANTAGES OF SPI

With the growing requirements for environmental impact assessment and monitoring, SPI provides State Authorities, commercial enterprises and engineering consultants with a very rapid, cost-effective means of assessing the status of underwater sediment habitats. Use of this technique gives a significant competitive edge to the contract price over the use of traditional sampling techniques.

## TECHNICAL DETAILS

- 10/12 megapixel DSLR SPI camera depth rated to 5,000m
- 10/12 megapixel DSLR surface camera depth rated to 3,000m
- Diver operated version rated for use in shallow waters to 40m
- Up to 700 images can be captured on each deployment
- Camera can be deployed in time-lapse mode
- Image capture and recycle time is approximately 60 seconds
- Image quality is not impaired by water turbidity

## SPI HAS BEEN SUCCESSFULLY DEPLOYED BY AQUAFAC IN THE FOLLOWING RANGE OF SURVEYS:

- Gas pipeline routing surveys – offshore Ireland
- Subsea gas field surveys – offshore Ireland
- Oilfield decommissioning surveys – North Sea
- Habitat mapping surveys – Irish Sea, Porcupine Bank, English Channel, Celtic Sea, North Sea
- Aquaculture impact surveys – Ireland, Scotland, Norway, Italy, Greece, Spain
- Dredge spoil disposal surveys – Ireland, France, England, Scotland, Belgium
- Sewage disposal studies – Ireland, Scotland, Greece
- Cold seep surveys – Ireland, Aleutian Trench
- Macrofaunal studies – Ireland, France, Balearic Islands, Spain, Barents Sea, Aleutian Trench, Adriatic Sea



# AQUAFAC

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