Ifremer

Monitoring of sea scallops *Placopecten magellanicus* in bottom seeding trials using video in Miquelon Bay, Saint Pierre et Miquelon, France.

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ODEADOM – IFREMER contract

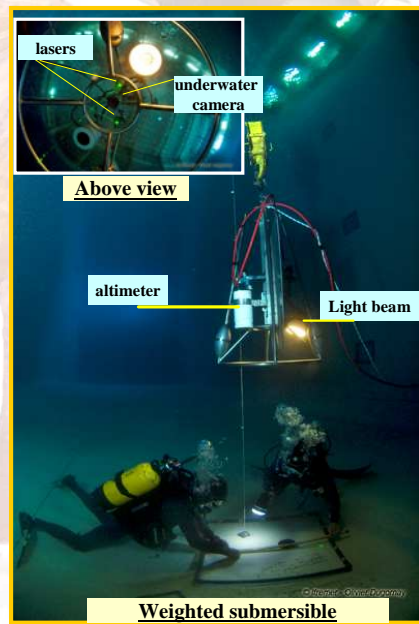**17th IPW April 22-28 2009, Santiago de Compostela, Spain.**

Objectives :

•Monitoring on-bottom seedings of giant sea scallops at 30 to 70 meter deep, using georeferenced video recording.

•Visualise, identify, stock assessement on a known surface.

•Facilitate decision makings for rearing husbandy.

Location Miquelon bay

Experimental development

in experimental pond, calibrating high surfaces.

lasers / underwater camera / **Above view** / altimeter / Light beam / **Weighted submersible**
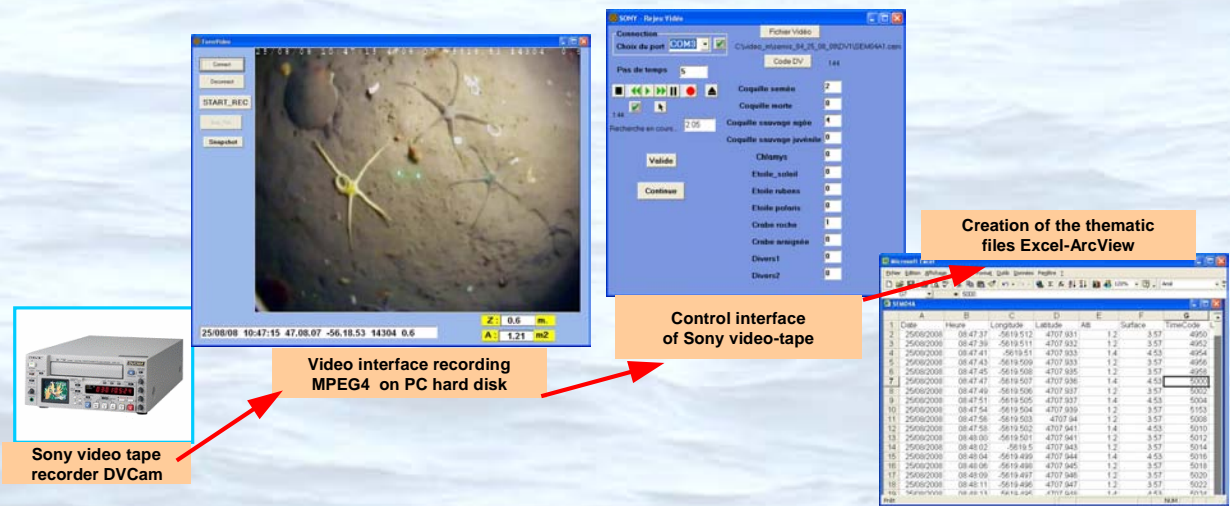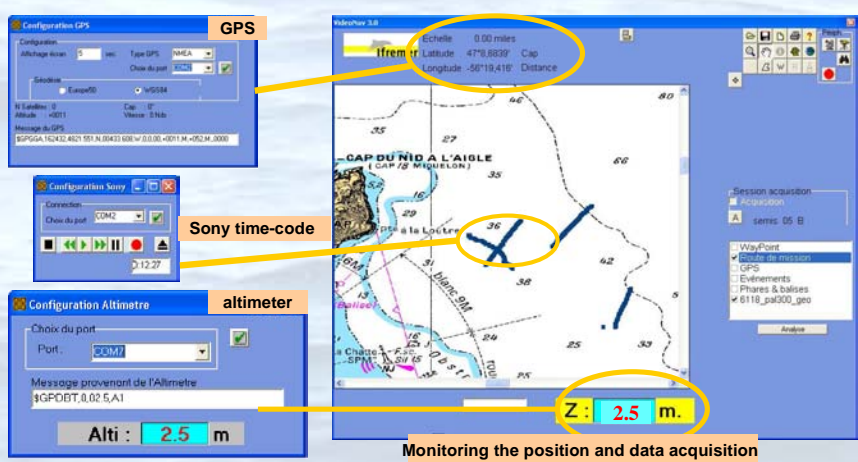
Video ship environment :

① submersible driven structure (underwater camera, 2 lasers-layer, projecteur, altimeter), ② submersion control trolling iron cable, ③ video cable connection, ④ georeferencing GPS, ⑤ data collection (surface monitoring, video tape DVCam, Portable Computer HD storage, GPS, altimeter data).
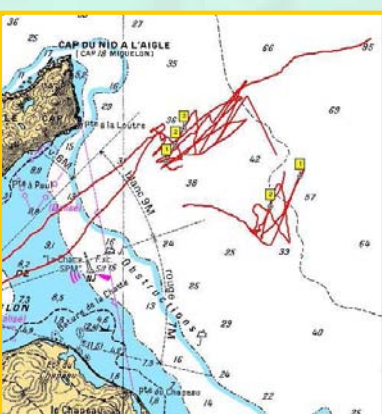

Weighted submersible / ④ Aerial GPS / ② Immersion trawling control / Logistic boat / laser / drift / altimeter / video cable / ① / Video cable connection / ③ / Video tape recorder / GPS / Altimeter input / Surface control unit / P C / Video cable / Monitoring surface acquisition

Software Equipment : VIDEONAV data acquisition and post processing

In navigation In the field, the video profiles using VIDEONAV software creates a data-file computing geographical positions, the time codes of the DV-Cam recorder and displayed surfaces extrapoled from the distance between viewing height and bottom.

Following data acquisition, VIDEONAV allows the re-play of the navigation and of the associated video recordings to complete and generate files of the thematic information which can be directly run by using standard GIS software such as ArcView.

GPS / Sony time-code / altimeter / Alti 2.5 m / Z : 2.5 m. / Monitoring the position and data acquisition

Sony video tape recorder DVCam / Video interface recording MPEG4 on PC hard disk / Control interface of Sony video-tape / Creation of the thematic files Excel-ArcView

Results :

Central laser reference

Seeded pecten (nb/m²)   • 1 - 2   • 3 - 4   • 5 - 8   • 9 - 12   • 13 - 20

Studied area
•Small observed surface (0,19% to 0,49% of the seeding area).
•Observation down to 100 m.

Counting
Assesment of wild and seeded sea scallops.
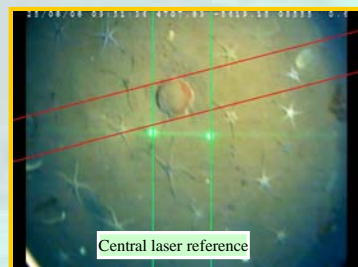
Biometrics
•Estimates the individual size by image analysis on a centered pecten (laser calibration).
•Estimated growth 20 to 25 mm per year.

Associated species
•Bio-competitors *Chlamys islandica* is twice as much abundant within the seeding area.
•Predators *Crossaster papposus* is found in low densities (70 to 120/hectare).
•Dominant species : *Ophiura* spp.
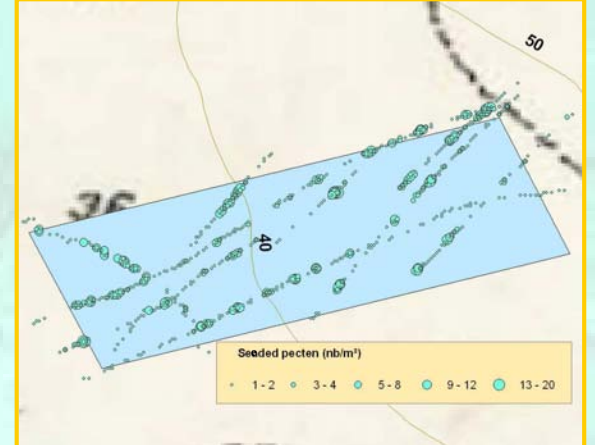
Seed caracterization
•Gregarious behavior.
•Density between 0 and 14/m².
•Within the seeded (blue) area 93% of pecten are in the seeded size and 7% are wild.
•30% of sea scallops are outside of the seeded zone (dispersal rate).