

Acoustic techniques to study fish behaviour: Didson and 3D telemetry

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Acoustic techniques to study fish behaviour

- Tracking individuals by acoustic telemetry VEMCO:
 - VEMCO transmitters & receivers operating at 69 kHz
 - Presence-absence set up: cod in an offshore wind farm
 - 3D tracking set up: response of eel to effluent plume
- Observing small scale behaviour by DIDSON:
 - Dual frequency identification Sonar (“acoustic camera”)
 - Highest resolution at 1.1 - 1.8 MHz range up to 30 m
 - Lower resolution at 700 kHz – 1.2 MHz range up to 90 m

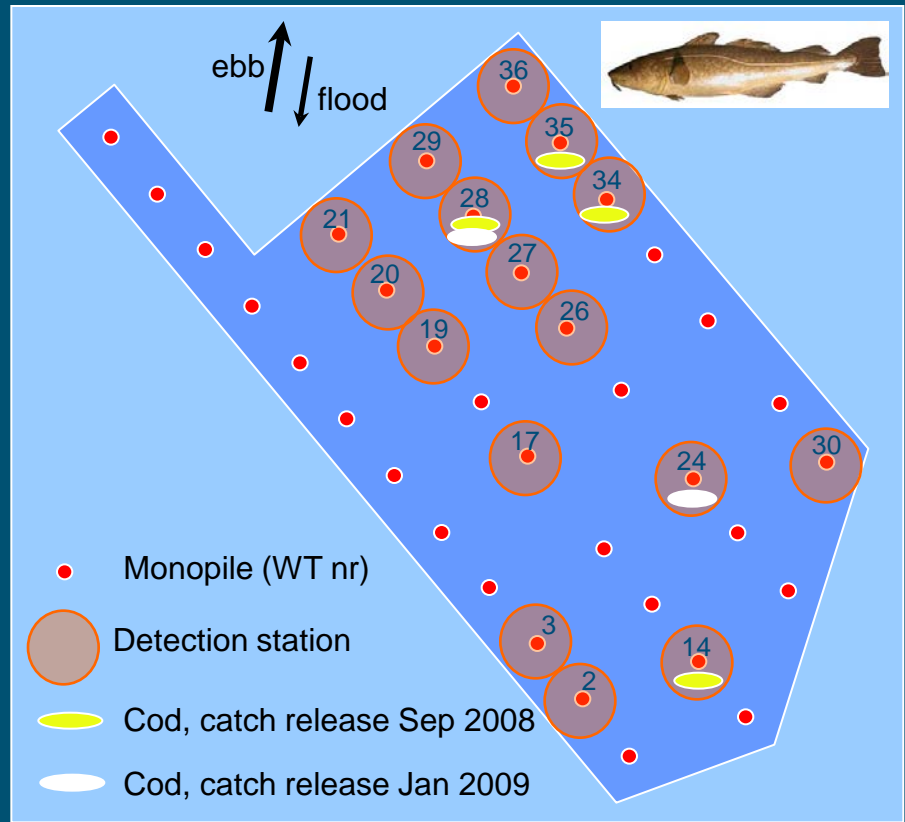
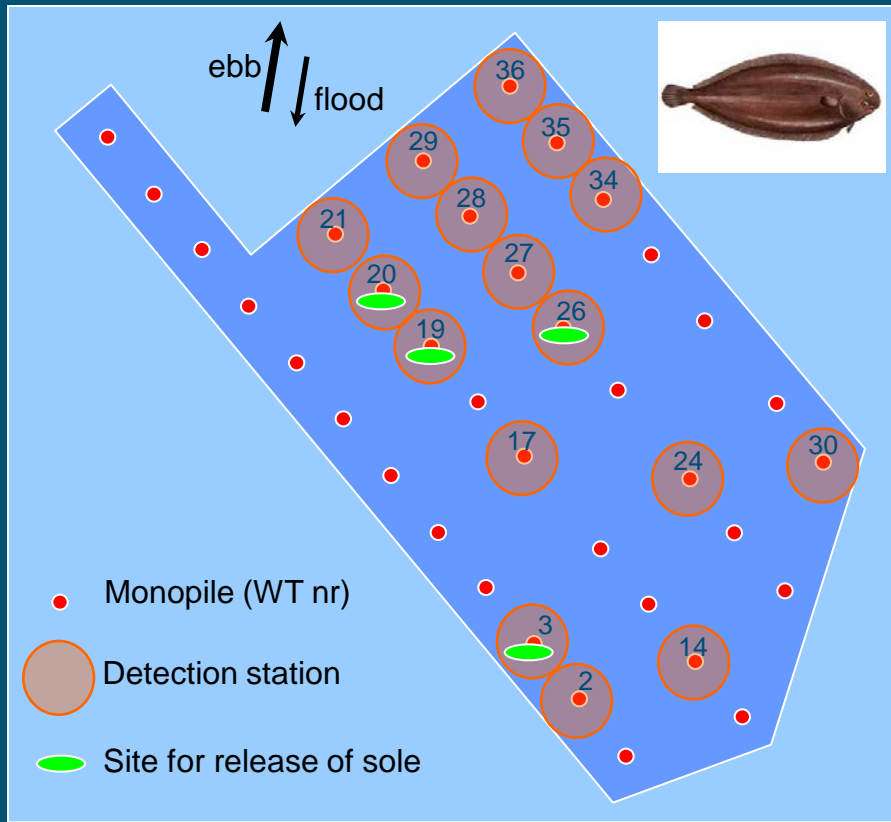
Behaviour of fish in an offshore wind farm



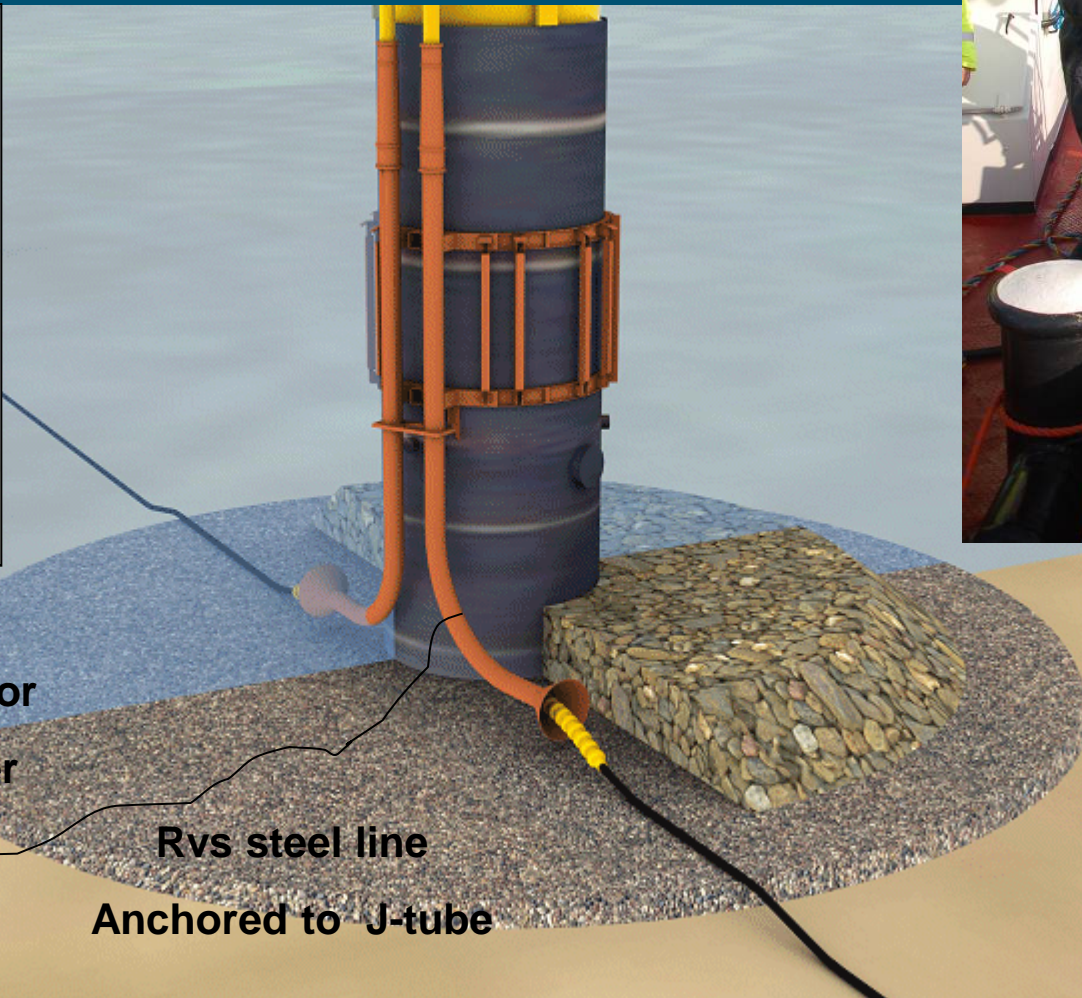
Sole (*Solea vulgaris*)

Atlantic cod (*Gadus morhua*)

Telemetric experimental set-up



Building the receiver network

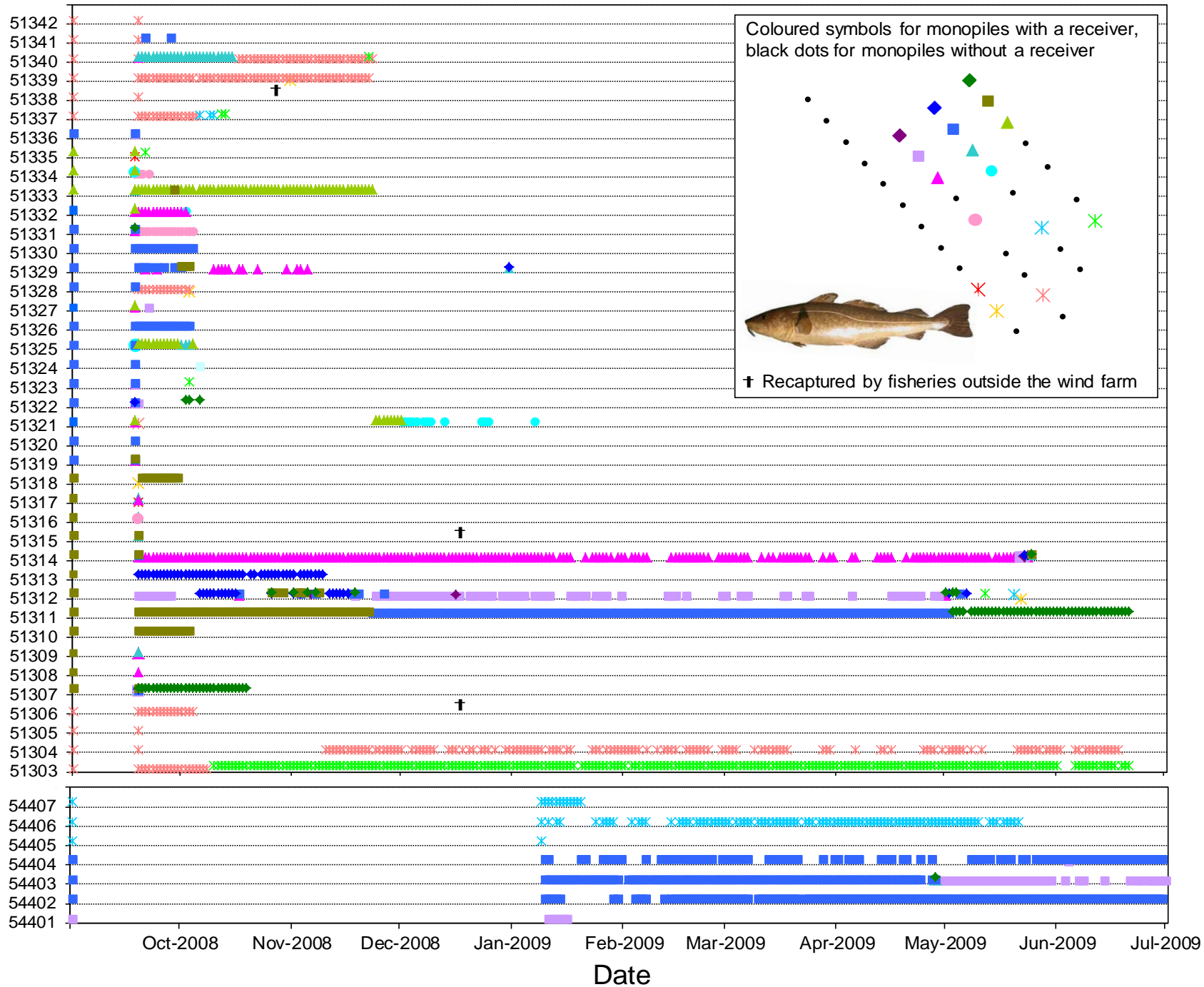


Suction anchor
with receiver

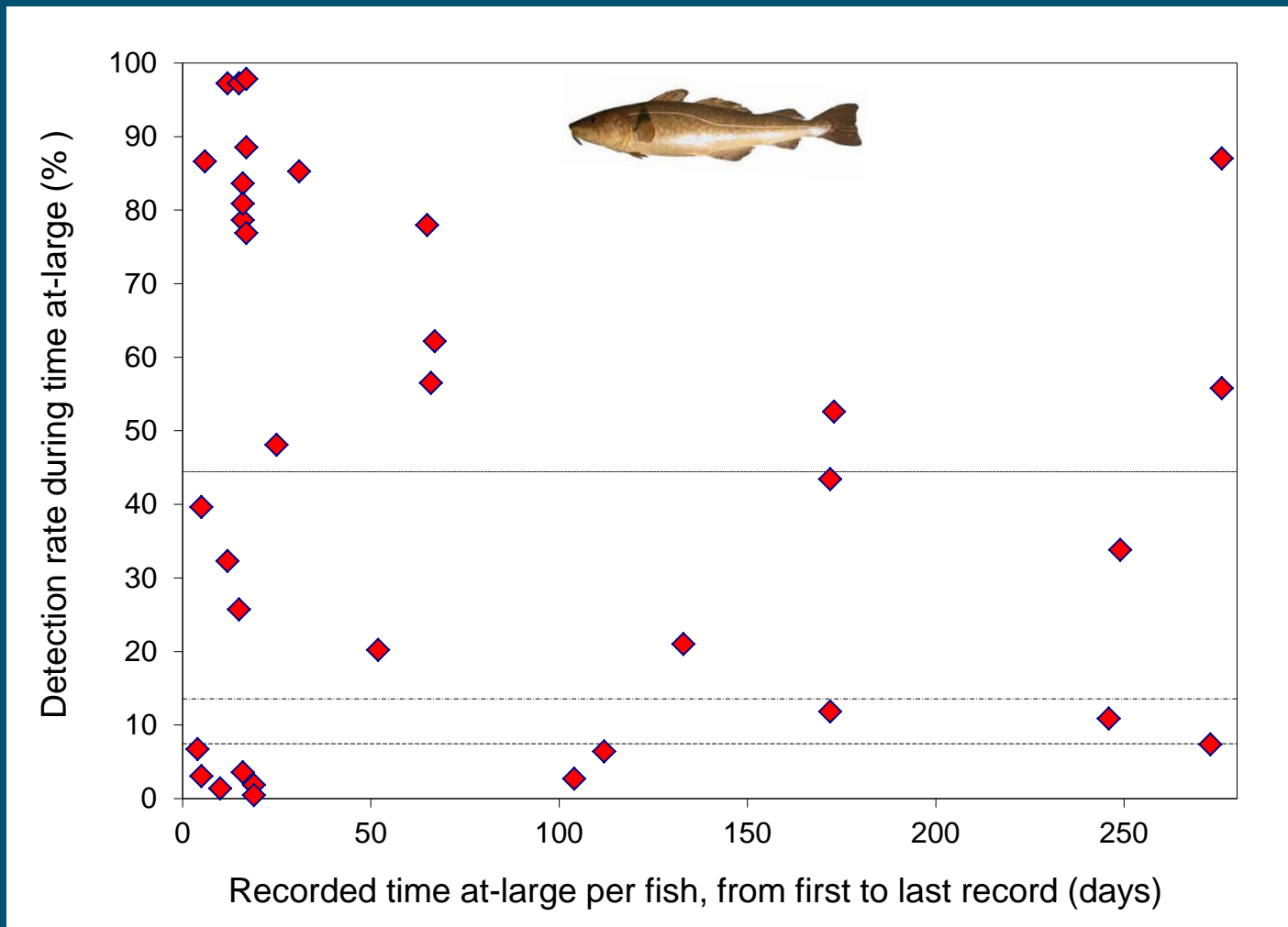
Rvs steel line

Anchored to J-tube

Cod ID number, release site (symbol)



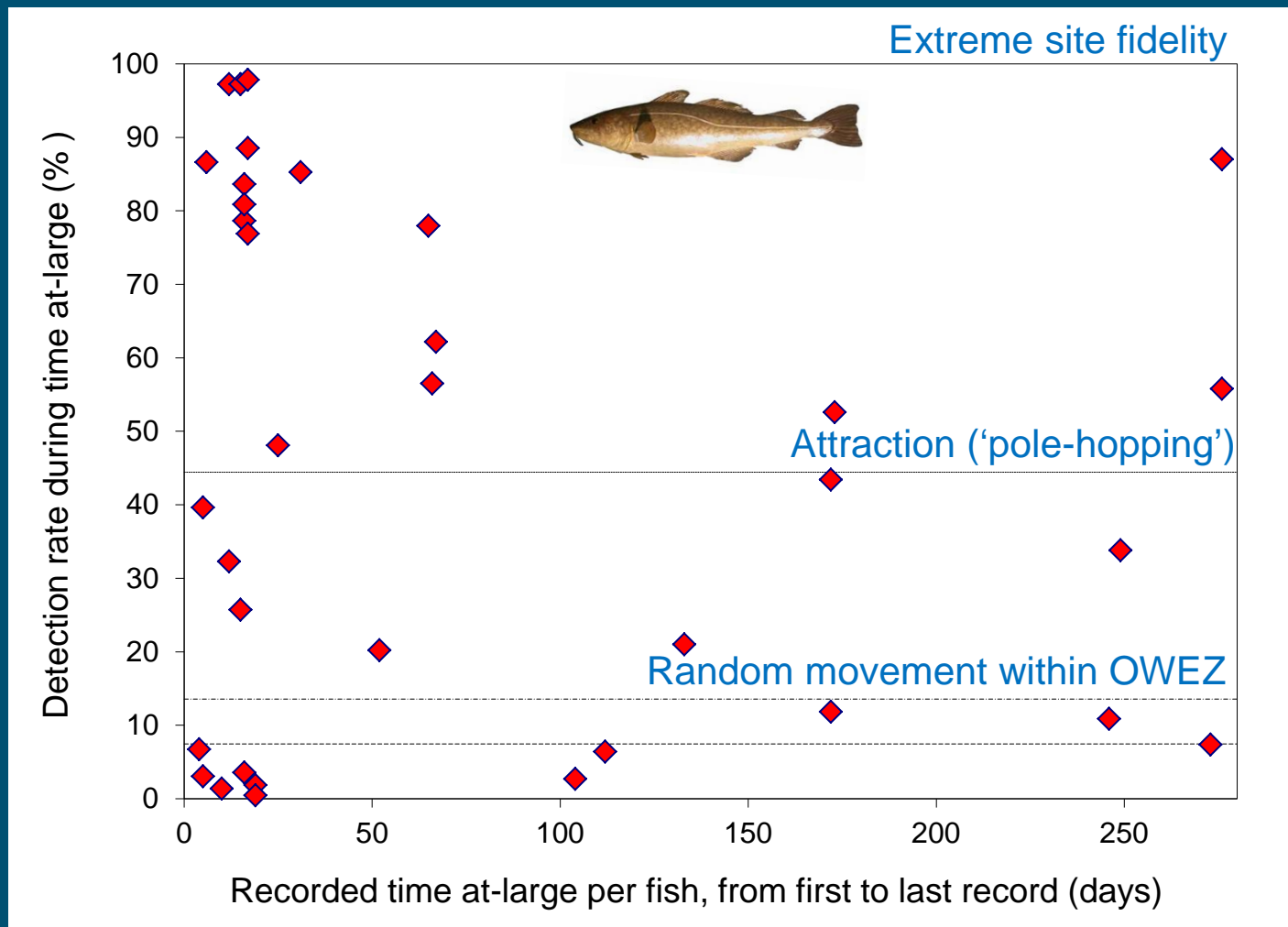
Cod using wind farm as habitat



IMARES

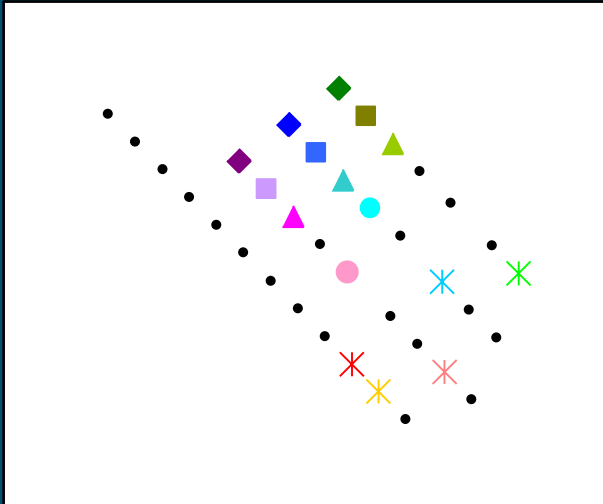
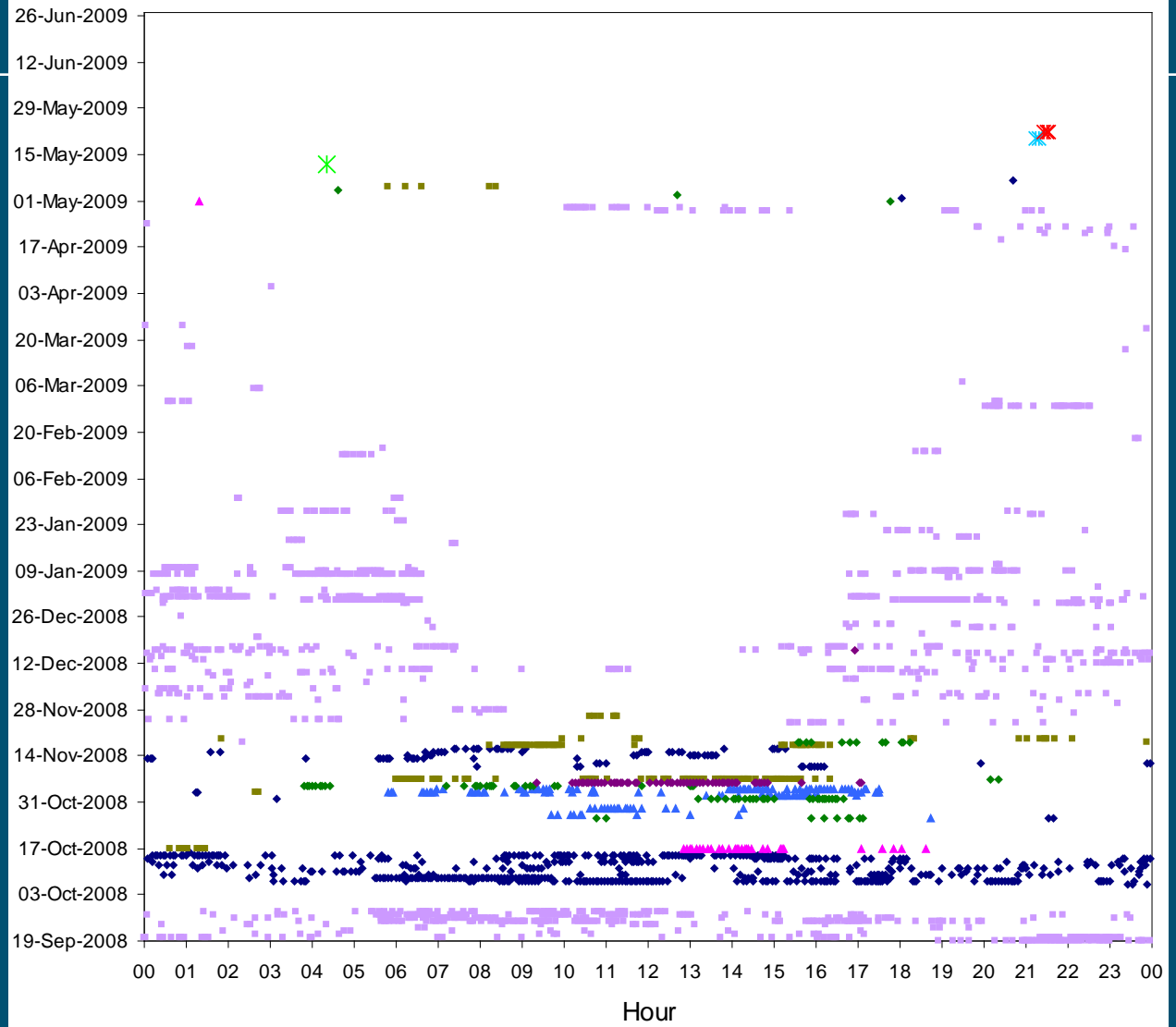
WAGENINGEN UR

Cod using wind farm as habitat



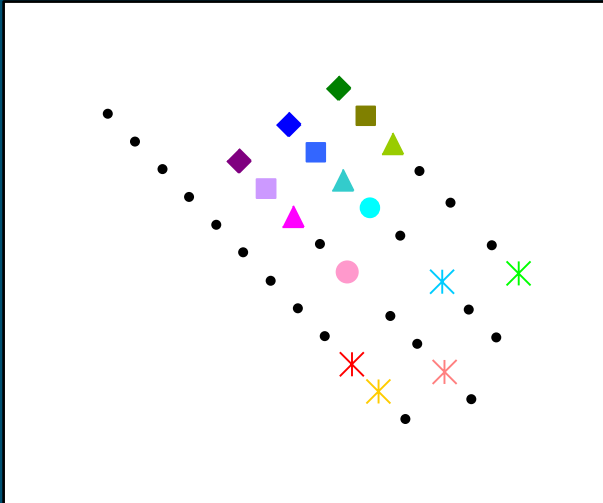
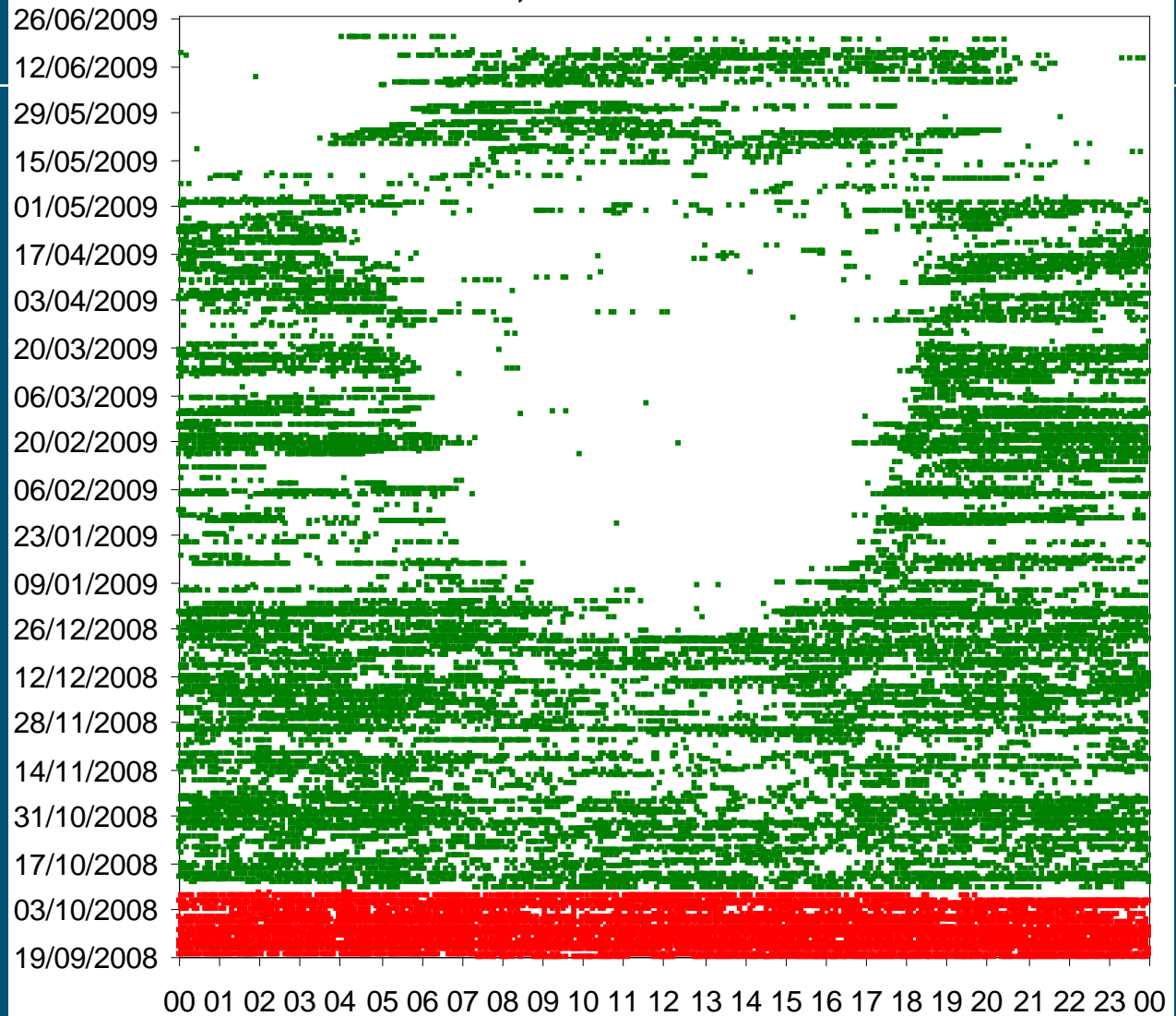
Individual diurnal patterns

Cod 51312, 38 cm: WT20, 29, 28, 19, 36, 35, 21, 30, 24, 3



Individual diurnal patterns

Cod 51302, 34 cm: WT14-WT30



3D acoustic telemetry VEMCO

Study on response of silver eel to effluent plumes

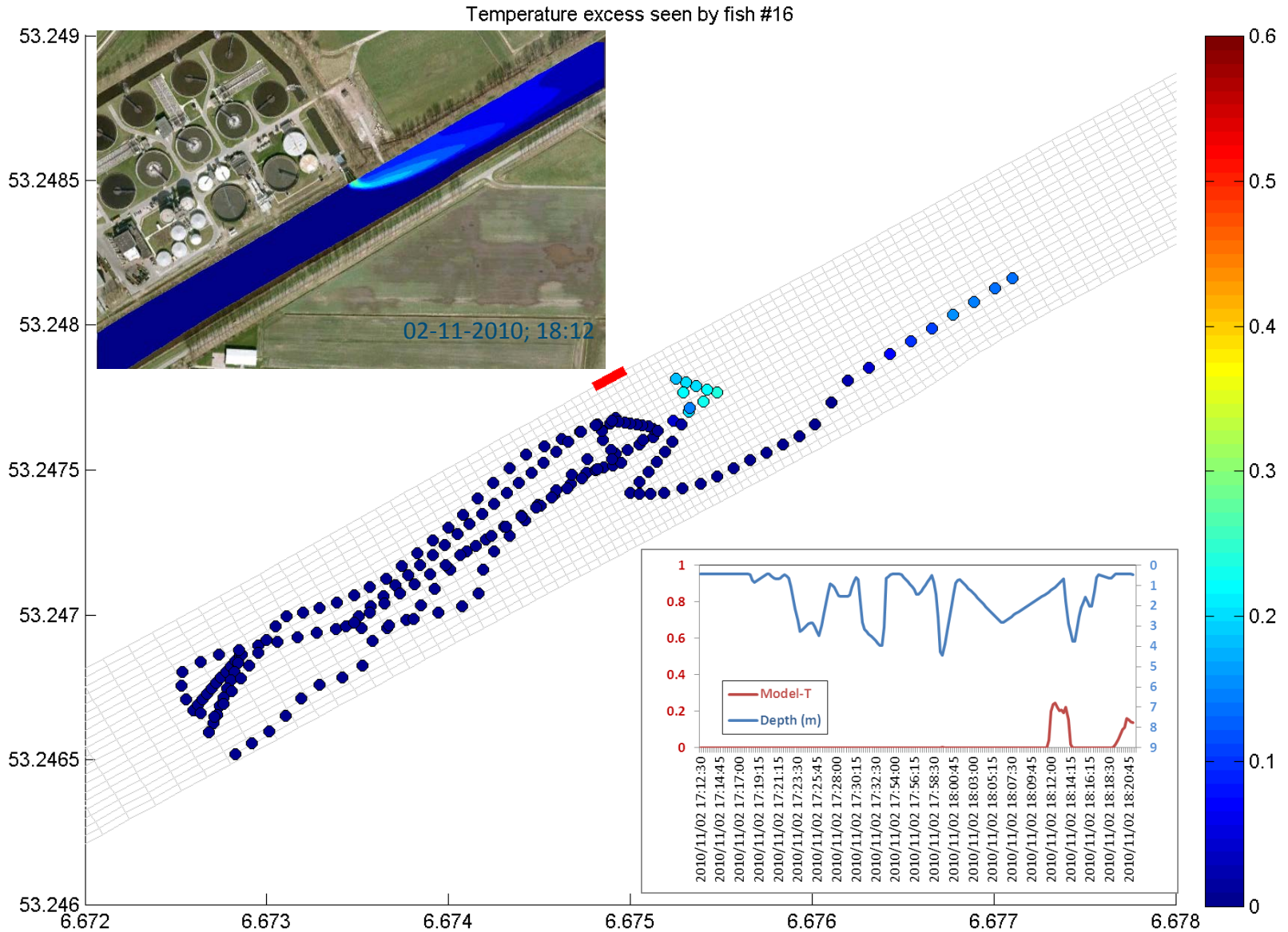


3D telemetry receiver setup

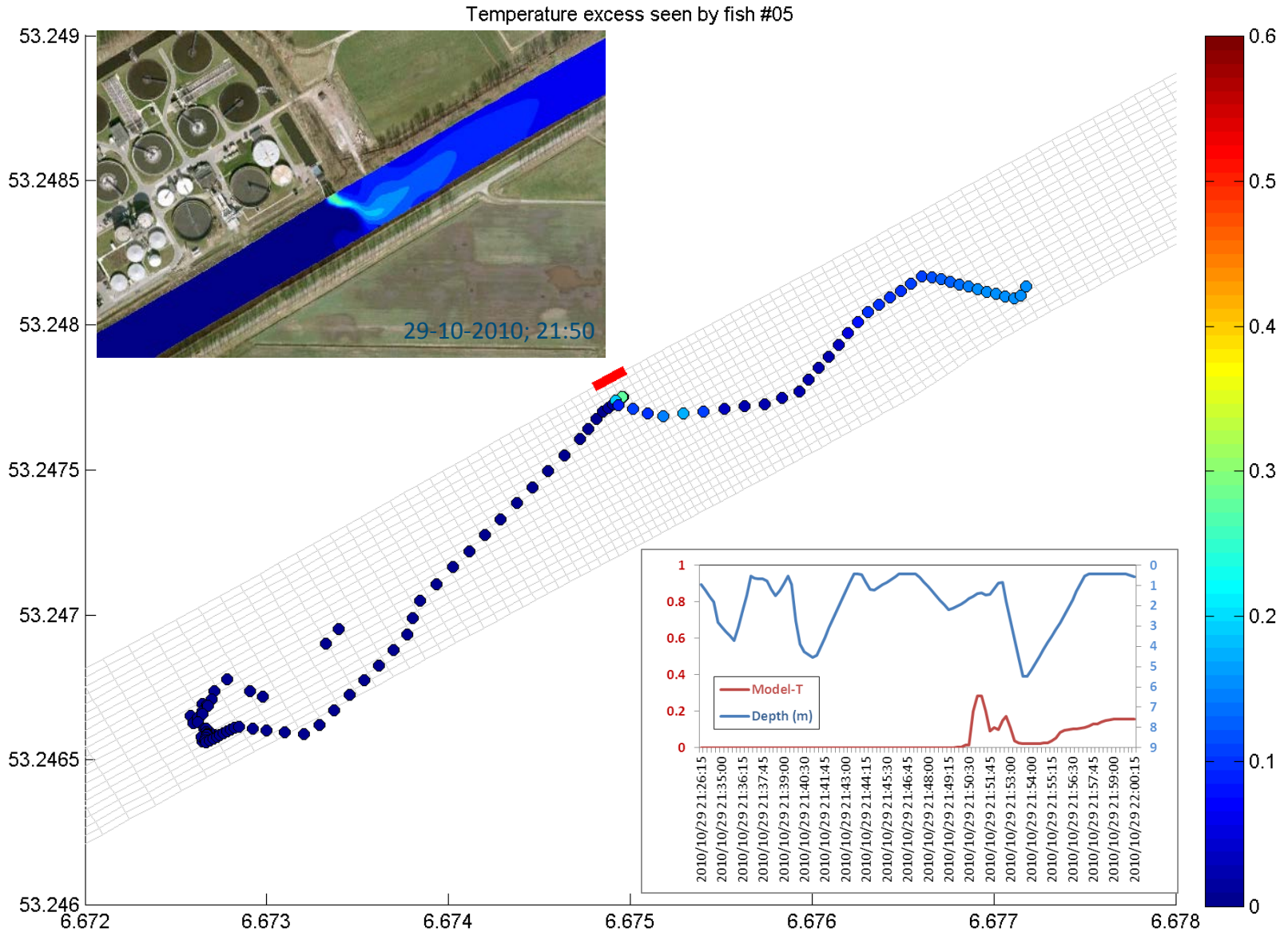
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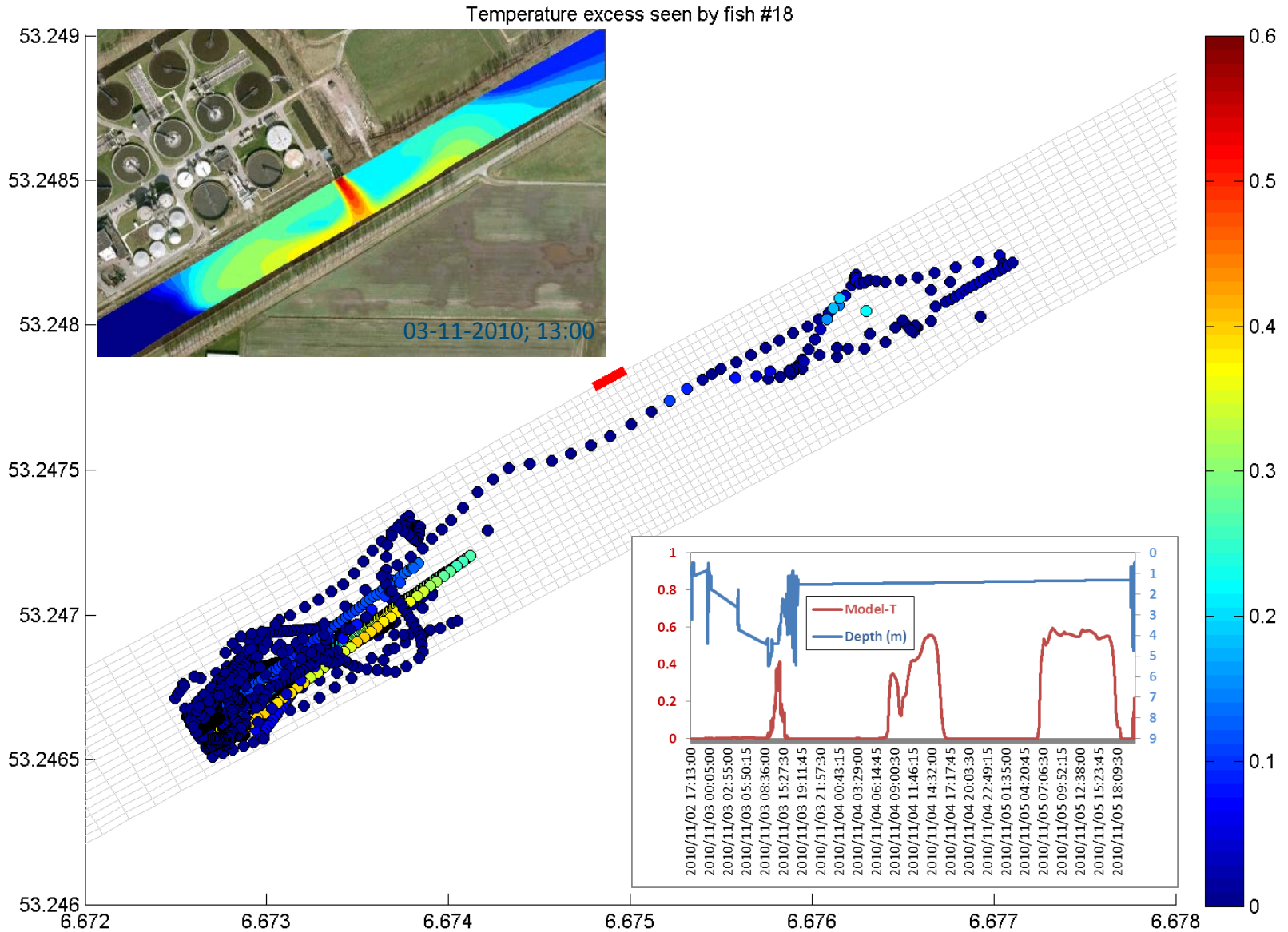
Voorbeeld gedrag aal bij pluim Eemskanaal



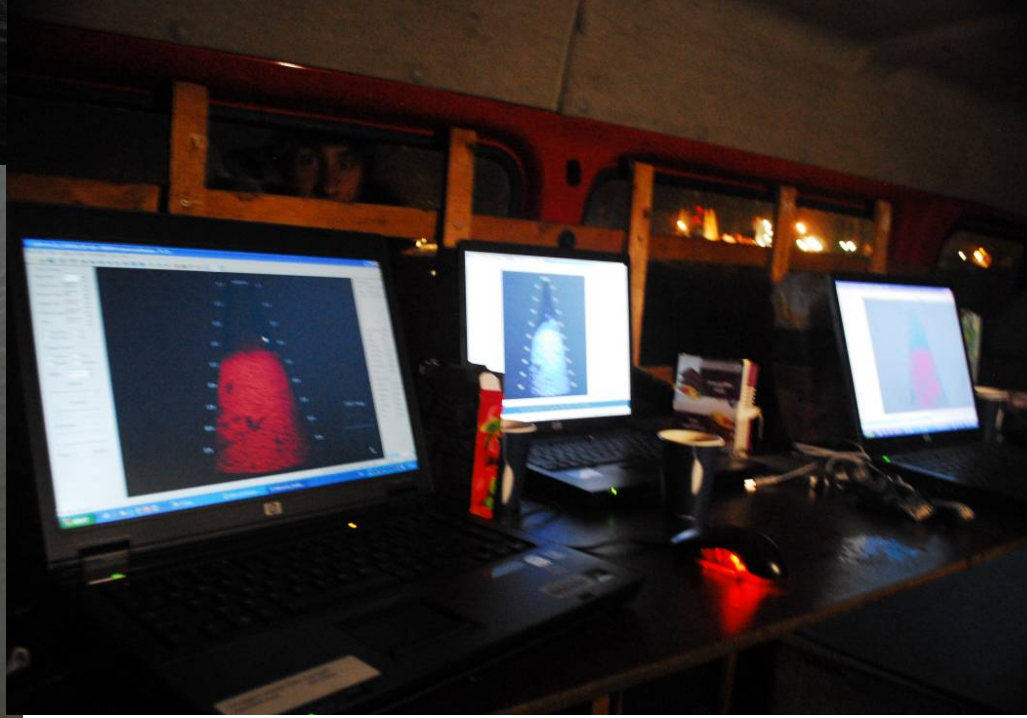
Voorbeeld gedrag aal bij pluim Eemskanaal



Voorbeeld gedrag aal bij pluim Eemskanaal



Didson (acoustic high resolution camera)



Didson: test in Blijdorp aquarium



Didson: eel behaviour at pumping station



Thanks for listening!

Questions?

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