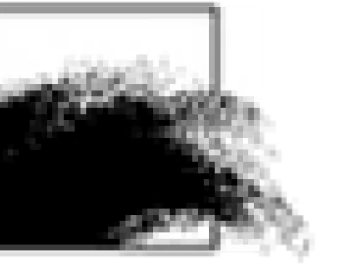


Acoustic tagging of Atlantic cod - the silver bullet to investigate behaviour?



J Reubens^{1*}, M De Rijcke¹, S Degraer^{1,2}, M Vincx¹

1 Ghent University, Biology Department, Marine Biology Section, Krijgslaan 281, Sterre S8 9000 Ghent, Belgium
2 KBIN-MUMM, Gulledele 100, 1200 Brussels, Belgium



Objective: Unravel the diurnal behaviour of Atlantic cod (*Gadus morhua* L.) at windmill artificial reefs

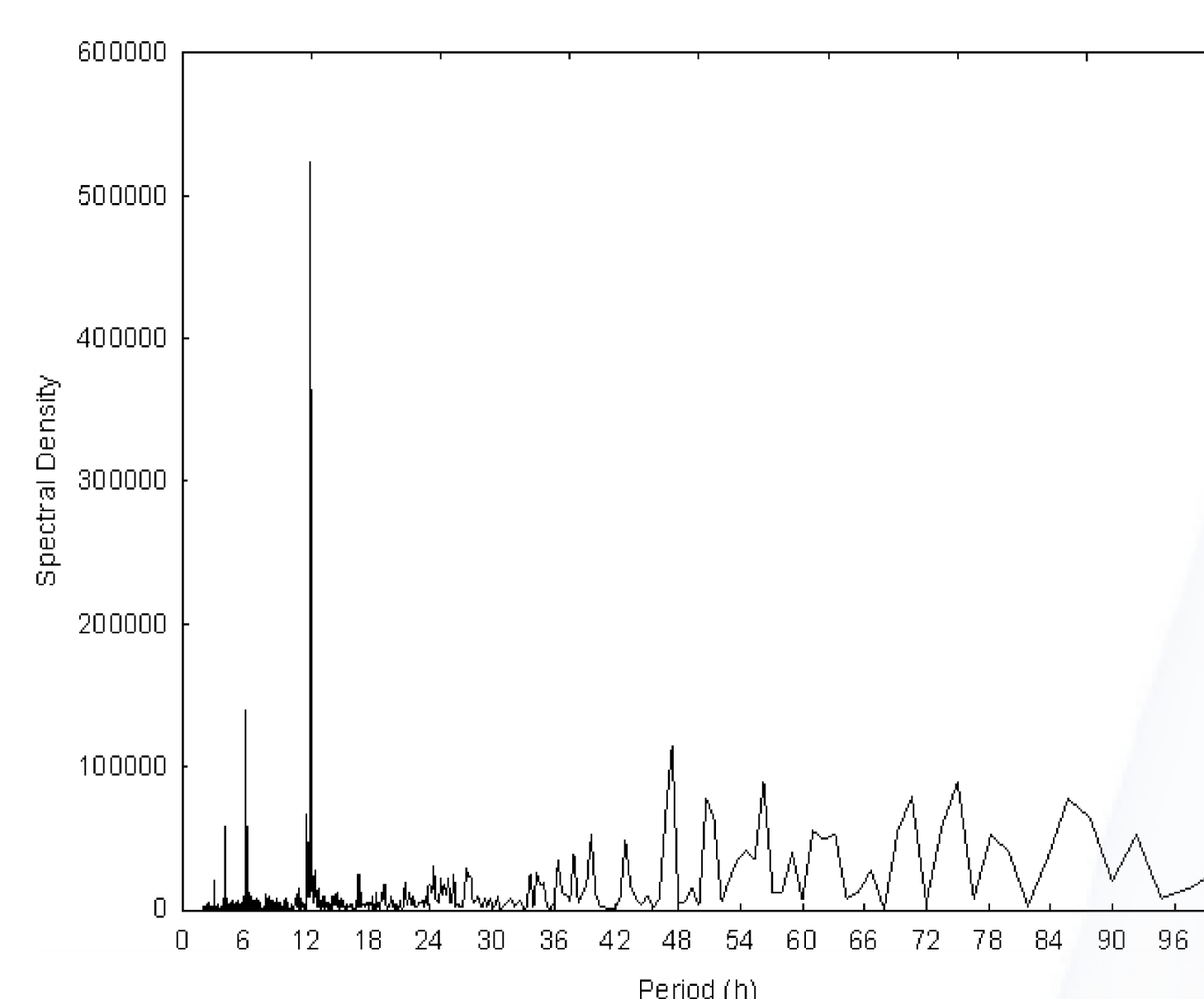
Methodology: *Acoustic telemetry* in combination with *catch statistics* and *diet analysis*

Results:

Acoustic telemetry

Fast fourier transformation revealed 2 peaks in activity :

Dominant peak at 12 h related to crepuscular movements
Secondary peak at 6 h related to tidal movements



Catch statistics

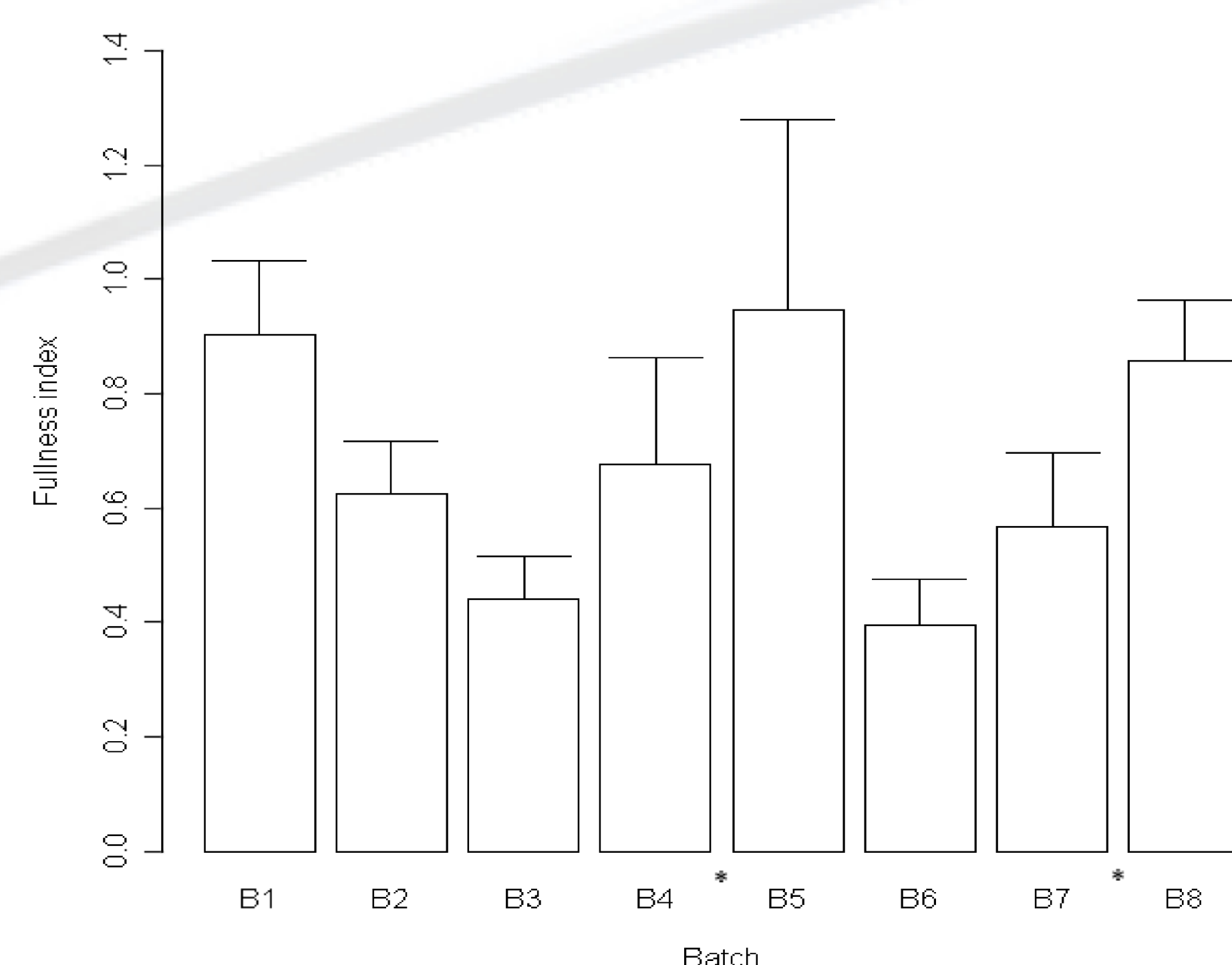
Highest catch rates were recorded close to sunrise and sunset
Fish were collected during 8 sampling batches



Batch	Sampling time (UTC)	CPUE (ind h ⁻¹ fm ⁻¹)
B1	09:10 - 09:40	21.5
B2	12:00 - 12:25	27
B3	14:55 - 15:30	21
B4	17:55 - 18:20	29.4
B5	21:05 - 21:40	9.89
B6	00:25 - 00:55	17.5
B7	03:05 - 03:40	5.71
B8	06:00 - 06:25	31.2

Diet analysis

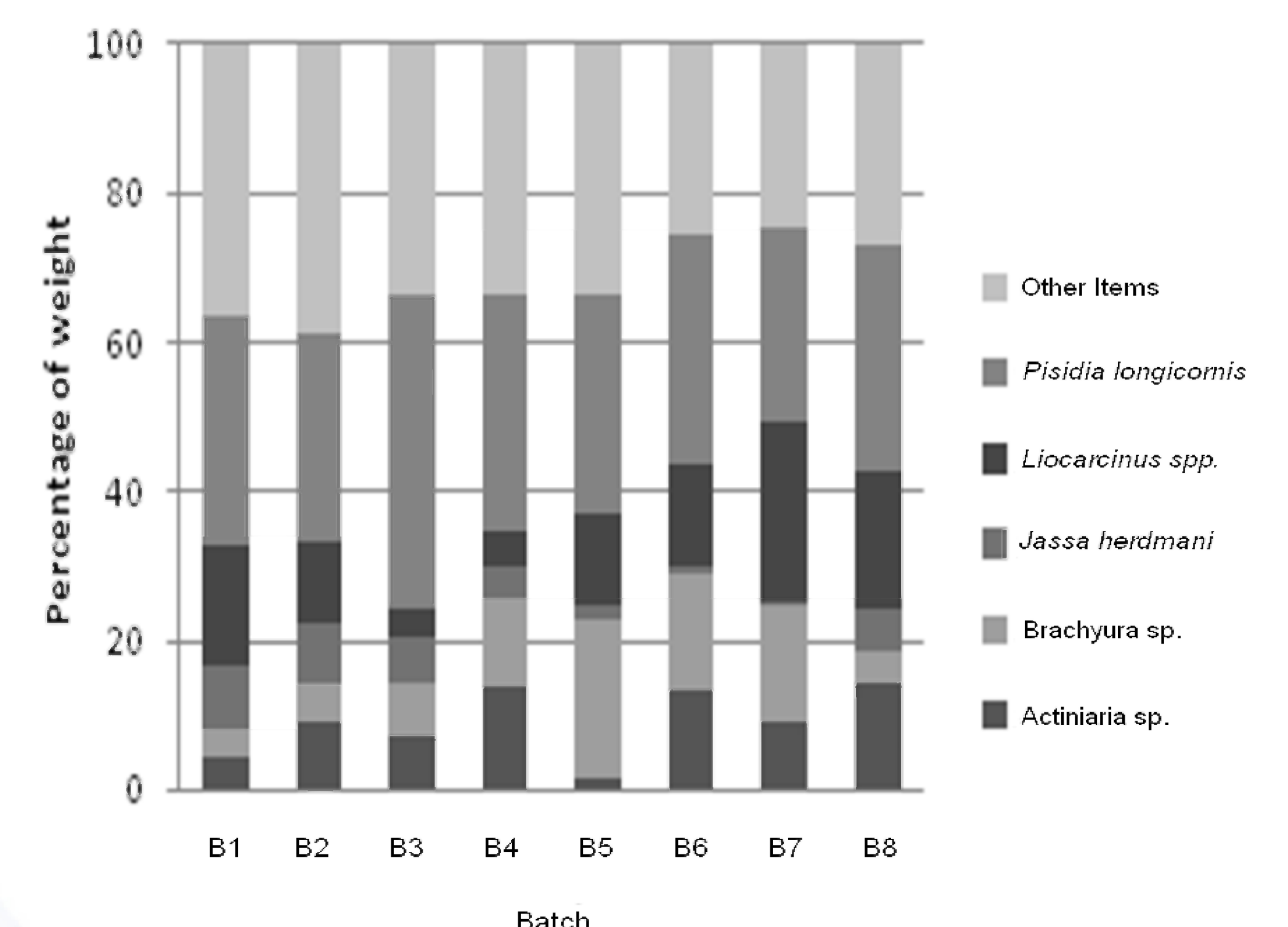
Stomach content analysis revealed peak in stomach fullness close to sunrise and sunset



Stomach fullness at each sampling batch
* indicate dusk and dawn



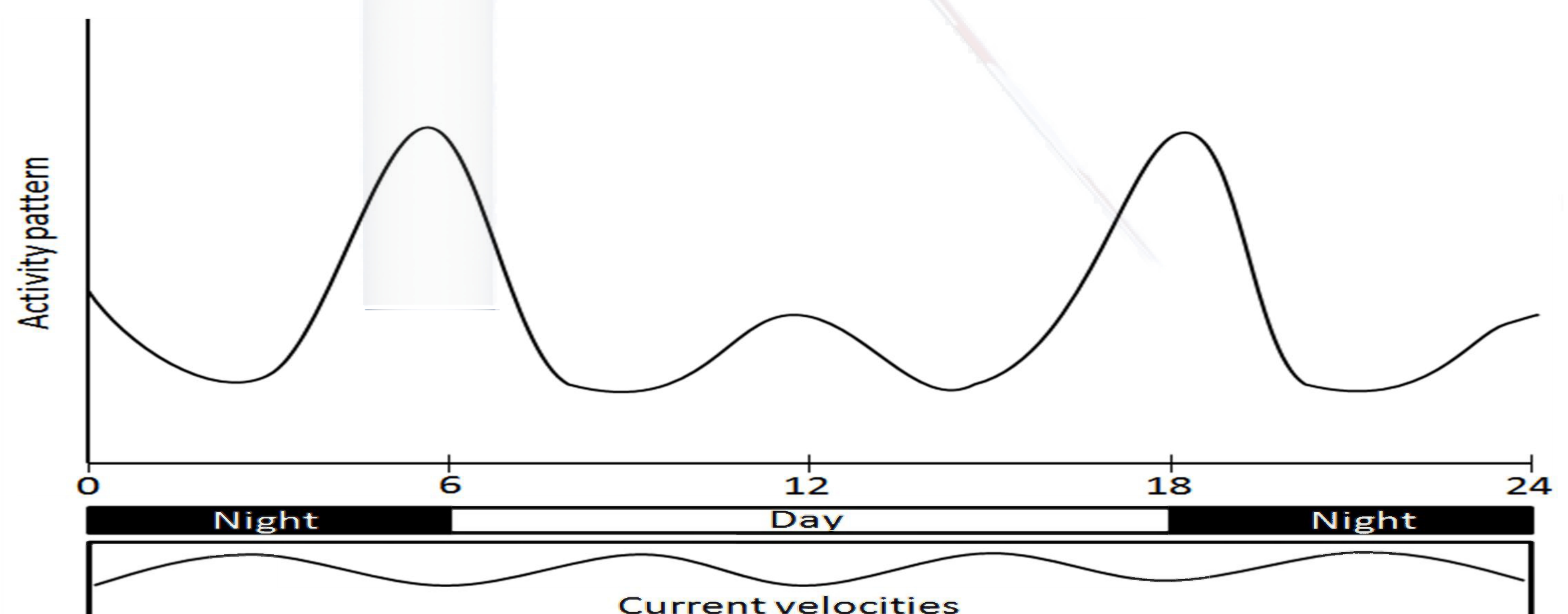
Observed prey species



Average relative weight of dominant prey species in the stomachs of Atlantic cod

Conclusions:

- Atlantic cod exhibited crepuscular movements related to feeding activity.
- Food availability and *shelter against currents* may stimulate aggregation behaviour at the windmill artificial reefs



Conceptual representation of the diurnal activity patterns of Atlantic cod at the windmill artificial reefs. Atlantic cod are most active during twilight periods, followed by a smaller activity peak during periods of low current velocity.