European silver eel (Anguilla anguilla L.) migration
behaviour in a highly regulated shipping canal

Pieterjan Verhelst
Raf Baeyens, David Buysse, Jan Reubens, Peter Goethals, Ine Pauwels, Jenna Vergeynst, Michaël Ovidio, Jean-Phillippe Benitez, Johan Coeck, Tom Moens, Ans Mouton
Imagine, you’re an eel...
Imagine, you’re an eel...
Objectives

- Are eels able to emigrate out of the system?
- Are migration speeds different according to
  - Behaviour classes?
  - Canal sections?
- When do the eels start to emigrate?
Study area
Study area
Study area
Study area
Tagging

Map showing tagging sites with data for catch and release in 2014 and 2015:

- Release 2015: 26
- Catch 2014: 13
- Release 2014: 13
- Catch 2014: 5
- Release 2014: 5
- Release 2015: 27
- Catch 2014: 27
- Catch 2015: 36
- Release 2015: 10
What is migration?
What is migration?
Are eels able to emigrate out of the system?
Are eels able to emigrate out of the system?

- 18 (23%)
- 14 (17%)
- 1 (1%)
- 5 (6%)
- 42 (53%)
Are migration speeds different according to behaviour classes?
Are migration speeds different according to behaviour classes?

KW-test, $\chi^2 (3, N = 38) = 4.4954, p = 0.213$
Are migration speeds different according to canal sections?
Are migration speeds different according to canal sections?

KW-test, $\chi^2 (6, N = 136) = 14.411, p = 0.025$
Are migration speeds different according to canal sections?

KW-test, $\chi^2 (6, N = 136) = 14.411, p = 0.025$
When do eels start to emigrate?
When do eels start to migrate?

All year round!
Conclusions
Conclusions

- Substantial delays
  - Standstill section G
  - Disease
  - Fishing/predation
Conclusions

- Substantial delays
  - Standstill section G
  - Disease
  - Fishing/predation

- Implications glass eel stocking
  - 20% of Flanders imported glass eels, were stocked in the AC
Conclusions

• Substantial delays
  ➢ Standstill section G
  ➢ Disease
  ➢ Fishing/predation

• Implications glass eel stocking
  ➢ 20% of Flanders imported glass eels, were stocked in the AC

• New questions!
  ➢ Successful migrants: can they correct for these delays?
  ➢ Reduced fitness?
Thank you!

Pieterjan.Verhelst@UGent.be