The mgcv package as a one-stop-shop for fitting non-linear ecological models

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Good morning!

Who is this guy?

- (mostly) Cetacean distribution modelling
- Spatial modelling (esp. model checking)
- Distance sampling distancesampling.org
- Statistical software (`Distance`, `mrds`, `dsm`)
- Not a biologist/ecologist (not even really a statistician)

Who are you?

What is the structure of the day?

Timing

- 9am to 5pm
- Morning session: 9am-12pm
- LUNCH?!
- Aternoon session: 1pm-5pm

Today: me talking a lot

Tomorrow: less of that?

Content

- Broad overview of what one can do in `mgcv`
- Deeper on simple stuff
- Focus on 2 data sets
  - species distribution modelling (dolphins)
  - “time series ish” data (zooplankton)

Overview

1. Preamble
2. Generalized additive models
3. Fitting GAMs in practice
4. Model checking
5. Model selection
6. Inference
7. “Fancy” stuff

Please interrupt!

- I have a weird accent
- I sometimes mumble
- I will probably say something that is unclear

Credits

- Course based on one given at ESA 2016
  - Eric Pedersen, UWisc, now DFO
  - Gavin Simpson, URegina, SK
- Previous course on density models
  - Jason Roberts, Duke
- Using many of the materials from these courses
- All these materials are **open**, reuse as you like!

Course website

converged.yt/mgcv-workshop