

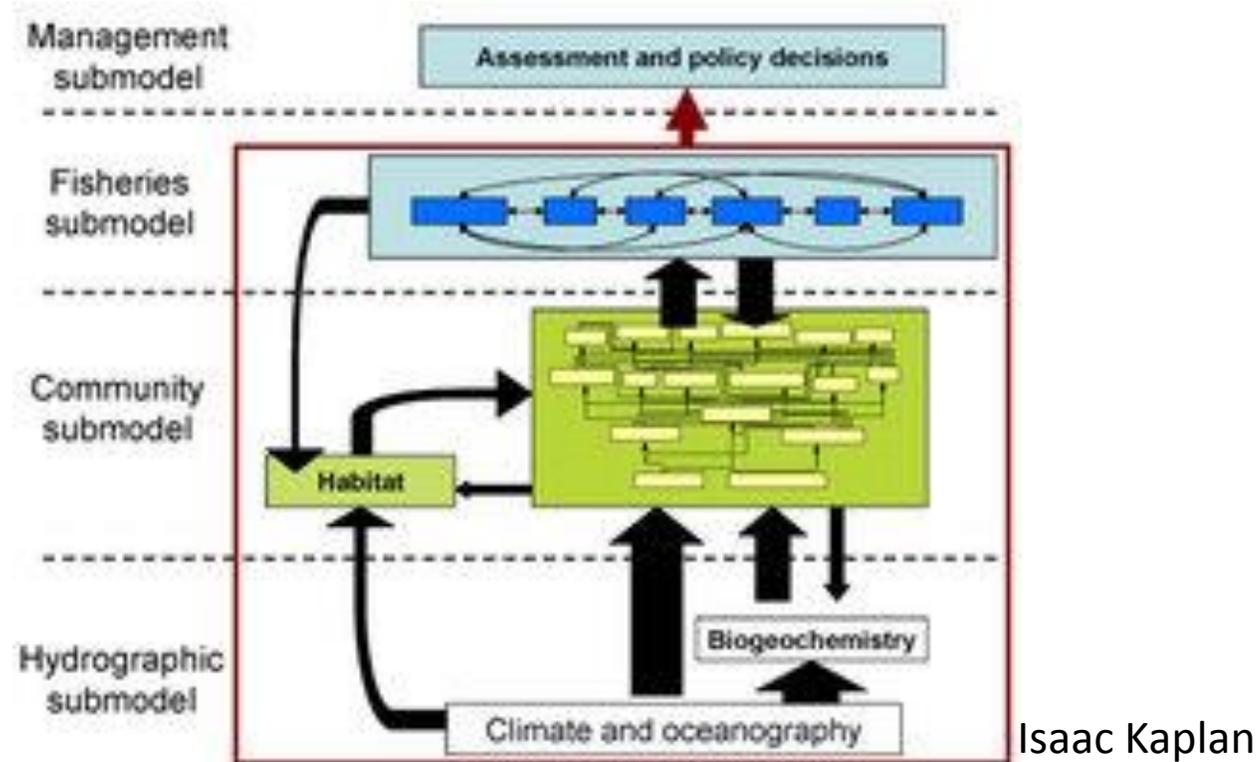


An integrative model of sea turtle growth based on recoveries and mark-recapture data

Brandon Chasco, Eric Ward, Larisa Avens, Lisa Goshe, Joanne McNeill, Alan Bolten, Karen Bjorndal, Selina Heppell, Melissa Snover, Tomo Eguchi, Eli Holmes, and Howard Coleman



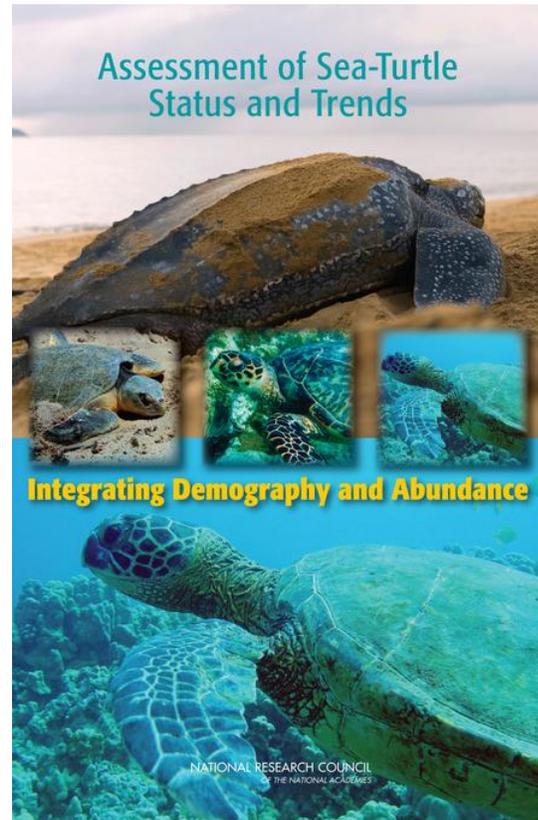
Evolution in Fisheries and Ecological Modeling



Integrated modeling

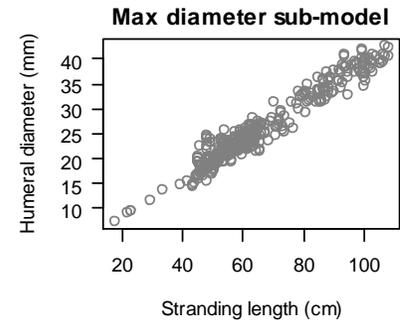
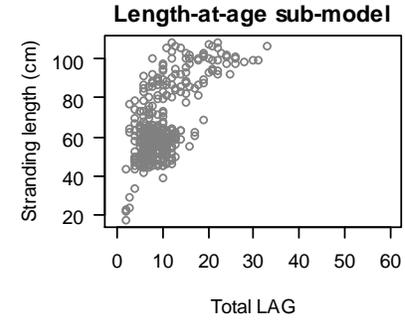
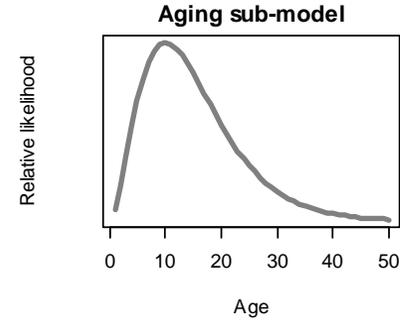
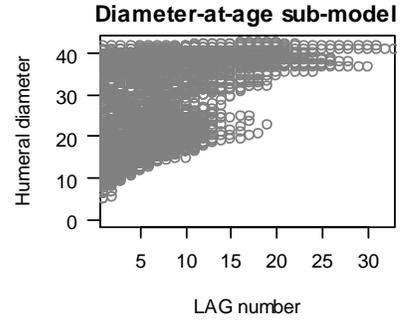
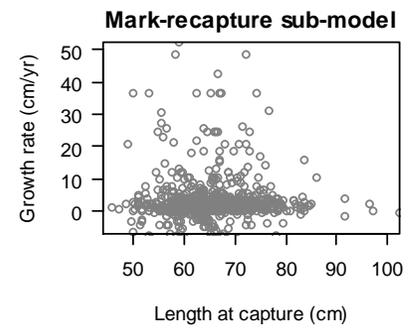
Stochastic processes

Focus of Current Turtle Research



Integrated modeling

Stochastic processes



Integrated modeling

Stochastic processes



Loggerhead sea turtle growth

[Input & Model](#)

[Data & Results](#)

[Help](#)

[About](#)

[Acknowledgements](#)

Introduction

[Input & Model tab](#)

[Data file formats](#)

[Data & Results tab](#)

Welcome to the Growth Shiny app

This is a web-based Shiny application based on the Growth R package.

Click the "About" tab for more information about the Growth package.

Start off by uploading the data files you wish to model, using the "Input & Model" tab. When your data files have been uploaded, you can run the model from this tab as well.

Click "Input & Model tab" under "Help" for more information. To learn about format requirement for uploaded files, click "Data file formats."

Once the model has been calculated, the "Data & Results" tab will open. Here you can examine your input data, the equations corresponding to sub-models, and the model results for each sub-model.

For more information, click "Data & Results tab" under "Help".

Shiny interface

Loggerhead sea turtle growth

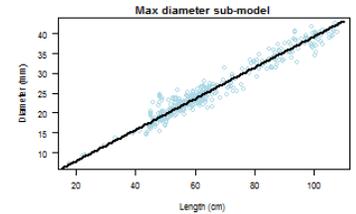
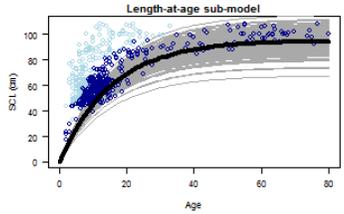
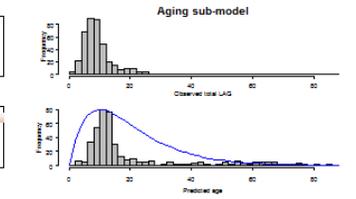
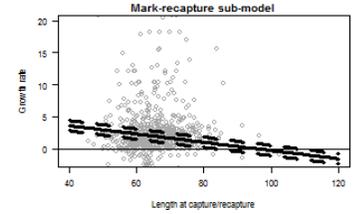
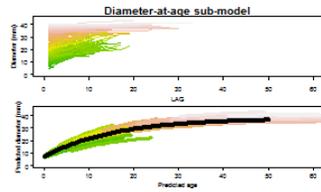
Input & Model **Data & Results** Help About Acknowledgements

Click to see data

Click to see model

Click to see results

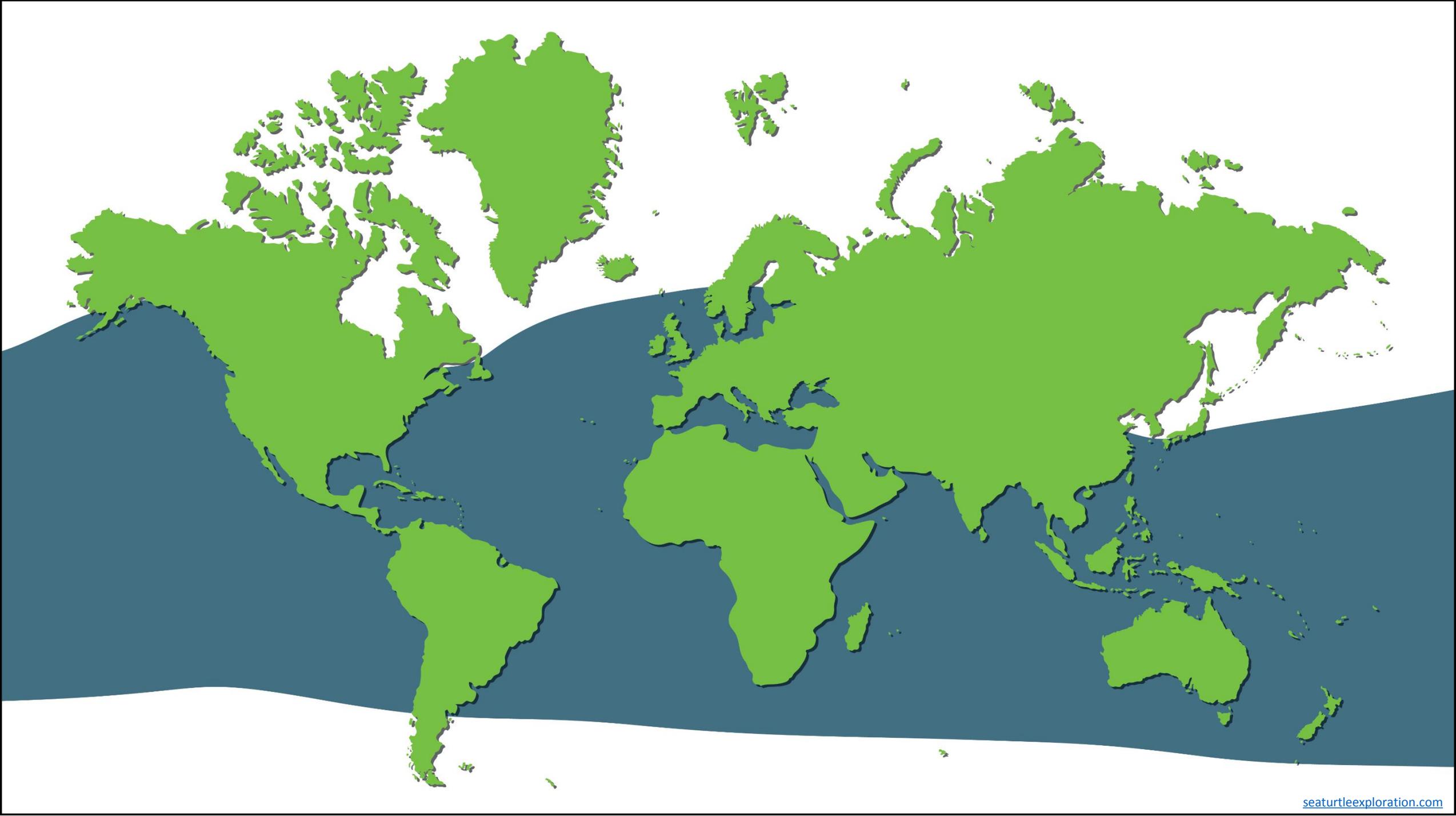
Click results plot to enlarge or download it.



Shiny interface

An integrative model of sea turtle
growth based on recoveries and
mark-recapture data





Direct



Mortality

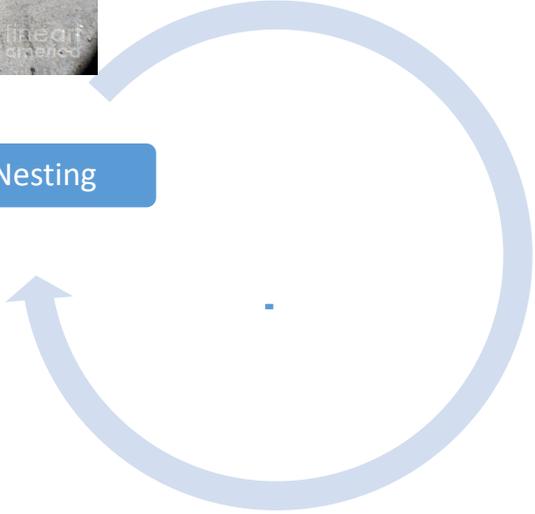
In-direct



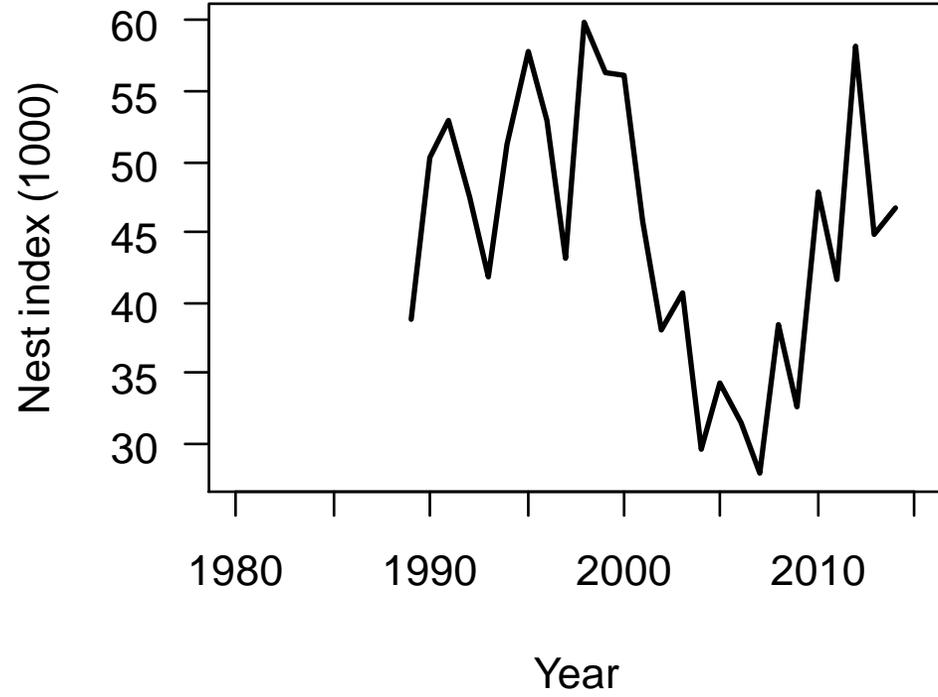
Adult females



Nesting



Time series of nest counts



Adult females

Growth and maturation



Nesting



Adult



Hatching



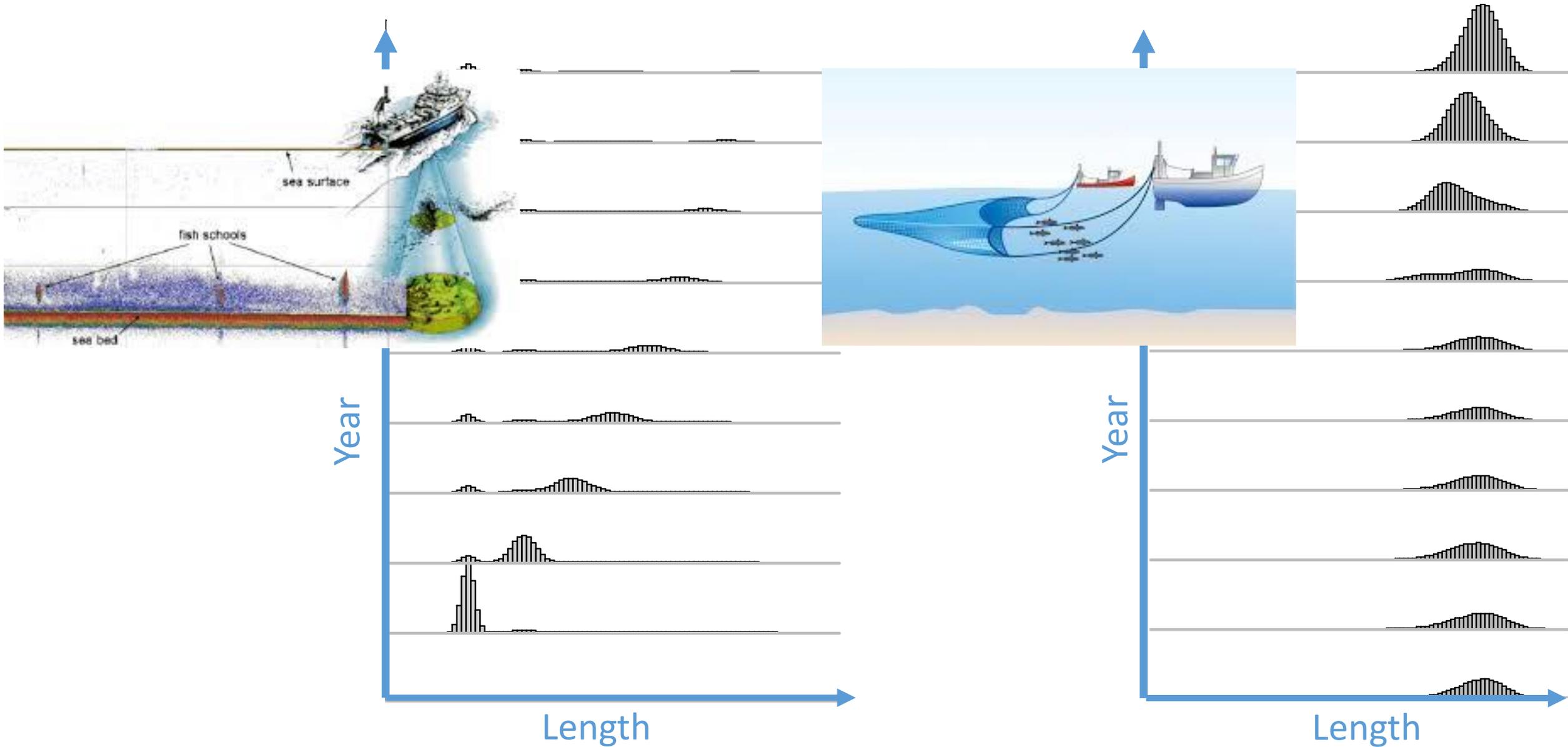
Pelagic/
Juvenile



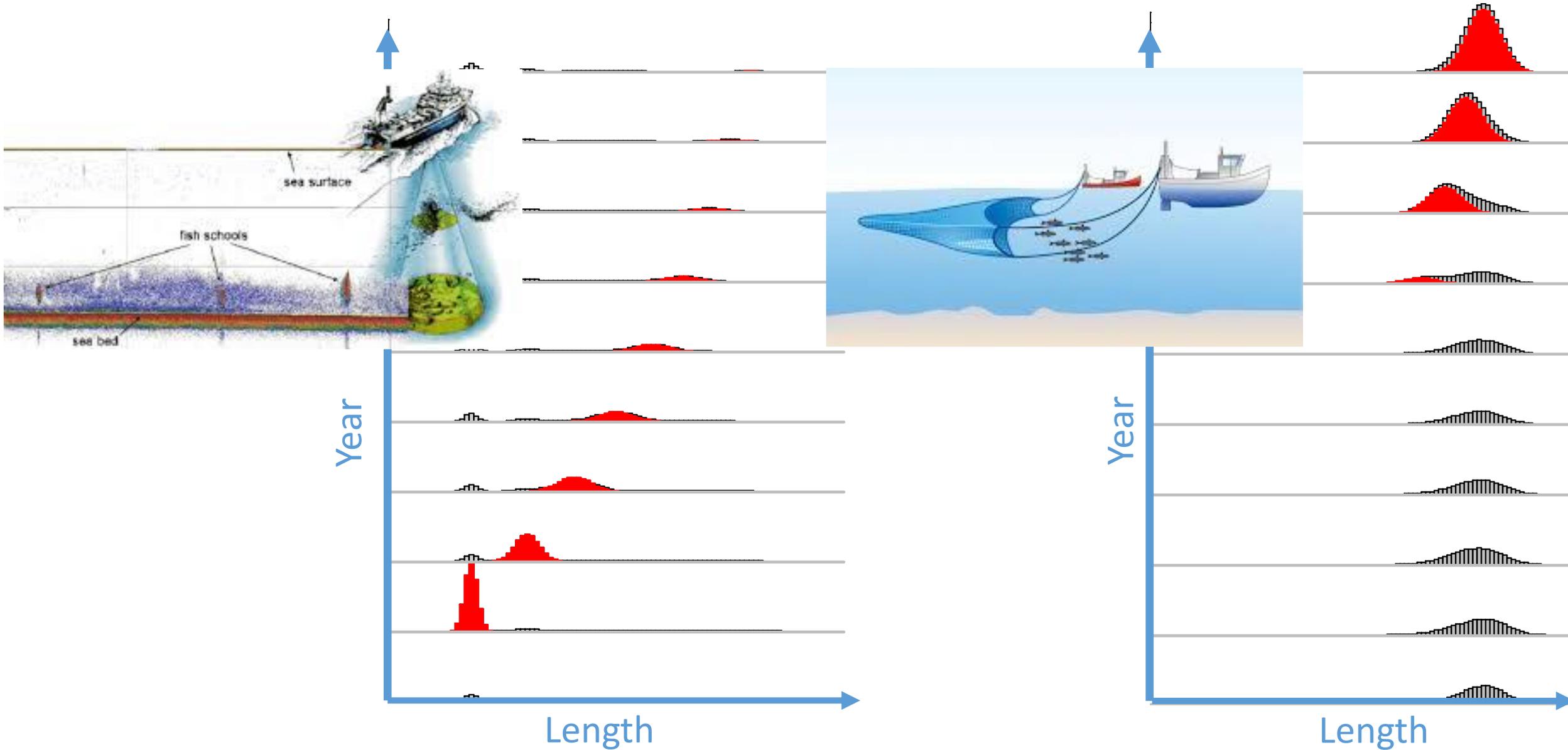
Neritic/
Juvenile

This PDF was later amended to make the document 508 compliant.

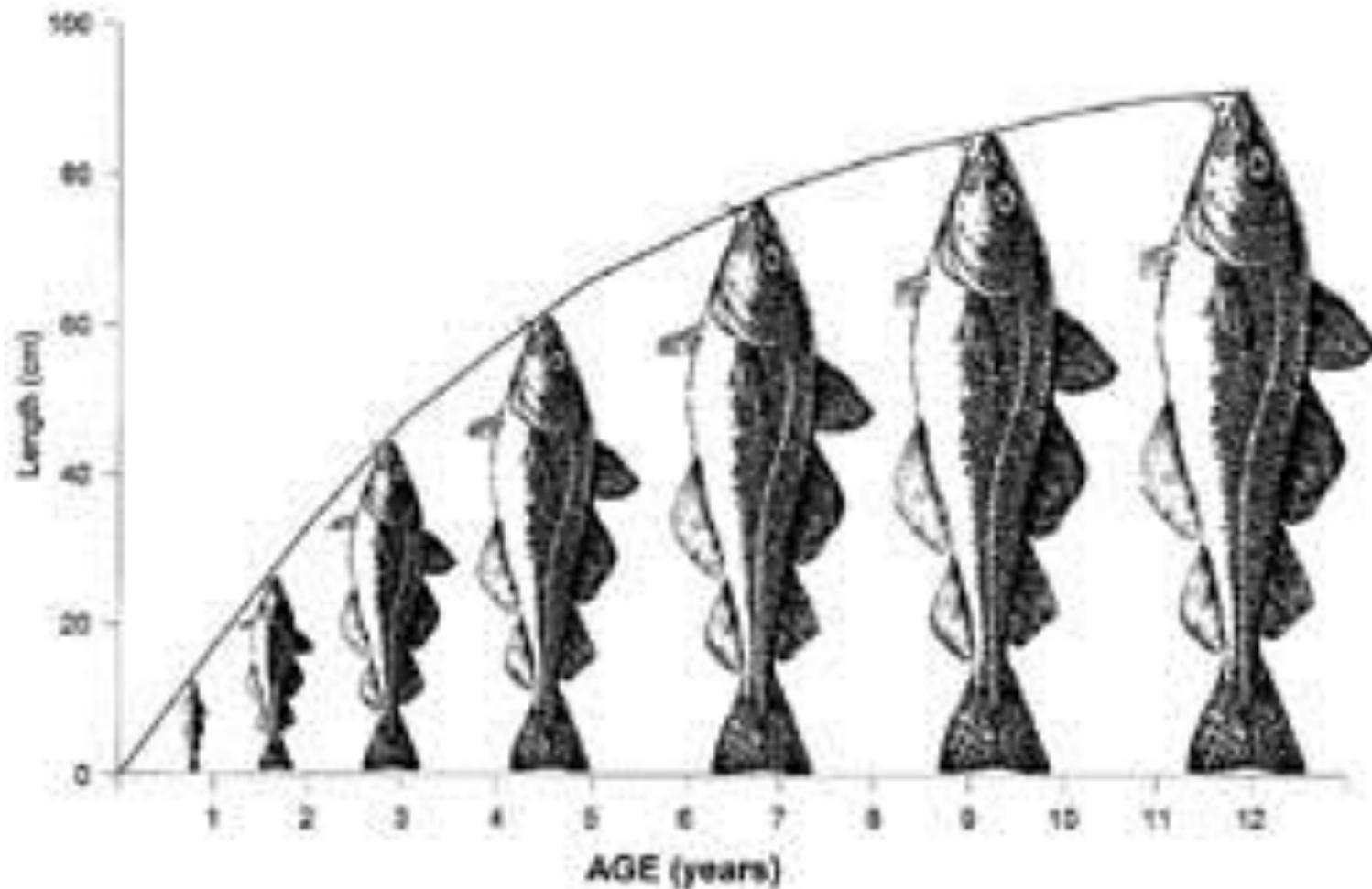
Motivation for Current Turtle Aging Models Based on Fisheries Model



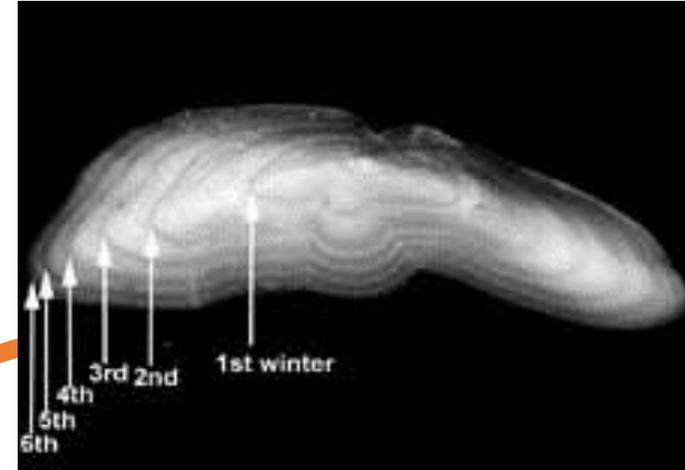
Motivation for Current Turtle Aging Models Based on Fisheries Model

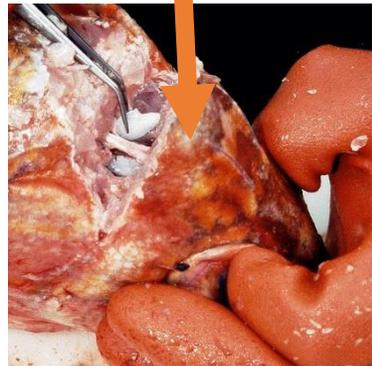
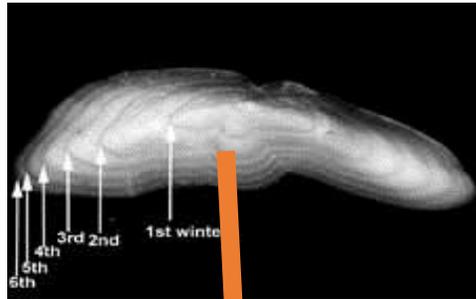
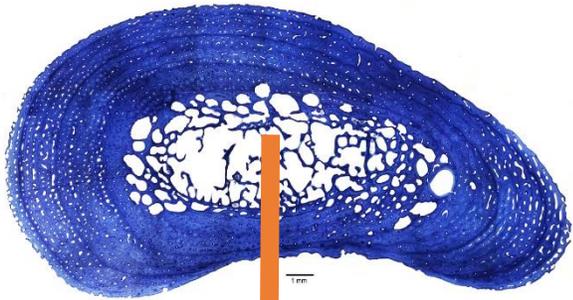
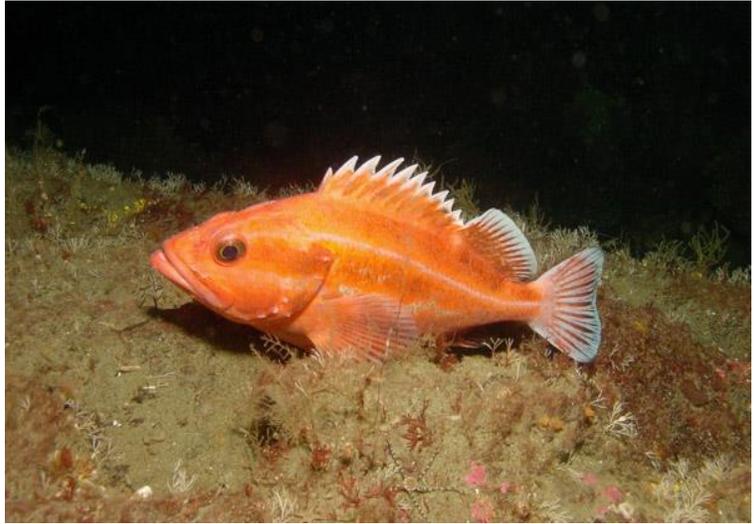


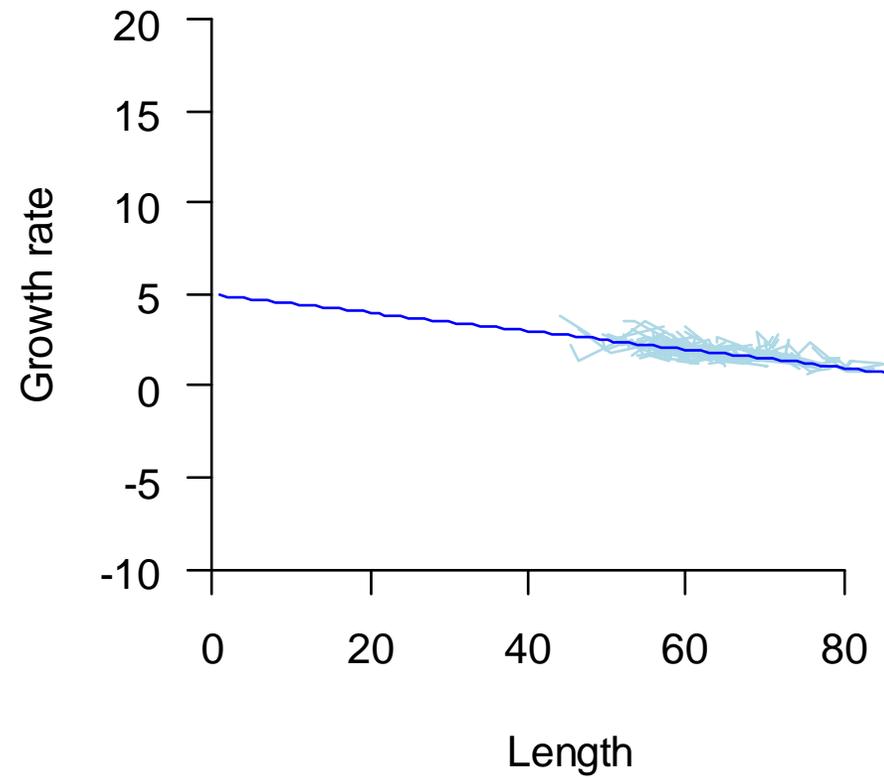
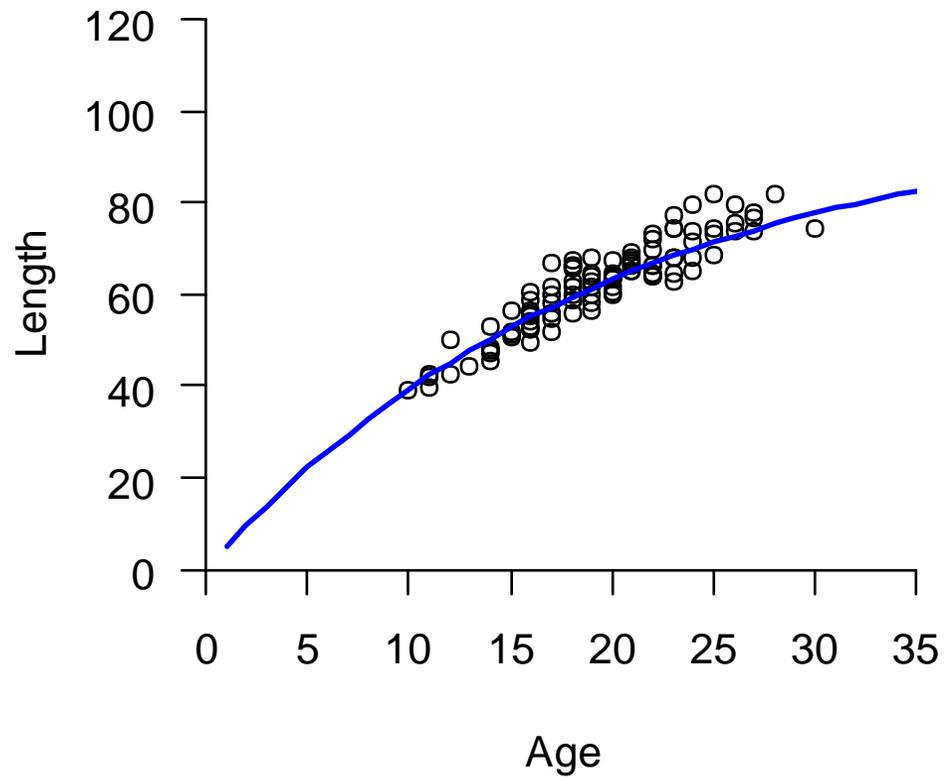
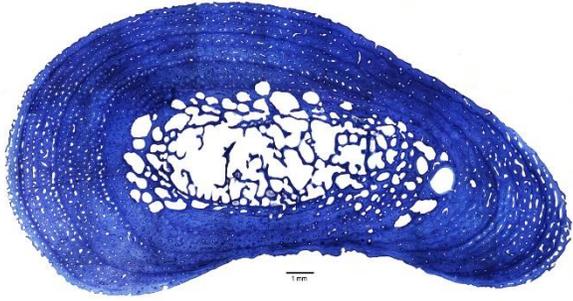
Length-at-Age Relationships Are The Link In Integrated Fisheries Models

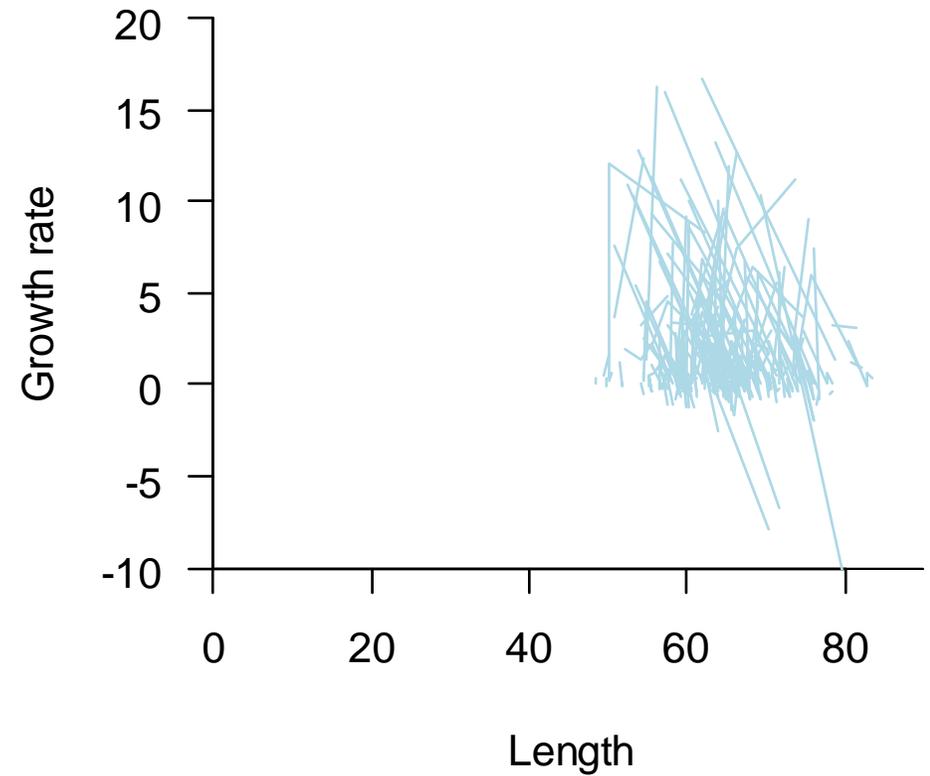
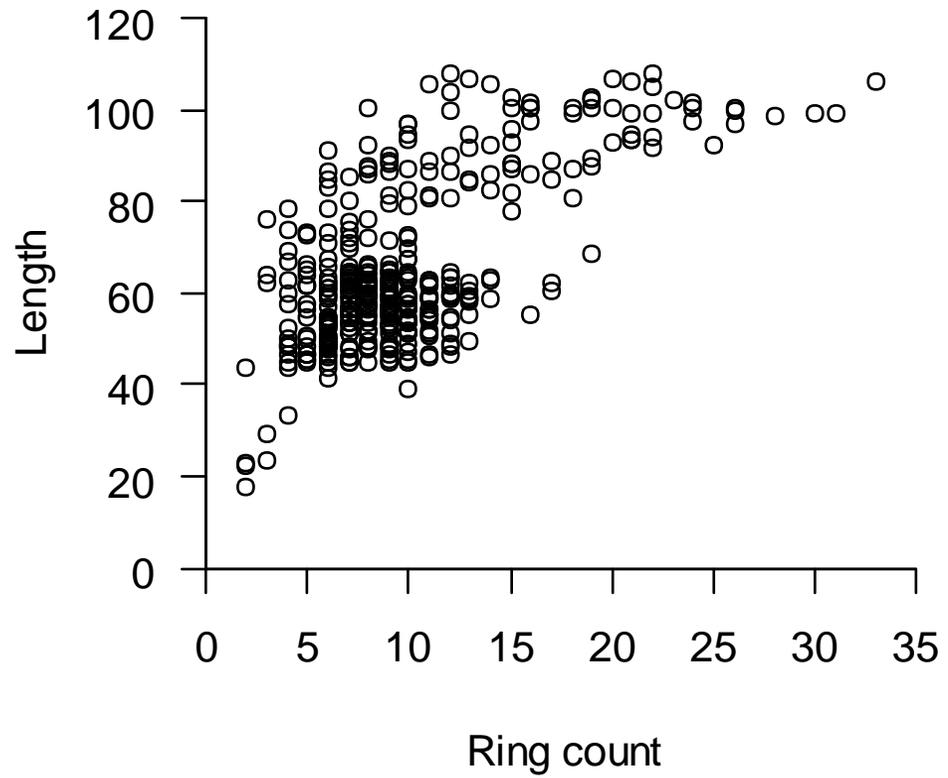
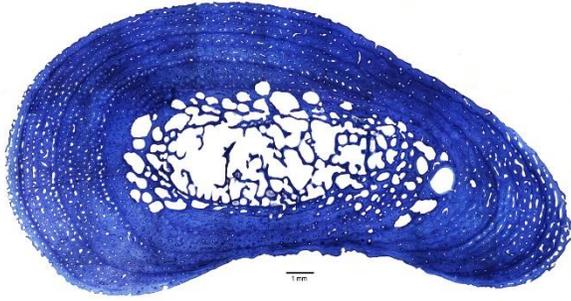


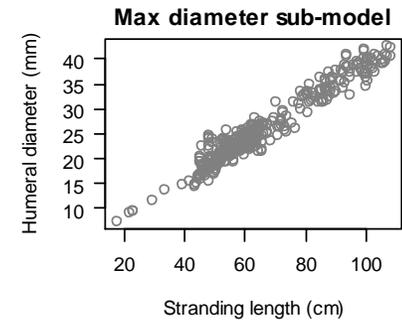
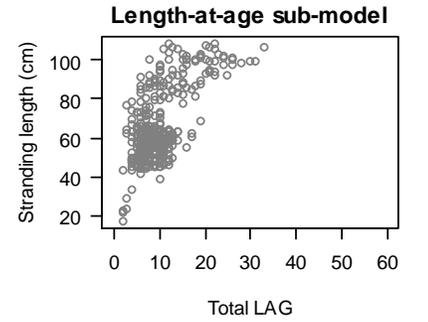
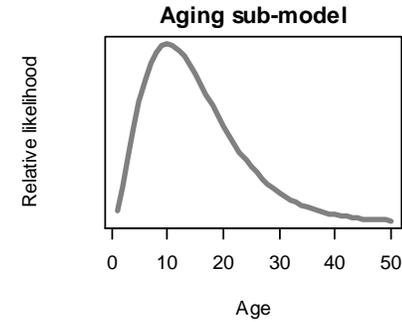
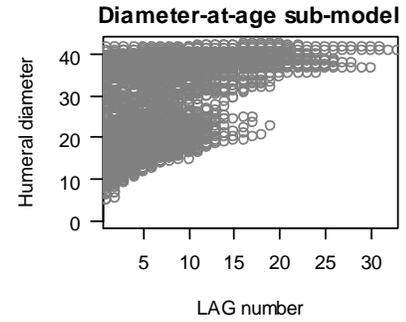
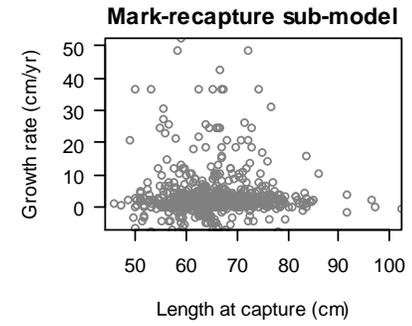
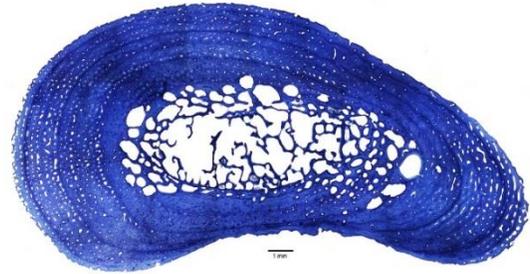
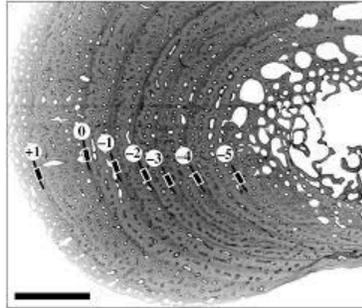
Length-at-Age Relationships Are The Link In Integrated Fisheries Models



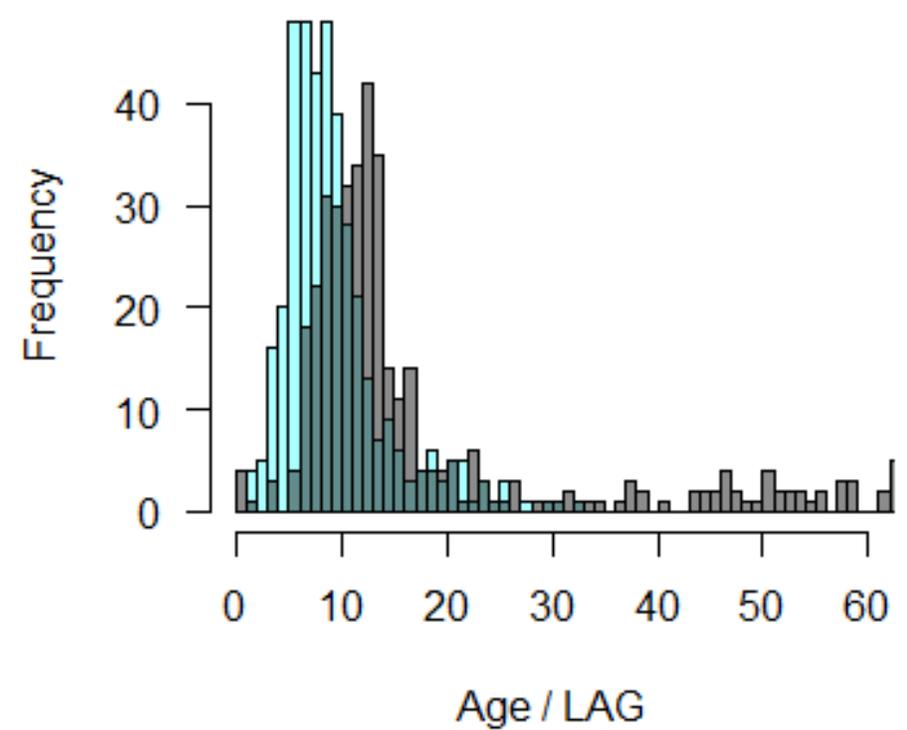
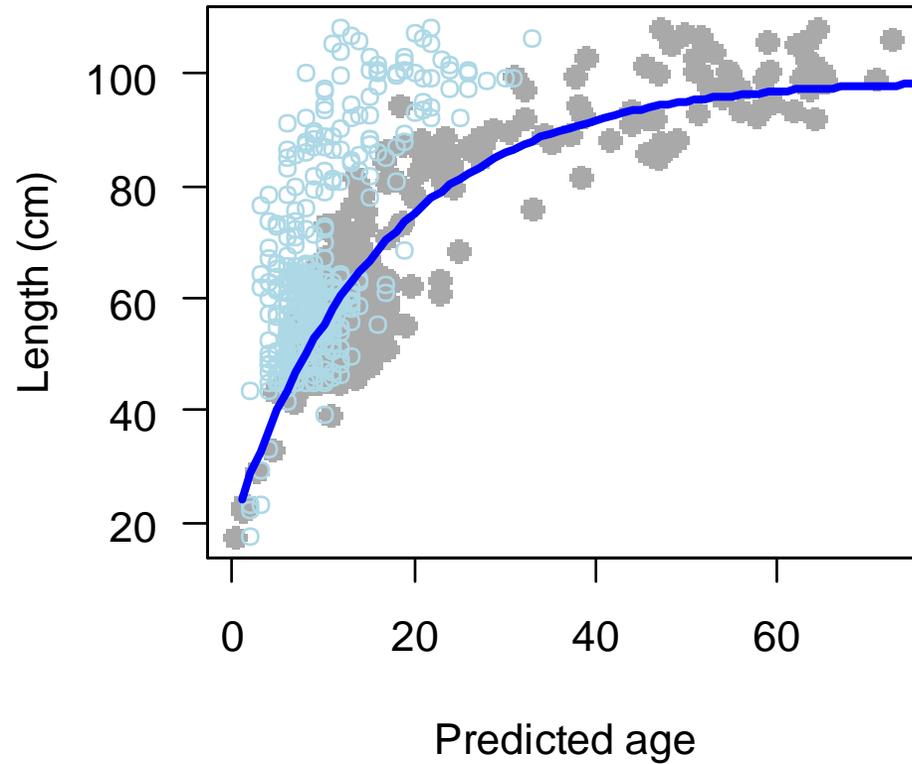




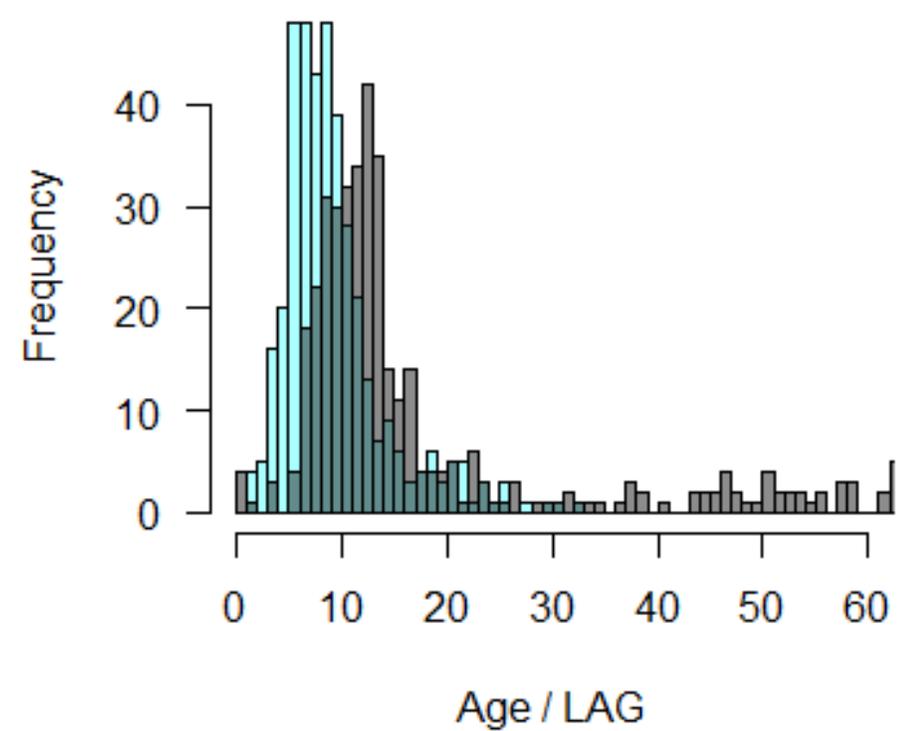
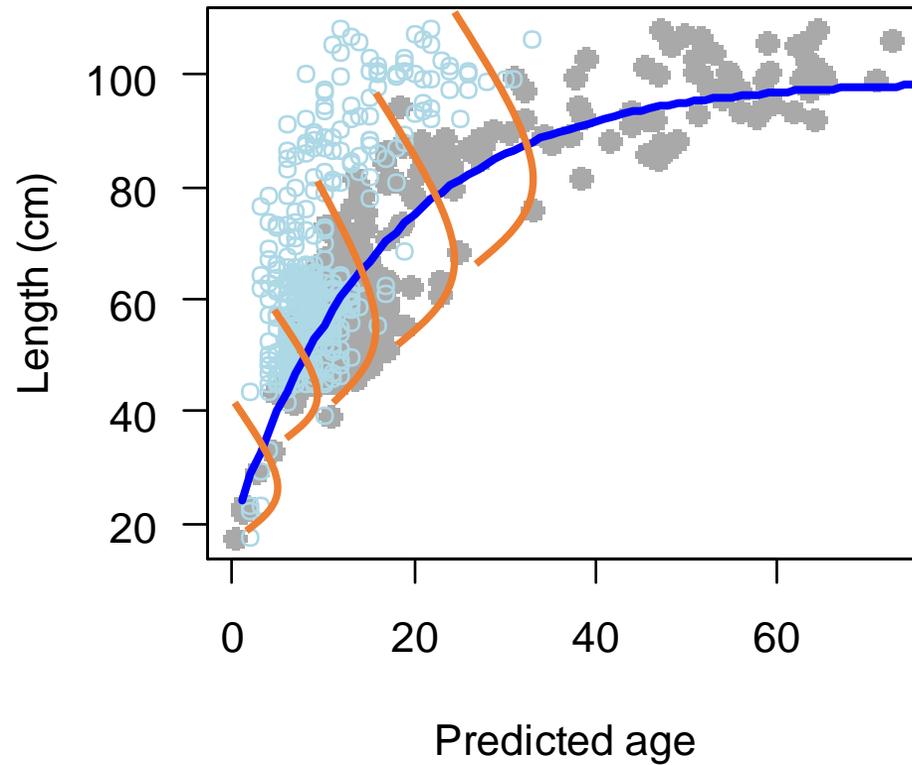




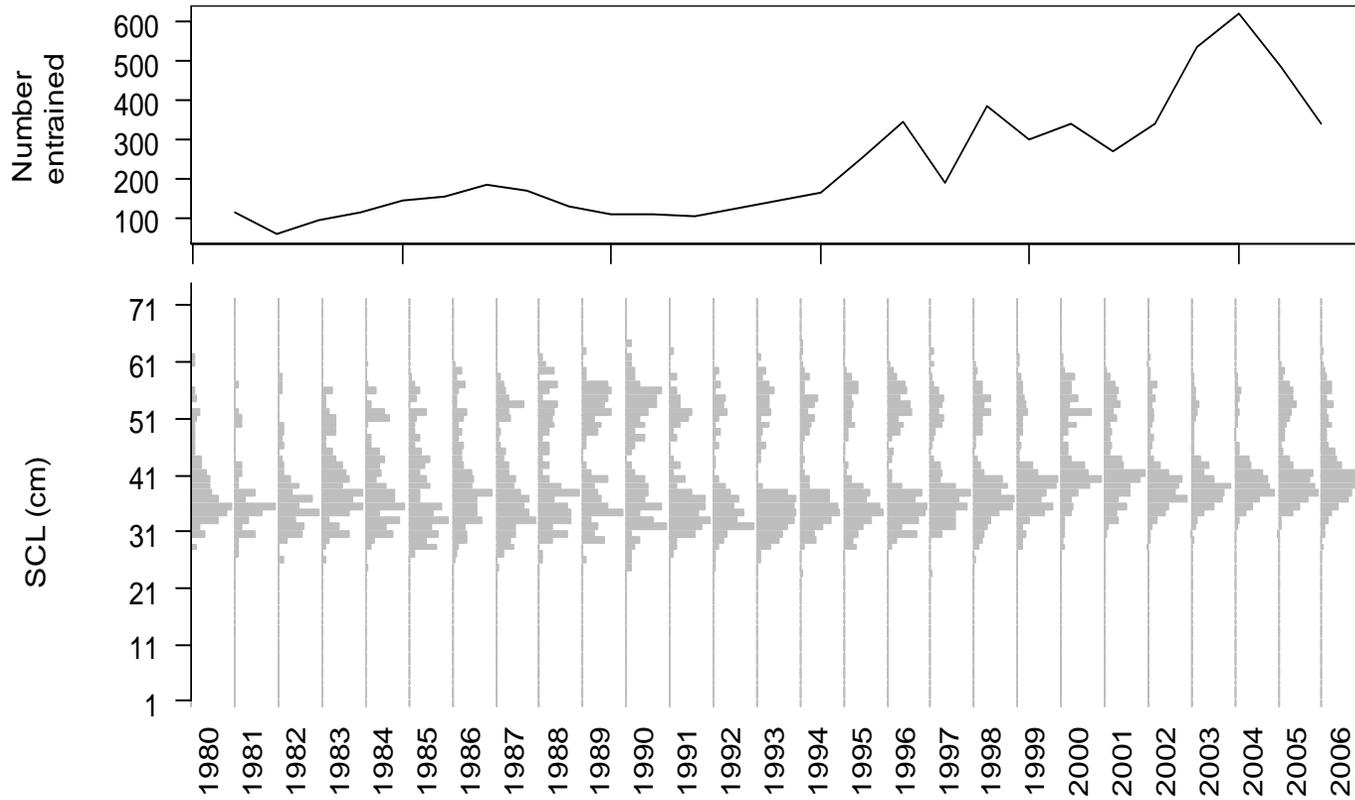
Estimating The Length-at-Age Relationship And The True Age



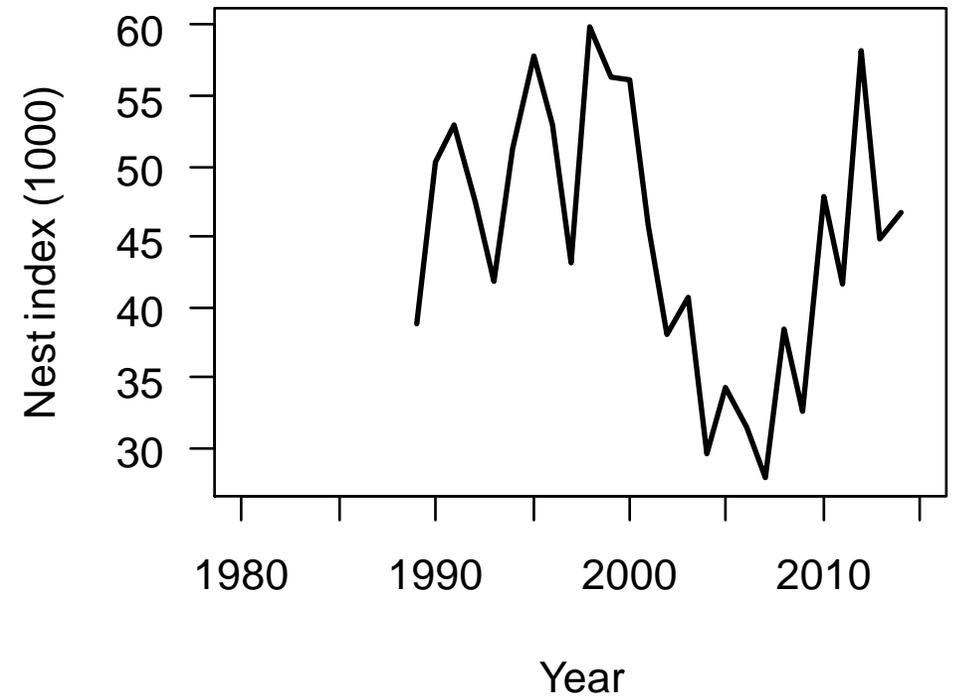
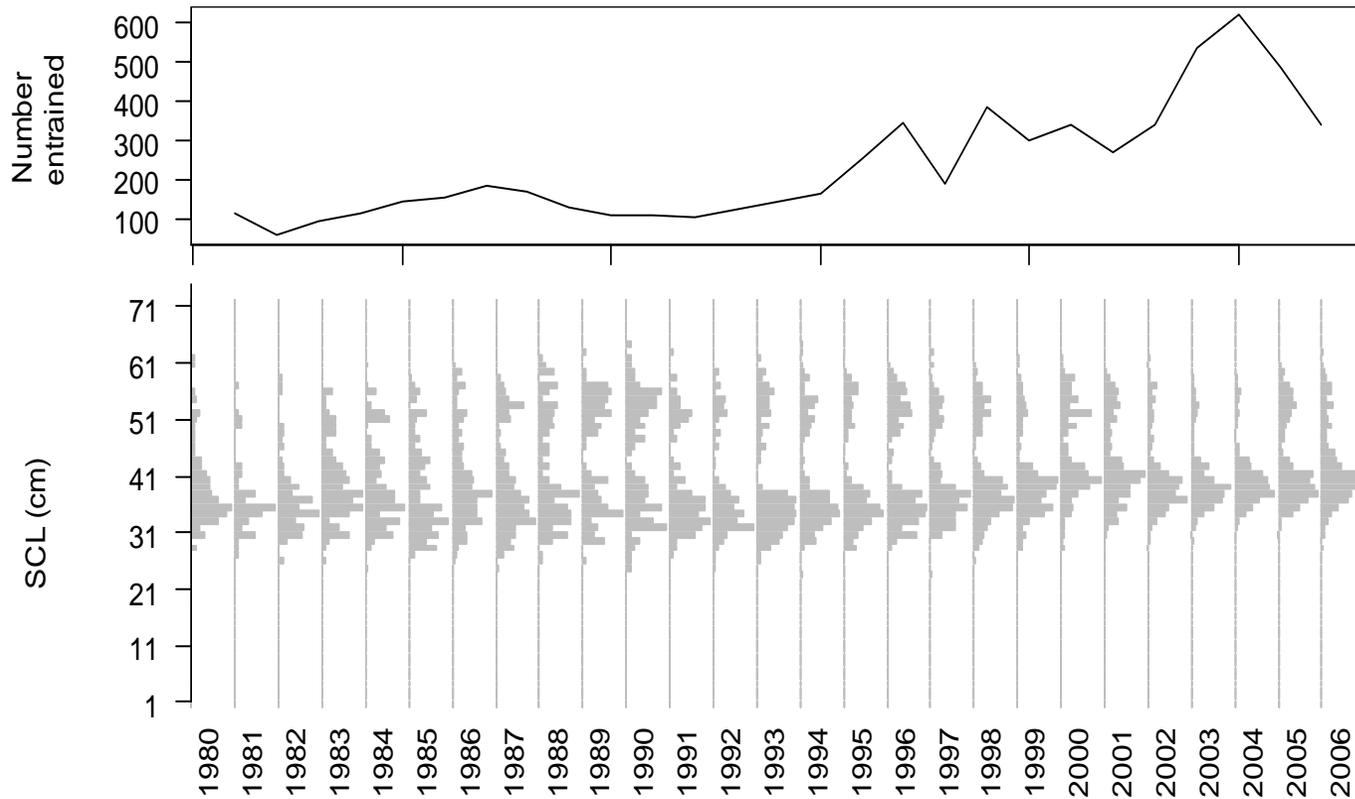
Estimating The Length-at-Age Relationship And The True Age



The Turtle Length Composition Data/Survey



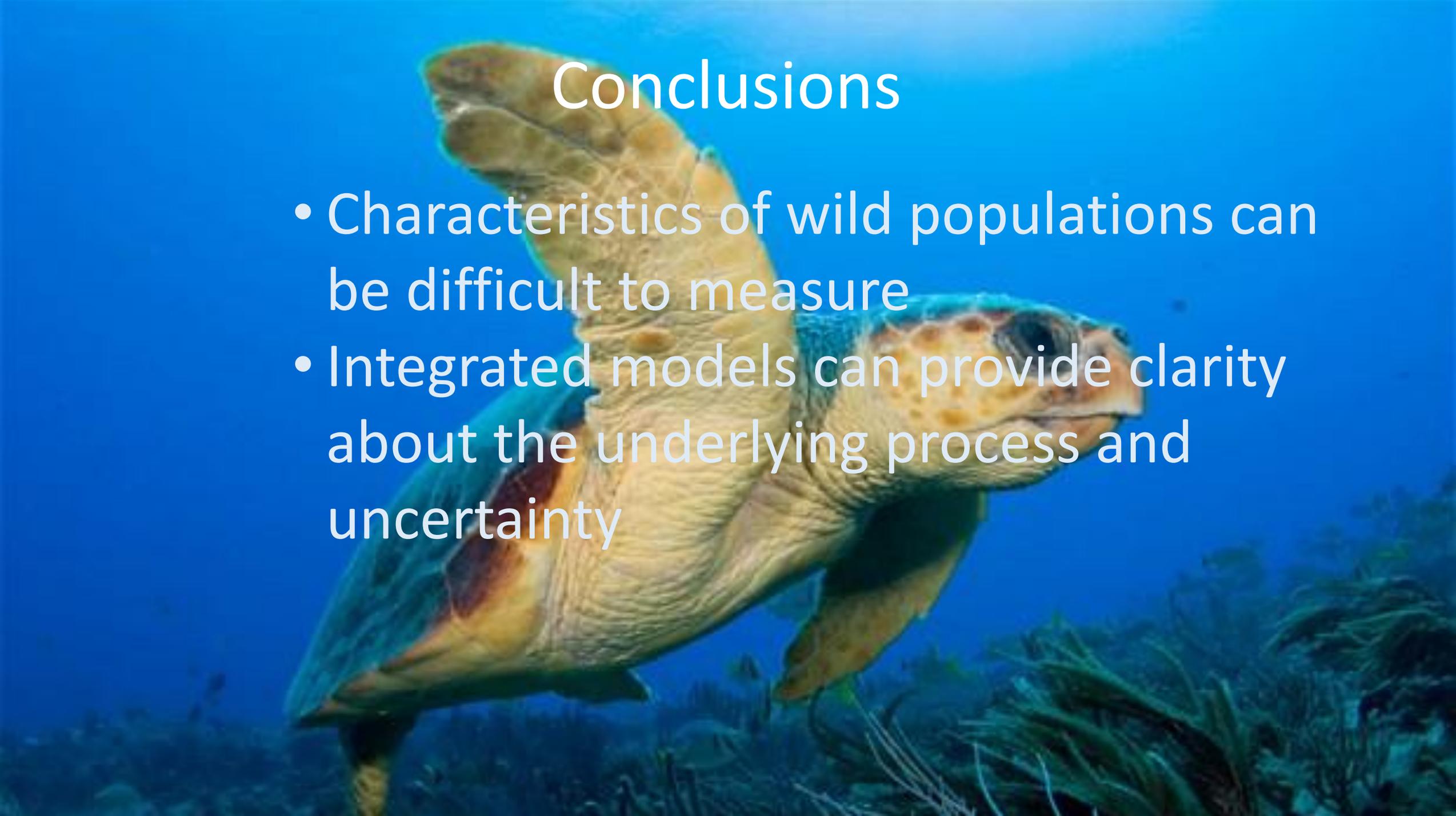
The Turtle Length Composition Data/Survey



Conclusions

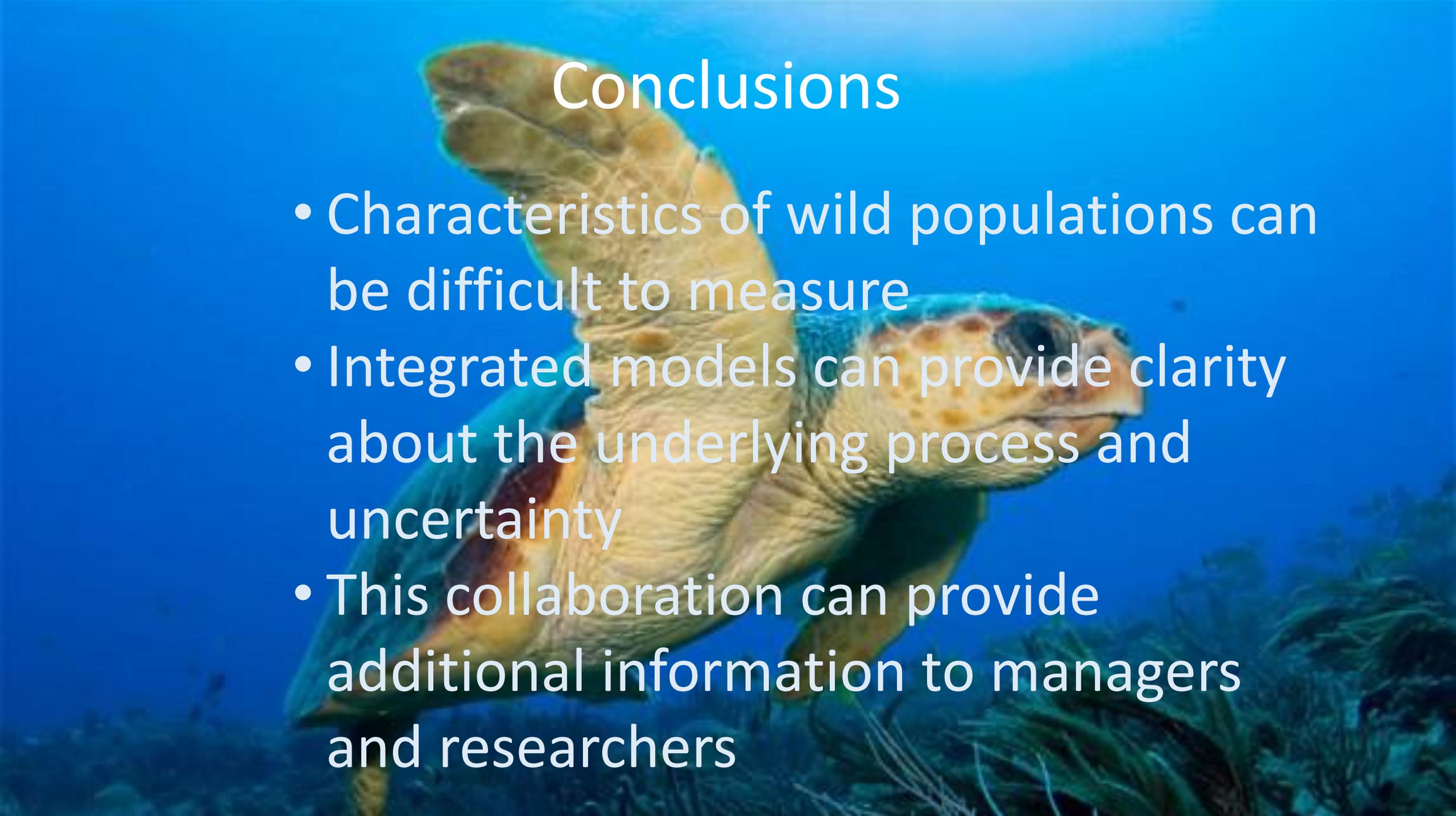
- Characteristics of wild populations can be difficult to measure

Conclusions

A sea turtle is shown swimming in a clear blue ocean. The turtle's head is on the right, and its front flipper is raised. The background features green seagrass or coral. The text is overlaid on the left side of the image.

- Characteristics of wild populations can be difficult to measure
- Integrated models can provide clarity about the underlying process and uncertainty

Conclusions



- Characteristics of wild populations can be difficult to measure
- Integrated models can provide clarity about the underlying process and uncertainty
- This collaboration can provide additional information to managers and researchers

A large sea turtle is swimming in clear blue water. The turtle is positioned in the center-left of the frame, moving towards the right. Its head is slightly raised, and its front flippers are extended upwards. The background shows a seabed with green seagrass or algae. The overall scene is bright and clear.

Next steps

- Incorporate stable isotope data
- We want to incorporate juvenile length based indices in the tool
 - Fishery dependent
 - Fishery independent

This PDF was later
amended to make the
document 508
compliant.

Questions?