



Ministry of Marine Resources
GOVERNMENT OF THE COOK ISLANDS

Alfonsino age and growth

Stephen Brouwer, Chloe Wragg, Marino
Wichman, Tiare-Renee Nicholas

SERAWG-02-07

Zoom
8 May 2020

Zoom

Introduction

Data inputs

Analysis

Readability

Age data

Recommendations

- ▶ The Cook Islands, Australia and Japan have provided alfonsino otoliths to carry out age estimations.
- ▶ The growth parameters were used in the 2020 assessment.



Zoom

Introduction

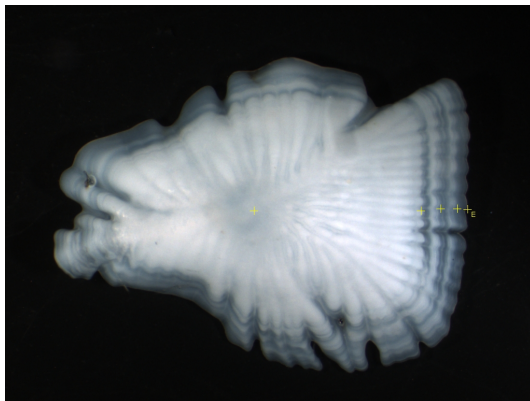
Data inputs

Analysis

Readability

Age data

Recommendations



Saggital otoliths were sampled by the fishing industry and read whole by FAS. *Saggitus Limited* was contracted on behalf of Ministry of Marine Resources (MMR) to estimate the growth parameters using these aged fish (n=531 - 267M, 259F).



Sample distribution (Central E Indian Ocean)

Zoom

Introduction

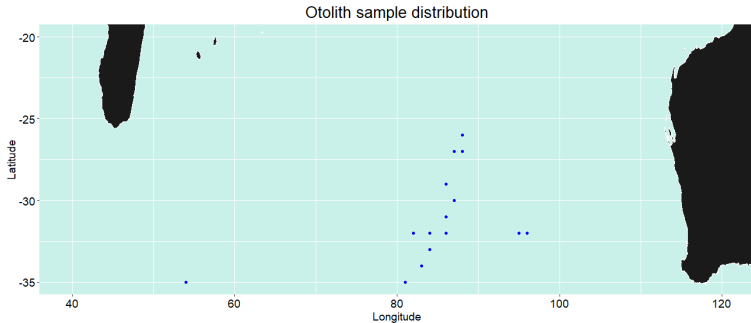
Data inputs

Analysis

Readability

Age data

Recommendations



Zoom

Introduction

Data inputs

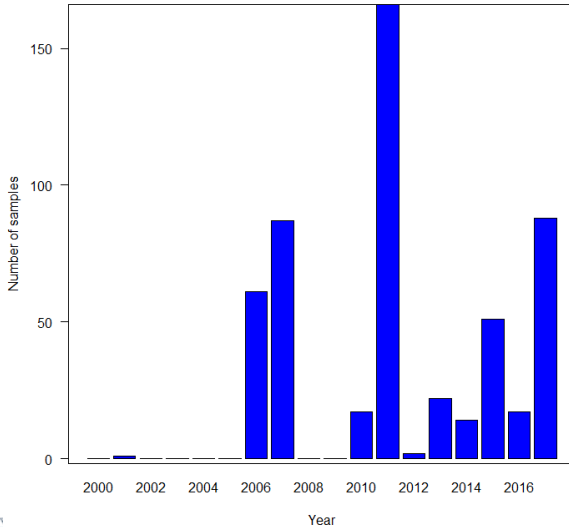
Analysis

Readability

Age data

Recommendations

Alfonsino East age samples



Zoom

Introduction

Data inputs

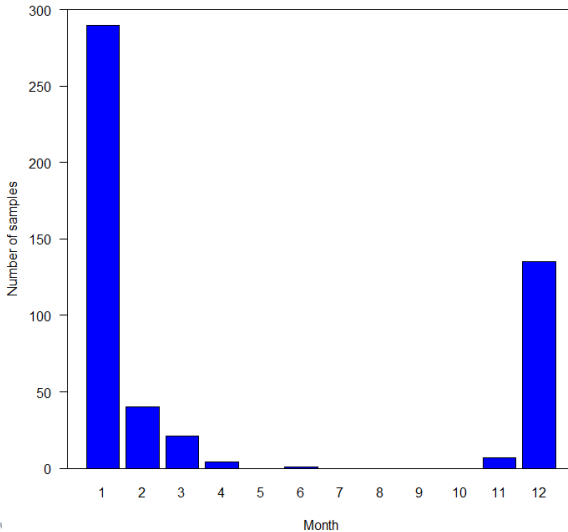
Analysis

Readability

Age data

Recommendations

Alfonsino otolith samples



Data inputs

Zoom

Introduction

Data inputs

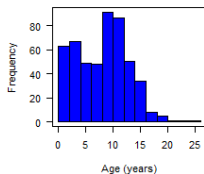
Analysis

Readability

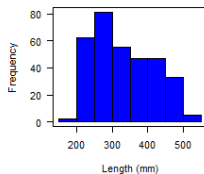
Age data

Recommendations

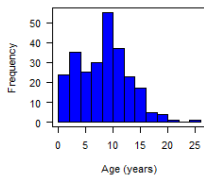
Combined sexes



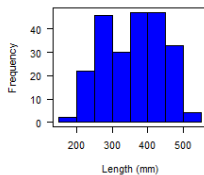
Combined sexes



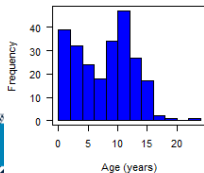
Male



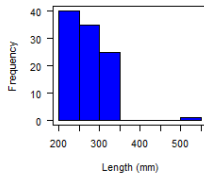
Male



Female



Female



Zoom

Introduction

Data inputs

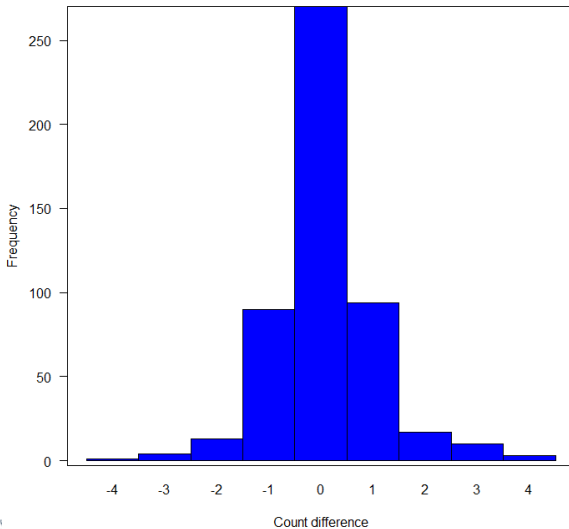
Analysis

Readability

Age data

Recommendations

Reader 1 vs. reader 2 count differences



Zoom

Introduction

Data inputs

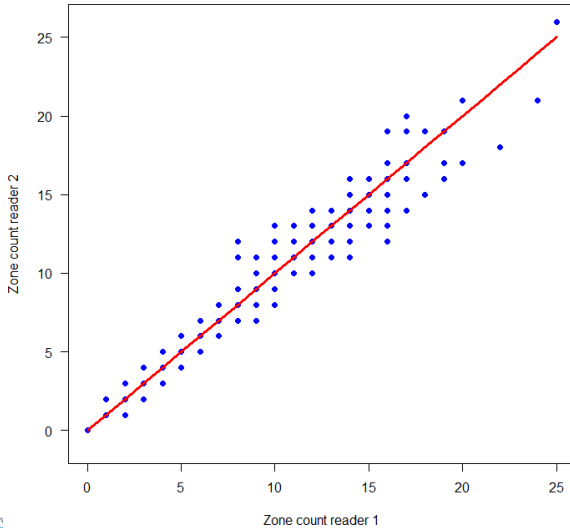
Analysis

Readability

Age data

Recommendations

Inter-reader counts



Age and growth

Zoom

Introduction

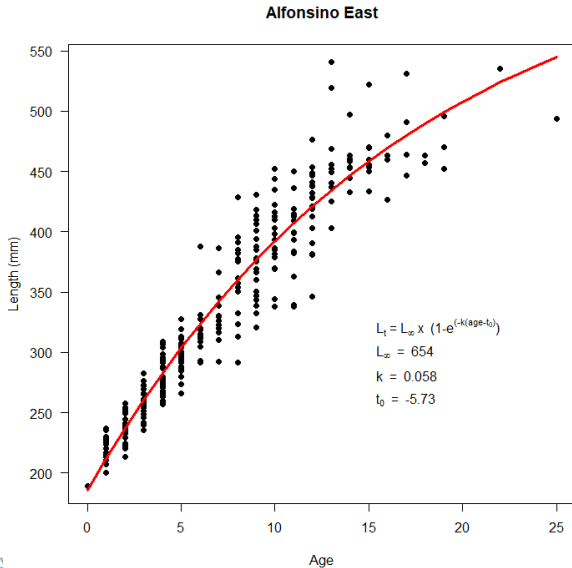
Data inputs

Analysis

Readability

Age data

Recommendations



Age and growth

Zoom

Introduction

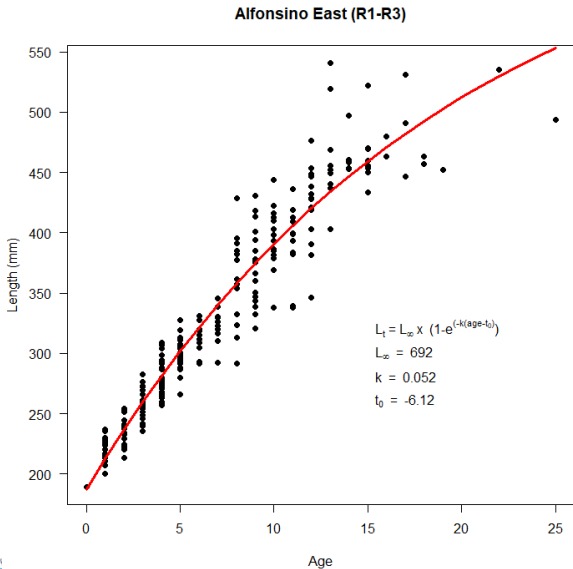
Data inputs

Analysis

Readability

Age data

Recommendations



Age and growth

Zoom

Introduction

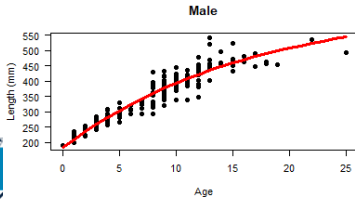
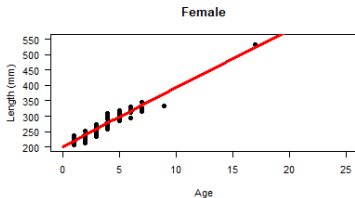
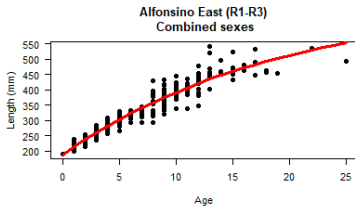
Data inputs

Analysis

Readability

Age data

Recommendations



Age and growth

Zoom

Introduction

Data inputs

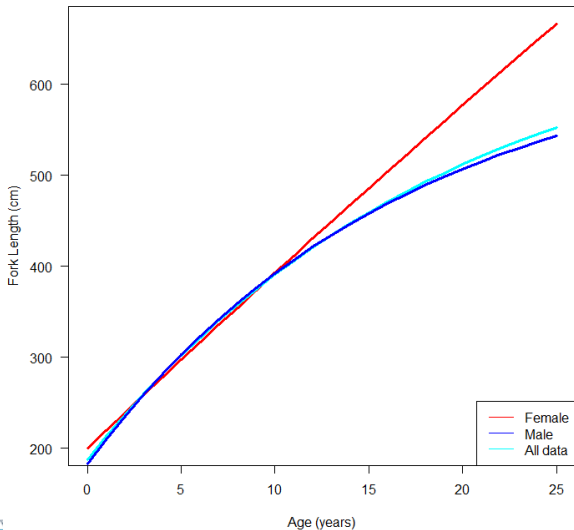
Analysis

Readability

Age data

Recommendations

Alfonsino von Bertalanffy fits
(R1-R3)



Age and growth

Zoom

Introduction

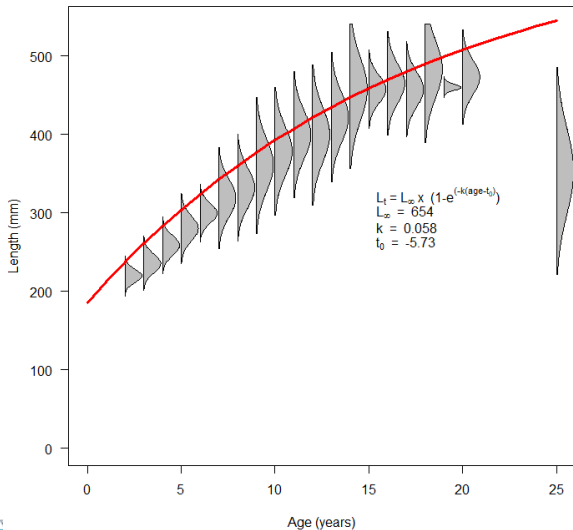
Data inputs

Analysis

Readability

Age data

Recommendations



Age and growth

Zoom

Introduction

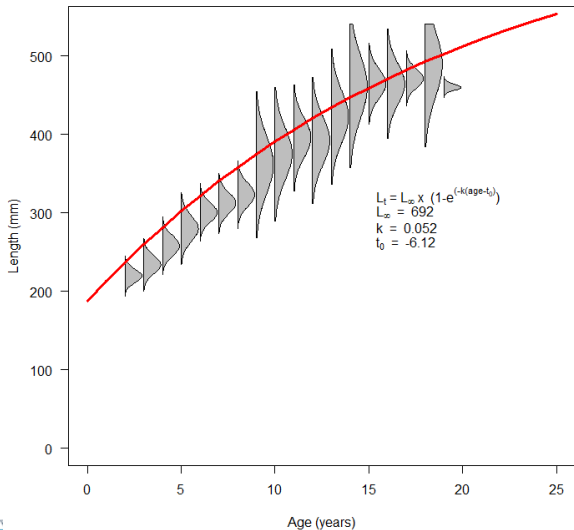
Data inputs

Analysis

Readability

Age data

Recommendations



Age and growth

Zoom

Introduction

Data inputs

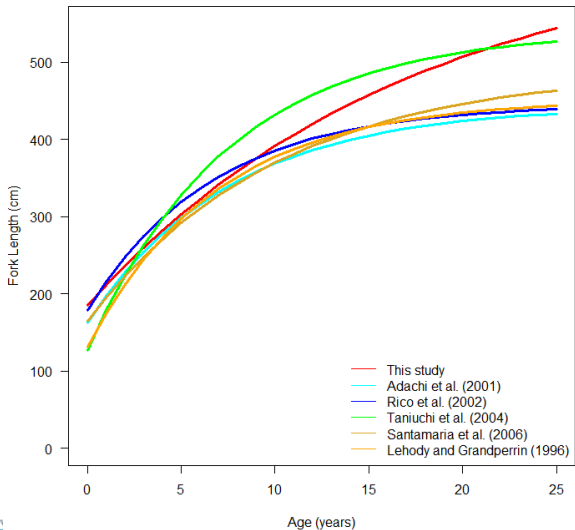
Analysis

Readability

Age data

Recommendations

von Bertalanffy fits



Zoom

Introduction

Data inputs

Analysis

Readability

Age data

Recommendations

- ▶ Use age estimated from otoliths with readability scores 1-3.
- ▶ Use the combined length-at-age estimates.
- ▶ Undertake additional sampling to get better estimates of female age and through the size range.
- ▶ Assess whether change in growth at around age 9 coincides with the onset of maturity or can be attributed to other factors.



Thanks for listening!



Source: NOAA Photo Library

