



# **FISH AGE DETERMINATION IN THE BCLME**

**October 2014**

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*[on behalf of Deon Durholtz (DAFF, South Africa)]*

- 1. BCC REGIONAL FISH AGE DETERMINATION WORKING GROUP**
  
- 2. ECOFISH WP 2.3 – IMPROVEMENT AND VALIDATION OF  
TECHNIQUES FOR DETERMINING GROWTH RATES OF HAKE,  
HORSE MACKEREL AND SARDINELLA**
  
- 3. CURRENT STATUS OF HAKE, HORSE MACKEREL AND  
SARDINELLA AGE DETERMINATION IN THE BCLME**

# 1. BCC REGIONAL FISH AGE DETERMINATION WORKING GROUP

- **Established in 2009**
- **First meeting – October 2009:**
  - Developed Terms of Reference and Rules of Procedure
  - D. Durholtz (SA) elected as Chair and H. Lutuba (Angola) elected as vice-Chair for the period 2009 – 2011.
  - Reviewed status of fish age determination in the three countries of the BCLME and developed work plan to address shortcomings
  - Produced report to the BCC documenting status of fish age determination in the three countries of the BCLME and recommendations as to where the BCC could address shortcomings
- **Second meeting – October 2010:**
  - Fish age determination component of ECOFISH was reviewed
  - Plans for a regional workshop in November 2010 were finalised
- **No further meetings since 2010** – largely due to problems with SA participants obtaining travel approval
- **Recommendations:**
  - A meeting be convened at the 2014 BCC ASF
  - A new Chair and Vice-Chair be elected at this meeting
  - Problems manifest in ECOFISH WP2.3 should be discussed and recommendations on potential solutions submitted to BCC

## 2. ECOFISH WP 2 Task 3 – IMPROVEMENT AND VALIDATION OF TECHNIQUES FOR DETERMINING GROWTH RATES OF HAKE, HORSE MACKEREL AND SARDINELLA

### Objective

Validate age determination methods for hake, horse mackerel and sardinella to ensure accurate estimates of age (and hence growth) are available for input to the regional stock assessment models being developed through ECOFISH WP1

### Approach

- Initial work plans / activities developed for the ECOFISH proposal incorporated a suite of approaches that included radiochemical dating, mark-recapture experiments and marginal increment (MI) and otolith growth pattern (GP) analyses.
- The initial development of the Task emphasised the importance of students to conduct the MI and GP research, both to build fish age determination capacity in the region as well as to ensure that the research continued in spite of capacity limitations in the region.
- The intention was that students would be trained in the underlying theory and implementation of the approaches, after which they would be in a position to conduct the sampling and analysis of otoliths collected from hake (*Merluccius capensis* and *M. paradoxus*), horse mackerel (*Trachurus capensis* and *T. trecae*) and sardinella (*Sardinella aurita* and *S. madarensis*) throughout the BCLME

## **2. ECOFISH WP 2 Task 3 – PROJECTS INCLUDED IN THE INITIAL PROPOSAL**

1. Validation of hake age using radiochemical dating
2. Validation of hake age estimation using mark-recapture experiments
3. Validation of hake age estimation using marginal increment analysis
4. Validation of horse mackerel age estimation using marginal increment analysis
5. Validation of sardinella age estimation using marginal increment analysis
6. Standardization workshops

## 2. ECOFISH WP 2 Task 3 – PROJECTS INCLUDED IN THE INITIAL PROPOSAL

1. ~~Validation of hake age using radiochemical dating~~
  - DISCARDED DUE TO INSUFFICIENT FUNDS (from onset of project)
2. Validation of hake age estimation using mark-recapture experiments
  - DAFF EXPERIMENT (2011) UNSUCCESSFUL
  - FURTHER WORK HAMPERED BY UNAVAILABILITY OF RESEARCH VESSELS
3. Validation of hake age estimation using marginal increment analysis
  - SOME PROGRESS ON *M. capensis* (Wilhelm Ph.D. and subsequent work with Namibian scientists)
  - NO PROGRESS ON *M. paradoxus*
4. Validation of horse mackerel age estimation using marginal increment analysis
  - NO PROGRESS – lack of students
5. Validation of *sardinella* age estimation using marginal increment analysis
  - NO PROGRESS – lack of students
6. Standardization workshops
  - NO ACTIVITIES DURING 2011 – 2014.
  - PLANS FOR 2015 TO BE DISCUSSED AT THIS FORUM

### **3. CURRENT STATUS OF HAKE, HORSE MACKEREL AND SARDINELLA AGE DETERMINATION IN THE BCLME**

#### **3.1 ANGOLA – status unknown**

#### **3.2 NAMIBIA**

Capacity: 2 Scientist available (dedicated to Hakes and Horse mackerel (recently appointed))

Several technicians and technical assistants.

Fully equipped lab

Routine age determination on hakes, non yet for H. mackerel ( to start soon)

#### **3.3 SOUTH AFRICA**

Capacity: 1 scientist - post vacant since 2010

1 technician – currently dedicated to routine hake age determination

Fully equipped laboratory – currently not operational

Current routine age determination activities: Hake only (*M. capensis* + *M. paradoxus*)

Current age validation research: None

**Thank You**