Lobster size at Maturity research Collaboration DFO- FSRS Preliminary Results

Angelica Silva, John Tremblay, Doug Pezzack

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Outline

- Lobster maturity research by Fisheries and Oceans
- A new area of research collaboration with GCIFA and FSRS
  - 2008-2011: DFO/GCIFA LFA31A; DFO LFA 33
  - 2010-2011: DFO/FSRS LFA32 & LFA 34
- Preliminary results 2010-2011
  - Successful efforts to expand geographical coverage
  - Mature Legal v/s sublegal lobsters includes berried and non-berried
- Future research, training, monitoring in 2012

1970's – 2009 to present

- Lobster Maturity in Nova Scotia at DFO
  - 1970's Campbell and Robinson
  - 1980's Bay of Fundy – Aiken and Waddy
  - 1990's Offshore Lobster Eagles and Pezzack
  - 1990's Cape Breton, eastern Shore Miller and Watson
  - 2005-2007 Cape Breton Reeves, et al
  - Current: 2008 Canso; 2009 Port Mouton; 2010-2011 Lobster Bay

Methods to determine lobster maturity

- Estimates of maturity based on cement gland development offer the best combination of speed, reliability and ease of application (Aiken and Waddy, 1982)

- Female lobster reach first maturity of ovaries up to 1 year before eggs extrusion. Prior to egg extrusion, maturity can be assessed by stage of cement gland development

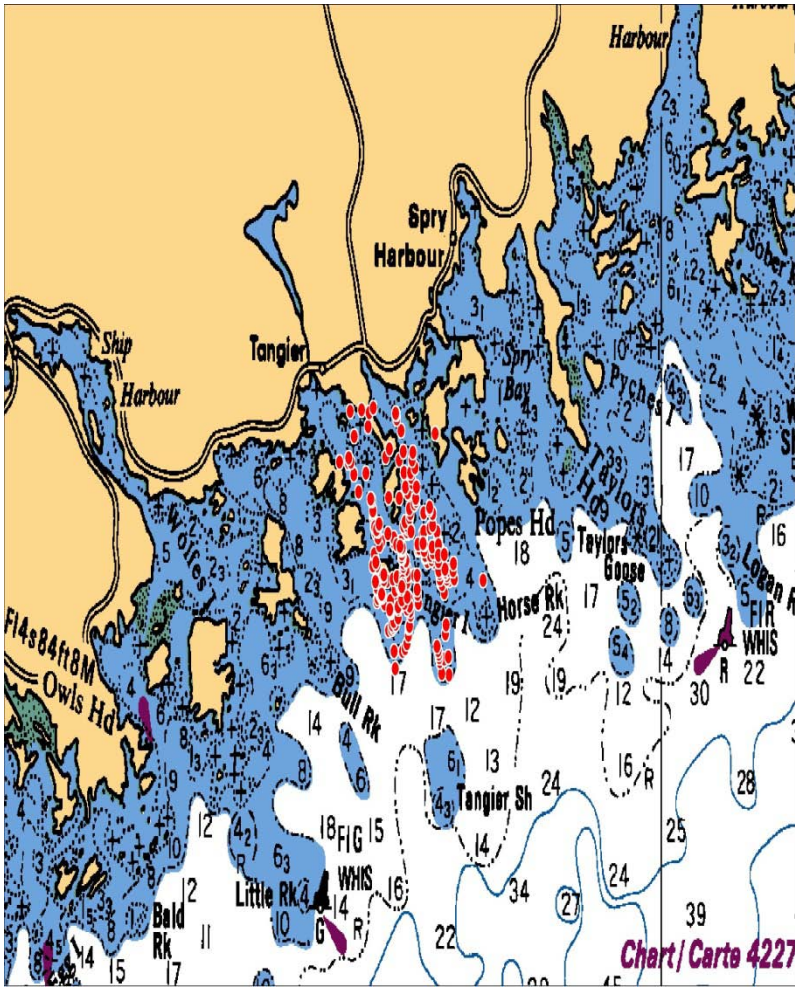
- Verification of maturity of ovaries and advanced cement gland development should be confirmed, only Canso has been verified.

FSRS-DFO

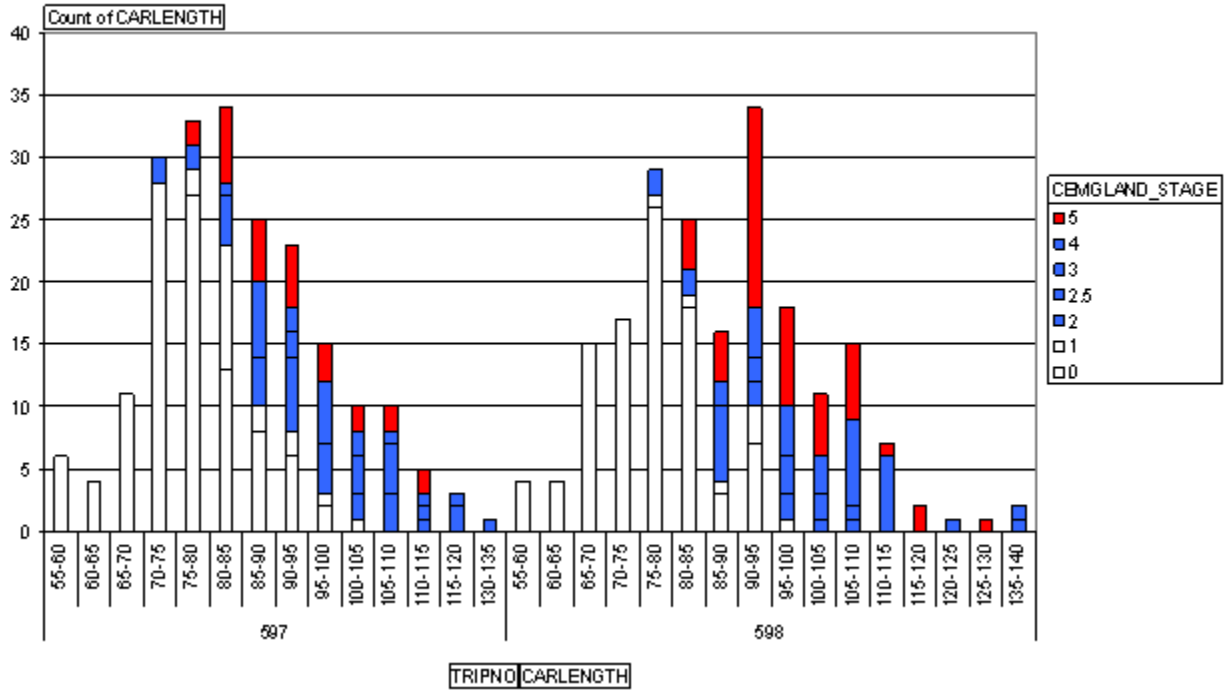
- 2010-2011 FSRS/DFO Collaboration
  - Tangier (LFA 32)
    - 7 field samples/1390 lobsters
    - 27 berried sublegal/278 (10%)
  - Lobster Bay – inner / outer
    - 20 field samples inner (2593)/(2051)/outer bay lobsters
    - 3 berried sublegal/252 (11%)

Preliminary results: Tangier

- Field samples: by FSRS personnel
- Timing: May 19 to June 16, 2010; May 3 to June 17, 2011 (same area)
- Data obtained: legal and sublegal mature lobsters at CG 2 and berried females



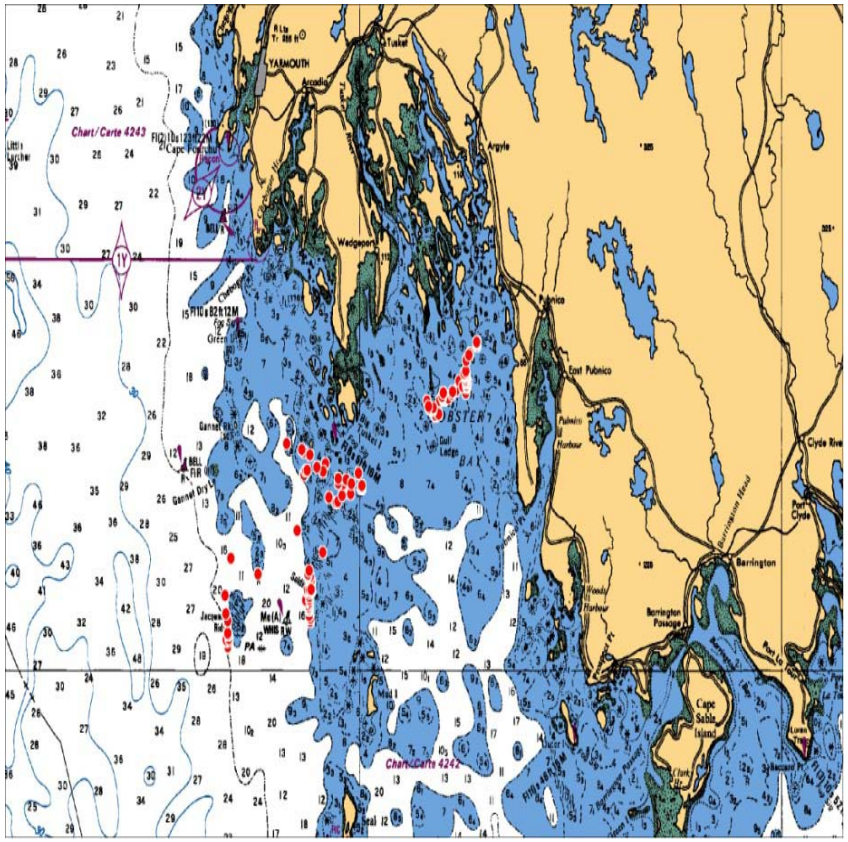
Preliminary results LFA 32 – TANGIER 2011



Tangier 2011. Size frequency distribution of female lobsters (non-berried and berried - red) plotted in 5 mm CL bins. Left panel: June 1, 2010 n= 210; Right panel: June 16, 2010 n=201. White Immature.

Preliminary results: Lobster Bay

- Field samples: by FSRS personnel
- Timing: May 25 to July 21, 2010; May 24 to August 24, 2011 (same areas). Outer Bay and Inner Bay, separated days.
- Data obtained: legal and sublegal mature lobsters at CG 2 and berried females



Lobster Bay 2010-2011

d) Lobster Bay INSIDE
July 21, 2011 August 24, 2011
N=204 N= 211

e) Lobster Bay OUTSIDE
July 20, 2011 August 23, 2011
N=225 N= 204

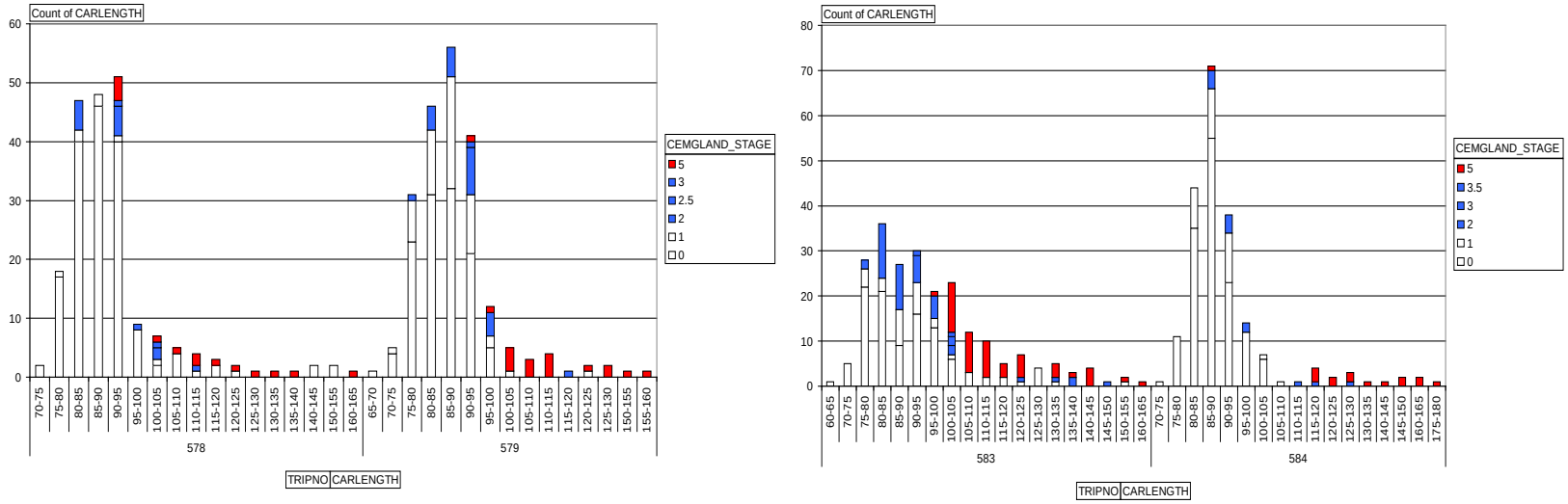


Figure 3. Size frequency distribution of female lobsters and proportion of mature individuals for each 5mm class interval for last two field samples in 2011 for Lobster Bay Inside (left) and Lobster Bay Outside (right). Immature appear as white; Mature are CG 2-4 as Blue and berried as Red.

Summary

- Tangier (LFA 32)
  - Maturity of **legal** size lobsters increased from 38% to 84% in 2010 and from 68% to 82% in 2011
  - Maturity of **sub-legal** lobsters varied from 5% to 20% in 2010 and from 22% to 6% in 2011
  - Smallest berried: 69.3 mm/smallest CG 2:73.1 mm

- Lobster Bay (LFA 34)
  - Maturity of **legal** lobsters varied from 16% to 39% (6-51 range) for outer area; 12% to 29% for inner area.
  - Maturity of **sublegal** lobsters mostly <5% (once 14% in 2011)
  - Smallest berried: 80 mm/ smallest CG 2:73.3 mm

- After two years of sampling, some issues with greater # of sublegal than legal (after season), 2012 to ensure better representation.

- Current data will be analysed to determine size at onset of maturity, which seems lower than previous estimates for LFA 31A and LFA 32.

Future research

- A minimum of 3 year sampling is required to establish size at maturity and to determine temporal and spatial variability
- Continuity of collaboration 2012
- Verification of ovarian development and maturity according to cement gland (each site)

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