**EAFM snow crab 29 October 2020 meeting**

Participants :

Stephanie Boudreau

Tobie Surette

Bernard Sainte-Marie

Agenda points :

* Recap of EAFM snow crab project objectives (Bernard)
* North – South GSL contrast (Bernard)
* Thoughts on the project (Stephanie & Tobie)
* Knowns/unknowns
  + Instar structure (All)
  + Early vs late temperature determination of SaTM (=Size after Terminal Molt) (All)
  + Distribution of early juveniles: instars I-IV (All)
  + SaTM spatiotemporal trends (All)
    - proportion TM by size class
    - mean SaTM – disentangling temperature determinism and density-dependence (recruitment pulses-troughs)
  + Female/male mating success and SaTM (All)
    - comment on NF-Labrador case (Bernard)
* Population modeling for adaptive PA (All)
* Structure of collaboration (All)
* Deliverables and timeline for 2020 and 2021 stock assessments (All)
* Other points (All)
* Next meeting

**Notes from meeting:**

* Tobie to create GITHUB repository for project collaboration.
* Descriptive things to produce first:

1. For sGSL: instar size structure (for nGSL results, see slides 4 & 6 of Sainte-Marie’s Norway 2019 presentation).
2. Overall temperature index for snow crab habitat over the years, starting 15 years prior to first survey year.
3. For both sGSL and nGSL (Baie Sainte-Marguerite):
   1. Annual proportion adult (terminally-molted) by size class or instar among new-shell crab (=shell condition 1 and 2) for females (=primiparous) and males [since shell condition 2 may include some crabs molted in the previous year, maybe consider also producing a running average over 2 or 3 years)… for males, see slide 11 of Sainte-Marie’s Norway 2019 presentation Fig. 1 below for preliminary nGSL results;
   2. Annual mean or median SaTM for new-shell crab [same considerations as above]… see slides left panes of 9 & 10 of Sainte-Marie’s Norway 2019 presentation for preliminary nGSL primiparous and legal male results.
4. Look for coherent patterns between the two GSL regions in the spatially aggregated data.
5. For sGSL, spatially refined analyses to account for possibly different nursery areas in different thermal regimes – focus on less mobile primiparous females.
6. Explore (non-exclusive) factors possibly explaining patterns: temperature at various stages of life and integrated over lifetime; cohort density; large adult male density (Comeau et al., 1998) or mating opportunity (Elner & Beninger, 1995… what population proxy to use?). An example of this is shown in right panes of slides 9 & 10 of Sainte-Marie’s Norway 2019 presentation
7. Develop predictive relationships for proportion adult and mean/median SaTM – hopefully, we would find a common thread through the sGSL and nGSL data.

* Depending on results, next steps would include forecasting change in SaTM under various climate scenarios and evaluating implications for mating success – egg production and for precautionary management through adjustment of MLS (minimum legal size) or exploitation rate to maintain reproduction in a healthy state. At this point, we would need to involve Fisheries Management and Industry.
* Aim for 2 primary publications: one describing spatiotemporal variability of SaTM, factors involved, and (hopefully) best predictive relationships; second on population reproduction impacts and management implications in context of climate change. Stephanie, Tobie and Bernard would be core authors of these 2 papers, bringing in additional authors as/if needed.
* Would aim to present descriptive results and analysis of factors affecting SaTM at about the time of the next assessment (in winter 2021) and population/management implications in 2022.
* Determine future meeting frequency: how about trying every 3 weeks regularly, and opportunistically when needed?