**Supplemental materials**

Arctic cod *(Boreogadus saida)* hatching in the Hudson Bay system: testing of the freshwater winter refuge hypothesis

Sarah Schembri1\*, Inge Deschepper1, Paul G. Myers2, Pascal Sirois3, Louis Fortier1, Caroline Bouchard1,4 and Frédéric Maps1

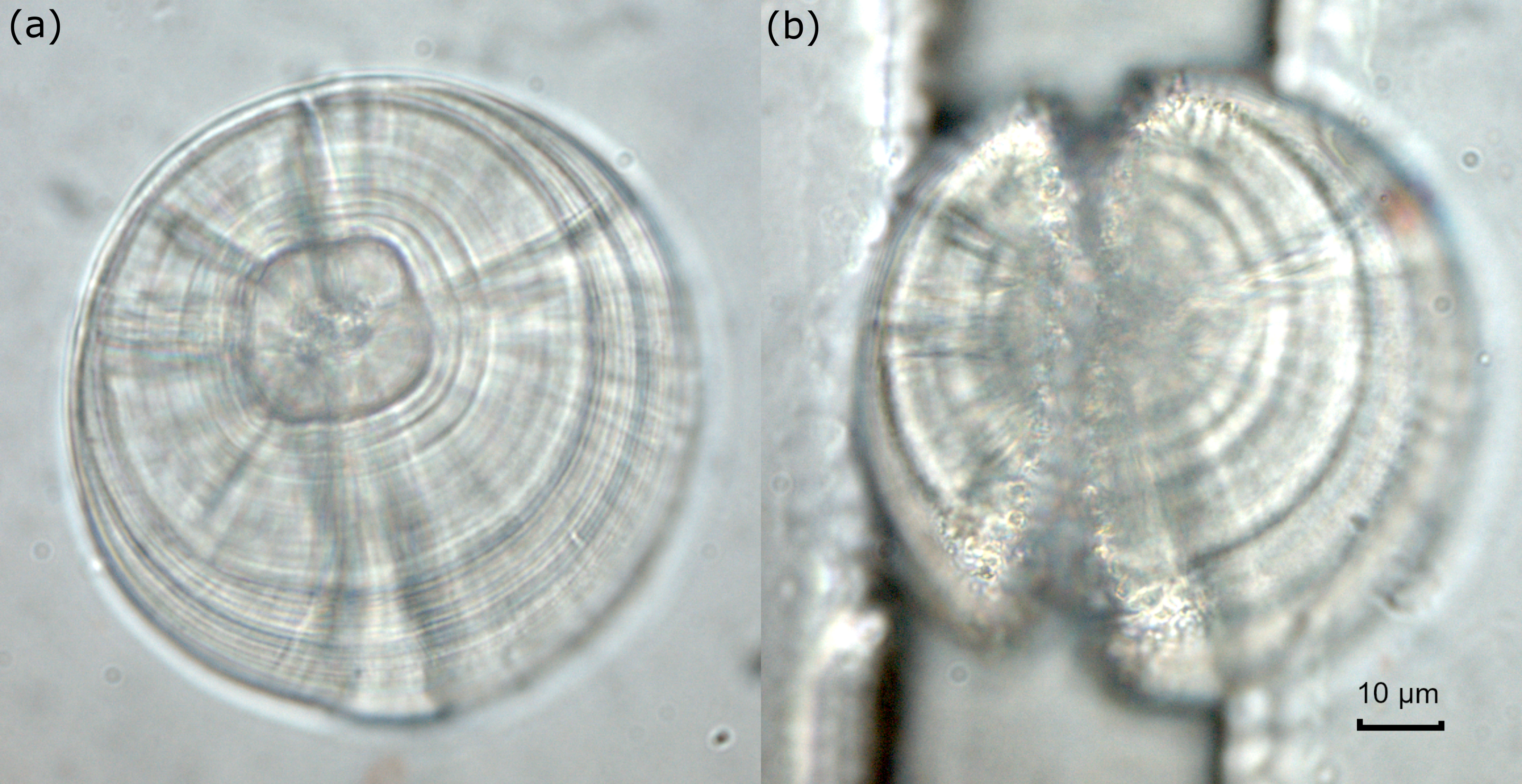
1 – Université Laval, Québec, Canada

2 – University of Alberta, Alberta, Canada

3 – Université du Québec à Chicoutimi, Québec, Canada

4 – Greenland Climate Research Centre, Nuuk, Greenland

[\*sarah.schembri.1@ulaval.ca](mailto:*sarah.schembri.1@ulaval.ca)



**Figure S1. Left lapillus of Arctic cod larvae.** (a) Intact otolith. (b) After taking a transect through the core via laser ablation for mass spectroscopy analysis.

**Table S1.** The gauged rivers in the Hudson Bay system, adapted from Stadnyk et al. (2021).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Location number (Figure 1)** | **Location name** | **Regulated (yes/no)** | **Data source** | **Drainage area (km2)a** | **Observed mean monthly discharge (m3 s–1)b** |
| 1 | Nelson River | Y | DERY | 1,111,890 | 3,343 |
| 2 | Churchill River | Y | DERY | 295,121 | 356 |
| 3 | Albany River | Y | DERY | 137,035 | 1,009 |
| 4 | Rivière Koksoak | Y | DERY | 136,262 | 1,458 |
| 5 | Moose River | Y | DERY | 109,440 | 1,182 |
| 6 | La Grande Rivière | Y | DERY | 100,729 | 3,039 |
| 7 | Rivière Eastmain | Y | DERY | 46,930 | 108 |
| 8 | Rivière Rupert | Y | DERY | 46,003 | 818 |
| 9 | Thelon and Kazan rivers | N | DERY | 246,371 | 1,354 |
| 10 | Hayes River | N | DERY | 105,042 | 611 |
| 11 | Severn River | N | DERY | 99,222 | 672 |
| 12 | Winisk River | N | DERY | 71,066 | 470 |
| 13 | Rivière Nottaway | N | DERY | 67,383 | 988 |
| 14 | Thlewiaza and Tha–anne rivers | N | DERY | 49,599 | 220 |
| 15 | Seal River | N | DERY | 49,263 | 371 |
| 16 | Attawapiskat River | N | DERY | 47,168 | 348 |
| 17 | Rivière Arnaud | N | DERY | 44,486 | 365 |
| 18 | Grande Rivière de la Baleine | N | DERY | 41,219 | 663 |
| 19 | Rivière George | N | DERY | 39,364 | 734 |
| 20 | Rivière aux Feuilles | N | DERY | 38,684 | 548 |
| 21 | Rivière Harricana | N | DERY | 33,873 | 57 |
| 22 | Rivière a la Baleine | N | DERY | 31,788 | 486 |
| 23 | Quoich River | N | DERY | 29,883 | 213 |
| 24 | Ekwan River | N | DERY | 21,546 | 83 |
| 25 | Rivière Broadback | N | DERY | 20,189 | 309 |
| 26 | Petite Rivière de la Baleine | N | DERY | 15,750 | 101 |
| 27 | Fergusson River | N | DERY | 15,556 | 83 |
| 28 | Rivière Innuksuac | N | DERY | 12,727 | 104 |
| 29 | Rivière Nastapoka | N | DERY | 12,417 | 257 |
| 30 | Rivière a l'Eau Claire | N | DERY | 12,388 | 90 |
| 31 | Lorillard River | N | DERY | 11,432 | 89 |
| 32 | Rivière Pontax | N | DERY | 3,020 | 99 |

a The drainage area is as used in the simulation of the revised A-HYPE model.

b Based on observations from 1981 to 2010