Migratory behavior and habitat utilization of the red king crab (*Paralithodes camtschaticus*) in a newly invaded fjord in northern Norway

Magnus Aune1,5, Jenny L. A. Jensen1, Sten I. Siikavuopio2, Guttorm N. Christensen1, Kåre Tormod Nilsen3, Benjamin Merkel1, Paul E. Renaud1,4

1Akvaplan-niva AS, Fram Centre, 9007 Tromsø, Norway; 2NOFIMA, Muninbakken 9-13, 9291 Tromsø; 3K-To-9 AS, Fuglenesveien 101, 9601 Hammerfest; 4University Centre in Svalbard; 9071 Longyearbyen, Norway

Appendix A: Supplementary material

Table A1. Sediment properties at selected sites (shown in Figure 1) in Gamvikfjorden, northern Norway, on the 12th of October 2019. Depth is given in meter. TOC = total organic carbon; TN = total nitrogen; Pelite = fine fraction of the sediment (% < 0.063 mm); nTOC = TOC corrected for sediment coarseness; C:N = TOC:TN.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Station | Latitude | Longitude | Depth | TOC | TN | Pelite | NTOC | C:N |
| 1 | 70.800 | 23.252 | 58 | 7.2 | 2.2 | 16.7 | 22.174 | 3.3 |
| 2 | 70.794 | 23.267 | 54 | 9.3 | 3 | 15.4 | 24.488 | 3.1 |
| 3 | 70.788 | 23.270 | 57 | 7.5 | 1.2 | 26.7 | 20.704 | 6.3 |
| 4 | 70.784 | 23.274 | 62 | 15.0 | 2.2 | 39.1 | 25.982 | 6.9 |
| 5 | 70.778 | 23.276 | 62 | 47.2 | 3.8 | 56.0 | 55.11 | 12.4 |
| 6 | 70.802 | 23.267 | 43 | 2.9 | 0.3 | 3.7 | 20.244 | 8.8 |
| 7 | 70.804 | 23.280 | 22 | 11.2 | 0.9 | 7.8 | 27.766 | 12.7 |
| 8 | 70.795 | 23.285 | 36 | 2.5 | 0.3 | 3.3 | 19.926 | 7.9 |
| 9 | 70.793 | 23.302 | 23 | 3.8 | 0.6 | 4.2 | 21.044 | 6.7 |

Table A2. Abundance of dominant groups of benthos collected at selected sites in Gamvikfjorden, northern Norway. Grab samples were obtained the 12th of October 2019.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Station | Echinoderms | Crustaceans | Bivalves | Polychaetes |
| 1 | 2 | 0 | 0 | 30 |
| 2 | 1 | 1 | 0 | 10 |
| 3 | 0 | 0 | 0 | 30 |
| 4 | 0 | 0 | 0 | 20 |
| 5 | 0 | 0 | 0 | 5 |
| 6 | 2 | 2 | 5 | 3 |
| 7 | 5 | 2 | 15 | 12 |
| 8 | 0 | 0 | 2 | 3 |
| 9 | 0 | 0 | 7 | 25 |

Table A3. Positions of 38 acoustic receivers applied in Gamvikfjorden (Sørøya, northern Norway) to track individuals of the red king crab (*Paralithodes camtschaticus*) in the period 24th of May until the 1st of November 2016. Depth is given in meters. "Sync" indicates whether a receiver was equipped with a synchronisation tag. The receivers were equipped with temperature loggers.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Receiver | Latitude | Longitude | Depth | Sync |
| 96 | 70.77239 | 23.28890 | 18 | No |
| 97 | 70.77502 | 23.27484 | 41 | No |
| 98 | 70.77659 | 23.28654 | 40 | No |
| 99 | 70.77916 | 23.26669 | 33 | No |
| 100 | 70.77850 | 23.27750 | 61 | Yes |
| 102 | 70.78451 | 23.26340 | 21 | No |
| 106 | 70.78819 | 23.27021 | 58 | Yes |
| 107 | 70.79092 | 23.28007 | 34 | No |
| 108 | 70.79319 | 23.25090 | 24 | Yes |
| 109 | 70.79279 | 23.26540 | 53 | No |
| 110 | 70.79564 | 23.27854 | 43 | Yes |
| 111 | 70.79166 | 23.29560 | 15 | No |
| 113 | 70.79679 | 23.23861 | 20 | No |
| 114 | 70.79710 | 23.25648 | 53 | No |
| 116 | 70.80059 | 23.28368 | 32 | No |
| 117 | 70.79597 | 23.29308 | 25 | No |
| 118 | 70.79932 | 23.29592 | 15 | No |
| 119 | 70.79514 | 23.30916 | 15 | Yes |
| 120 | 70.79022 | 23.30830 | 18 | No |
| 121 | 70.79156 | 23.32201 | 9 | No |
| 122 | 70.80066 | 23.23269 | 17 | No |
| 123 | 70.80155 | 23.24809 | 54 | Yes |
| 124 | 70.80234 | 23.26207 | 46 | No |
| 126 | 70.80479 | 23.29106 | 15 | No |
| 127 | 70.80454 | 23.22498 | 15 | No |
| 128 | 70.80494 | 23.23842 | 51 | No |
| 130 | 70.80696 | 23.26917 | 32 | No |
| 131 | 70.80767 | 23.28214 | 27 | No |
| 133 | 70.80991 | 23.22168 | 26 | No |
| 134 | 70.80908 | 23.23296 | 48 | Yes |
| 135 | 70.80949 | 23.24538 | 42 | No |
| 137 | 70.81165 | 23.27450 | 36 | No |
| 138 | 70.81308 | 23.28618 | 26 | Yes |
| 140 | 70.81463 | 23.29688 | 20 | No |
| 156 | 70.81378 | 23.23834 | 32 | No |
| 157 | 70.81395 | 23.25155 | 42 | No |
| 158 | 70.81503 | 23.26493 | 39 | No |
| 163 | 70.81366 | 23.22638 | 50 | No |