Summary of 2014 field season

Linda Takahashi

L to R (Linda, Katherine and Stephanie) – *photo by Megan Boucher*

The season began on May 9, with the crew consisting of Katherine Shlepr (technician), Stephanie Symons (technician) and Linda Takahashi (island supervisor). That day, generous support was provided by UNB graduate students Tony Einfeldt, Chris Jackson, Kevin Kelly and Adam Young with the help of Captain Andrew Patterson. In addition, at the start of the season, Karel Allard (CWS) helped with field gear and Lauren Scopel helped set up the initial field crew. Dr. Tony Diamond (principal investigator) visited several times during the summer. Jared Ketchum was the Canadian Wildlife Service (CWS) Observer. Megan Boucher, Dorothy Diamond, Amanda Didychuck, Courtney Hawkins and Caroline LeCourtois volunteered at various times during the season. Also, several film crews visited. Lauren, Stephanie, Linda and Tony Diamond attended the annual GOMSWG meeting on August 11. UNB graduate student Chelsae Postma and UNB forestry technician Ed Czerwinski helped to close the island for the season on August 16.

Despite a visit by a hurricane resulting in the second highest rainfall recorded since 1995, this was a good year compared to last for the seabirds. The most exciting news: terns nested successfully on the island for the first time since 2005. Also, for the first time since 2006, a full tern census was completed, resulting in 187 nesting pairs of terns. Four terns fledged this year, resulting in 0.11 chicks fledged/nest from the productivity plots. Alcids had an average season with Atlantic Puffin and Razorbill reproductive success rates comparable to previous years.

Also. two incoming Masters students began their own research. Katherine Shlepr began investigating predatory gull behaviour on MSI through structured observations and necropsy. Stephanie Symons started investigating foraging patterns of breeding alcids. Finally, 31 geolocator tags were deployed in July and August to determine alcid wintering distribution (5 on Razorbill and 26 on Atlantic Puffin).

<u>Terns</u>

ARTE chick at age 11 days – *photo by Linda Takahashi*

This was the first year of successful breeding since colony abandonment in 2006. We monitored 42 Arctic Tern nests. Common Terns were present but did not nest in our productivity plots. During our tern census, we found 138 nests with eggs and 49 scrapes, totaling 187 total nesting pairs. The species ratio was 96% Arctic Tern and 4%

Common Tern, totaling 179 Arctic Tern and 8 Common Tern pairs. Terns were first observed circling the island on May 11. Our first egg was found on June 1 and mean lay date was June 14. The first chick hatched on June 28 and peak hatch was July 5. Throughout the season, attendance was consistent, unlike recent seasons. In total, within the monitored nests, 21 chicks hatched (0.58 hatch/nest) and 4 survived to fledging age (0.11 fledge/nest). Two (10%) chicks died from exposure, two from wing injuries (10%), two disappeared (10%) and the rest died of unknown causes (70%). The details of identified Arctic Tern diet (data are % by number, not biomass) and Arctic Tern breeding success (mean ± SD) are described below for 2014 and two previous years.

Estimated Tern Nests (no formal census from 2007-2013, formal census in 2014) on MSI

2009	2010	2011	2012	2013	**2014**
150	175	75	50	90	**187**

Diet (% by number, not biomass) for Arctic Tern on MSI

N	Hake	Krill	Sandlance	Larval Fish	Butterfish	Herring	Other*
70	50.0	15.7	4.3	8.6	1.4	1.5	18.6

*Haddock, amphipods and earthworms

Breeding Success of ARTE on MSI in 2004, 2005 and 2014

Year	n	Clutch Size	Hatching Success	Chicks/nest alive at Day 15	Chicks/nest alive at Day 20	Fledglings/nest
2004	170	1.42 (0.50)	0.84	0.38	0.30	0.05
2005	183	1.42 (0.50)	0.57	0.03	0.02	0.01
2014	**69**	**1.68 (0.53)**	**0.58**	**0.11**	**0.11**	**0.11**

Predator Control

Non-lethal gull control was conducted again this year with two new, more efficient paintball guns. No other methods of non-lethal control were used; however a pellet gun was used in an unsuccessful attempt to remove an injured gull earlier in the season. Lethal gull control was conducted by a contracted predator control specialist to remove problem gulls over 2 sessions (June 7-8 and June 20-22). In total, 11 Herring Gulls and 1 Greater Black-backed Gull were removed. Following lethal control, hunting levels dropped for 4-7 days following the cull, and subsequently returned to pre-cull levels. Hunting behaviour returned following a shorter period of time after the second cull compared to the first. Gulls continued to scavenge dead chicks and steal fish from breeding adult Atlantic Puffins throughout July. One Herring Gull was removed due to injury later in the season. The combination of lethal and non-lethal control reduced gull predation to 16% of tern eggs, down from 50% in 2013 and 100% in 2012. We believe that lethal and nonlethal control should continue indefinitely.

On nearby Gull Rock (0.25 km from MSI), we found 19 nests and poked 54 eggs. We found 2 nests on MSI and poked 3 eggs. All nests were Herring Gulls. This pattern of nesting distribution shows a marked change from 2012 and 2013, where more nests were found on MSI than on Gull Rock.

Lauren with ATPU chick – *photo by Linda Takahashi*

Alcids

No formal census was conducted for Atlantic Puffins or Razorbills this year. We counted 69 Common Murre eggs and 121 chicks in July, totaling 190 nests, but since this was conducted so late in the season, it is likely an underestimate. Also, we identified 7 new caves, bringing the total number to 24. The details of alcid productivity, growth and (identified) diet are described below. Diet data are % by number, not biomass. This is the second year we have conducted systematic observations of Common Murres.

	Monitored Burrows	Mean Lay	Mean Hatch	Burrow Occupancy	Hatching Success (hatch/ active nest)	Nesting Success (fledge/ active nest)	Linear Growth Rate (mass)
ATPU	124	15 May	24 June	0.78	0.62	0.44	6.7 grams/day
RAZO	89	18 May	22 June	0.78	0.71	0.51	6.0 grams/day

	N	Hake	Larval Fish	Euphausiid	Sandlance	Herring	Butterfish	Other
ATPU	1721	57.6	10.5	4.9	4.5	10.9	0.5	11.1
RAZO	562	29.0	18.3	0	15.3	24.1	0	13.3

	N	Herring	Butterfish	Haddock	Unknown Gadoid	Pollock	Rock Gunnel	Hake	Other
COMU	169	27.8	0	8.3	33.1	6.5	5.9	16.6	1.8

Linda with COMU adult – *photo by Stephanie Symons*

Other Species

We found 53 Common Eider nests, the second lowest count on MSI since 1995. Ducklings were first seen in late June, and 19 were still present around the island in early August. Leach's Storm-Petrels were also breeding on the island and we banded 14 in June, but we did not monitor occupancy or productivity. Northern Gannets were seen loafing in the latter part of the season and flying overhead all season on MSI and several were found loafing periodically on nearby Gull Rock from early July. A Tufted Puffin was first observed on June 17 and last seen on July 18. This is the first recorded sighting in eastern North America since the 1830s, and the first ever on MSI.

A typical day in the colony – *photo by Jared Ketchum*