Appendix 4: JNCC Tern Tracking Data

JNCC Tern Tracking Studies

The Joint Nature Conservation Committee (JNCC) in collaboration with other statutory nature conservation bodies, are currently working to identify the most suitable marine areas to be recommended as SPAs under the EC Birds Directive for breeding terns within the UK. Part of this work being undertaken is to collect data at a number of tern breeding sites to provide information on their at-sea foraging distributions during the breeding season. This data along with existing marine habitat data will be used to develop species-specific models of foraging habitat preferences. These models can then be used to predict potentially important sites in marine areas for which no at-sea foraging distribution data exists.

At-sea foraging tern distribution data has been collected from a number of sites including the Larne Lough, Copeland Island and Cockle Island tern colony sites in Northern Ireland. A request for any associated reporting was submitted to JNCC in August 2011 for the purpose of this report however, final reports for these studies are not yet available. JNCC were however able to provide a series of interim maps illustrating tracking and transect data from Northern Ireland tern colonies (Larne Lough, Copeland Island and Cockle Island) collected in 2009, 2010 and 2011. An unpublished interim report (Wilson *et al*., 2009) was also made available for the 2009 Proposed Islandmagee Natural Storage Facility Environmental Impact Statement (EIS) and is re-used here.

2009

The results of the JNCC 2009 fieldwork season were taken from Wilson *et al*. (2009) and should be read with reference to Figures 1 and 2.

The 2009 JNCC fieldwork season concentrated on tern foraging locations during the chick-rearing period (June-July). Sandwich terns followed from the Larne Lough colony during the chick-rearing period showed a strong preference for fishing within or at the mouth of the Lough however, individuals were noted on occasion venturing beyond the mouth of the Lough (Wilson *et al*., 2009). Sandwich terns from the Northern Irish sites tended to stay close to shore, although often travelled large distances from their colonies but typically foraged in shallow waters of less than 10m (Wilson *et al*., 2009). In contrast common terns followed from the Larne Lough colony showed a preference for foraging at greater distances from the colony in deeper waters (30-50m) but generally within 15km of the colony. Common terns followed were shown to fish on one occasion at Skernaghan Point but the majority of individuals followed seemed to prefer foraging grounds in the vicinity of the Hunter Rock Buoys and Maidens, greater than c. 3km from the limit of significant brine influence (Wilson *et al*., 2009). No Roseate terns were tracked from the Larne Lough colony in 2009.

Foraging locations of Arctic Terns from Cockle Island and Big Copeland were not recorded within c. 8km of the limit of significant brine influence. Similar to Arctic terns common terns followed from Cockle Island tended to head in a north easterly direction but tended to remain closer to the colony (<15km) in shallower waters (30-50m). Foraging locations from Cockle Island were not recorded within c. 8km of the limit of significant brine influence.

2010

In 2010 the foraging track of one Roseate tern was recorded during the incubation period but showed no evidence of foraging within c. 5.5km of the limit of significant brine influence, with intensive foraging efforts noted c. 6.5km offshore where no impact of brine is expected (Figure 4). Foraging locations of Sandwich terns followed from Larne Lough during the chick-rearing period were again shown to be clustered within the mouth of the Lough but tracks were shown to extend beyond here with foraging locations highlighted within Browns Bay (Figure 3 & 5), where no impact of brine is expected. Tracks were also shown to extend east of SkernaghansPoint but remained further than c. 4km offshore. Tracks of Larne Lough terns during the incubation period were also shown to extend north east of Skernaghan Point towards the Maidens (Figure 6).

In 2010 'snapshot' point counts were made at a series of count points positioned in a systematic, randomly placed grid. At each count point all terns within a 300m radius of the boat were recorded. In point counts made during May 2010 (small concentrations of commic (2-5 individuals) and common terns (2-5 individuals) were recorded within c. 5km and c. 10km of the limit of significant brine influence Figure 7). Significant concentrations of commic terns (230 individuals) were recorded c. 7km from the brine outfall location, where no impact of brine is expected. Point counts were repeated in June and July but included opportunistic observations of any terns seen as the boat travelled between the count points. Similarly to May observations of terns (common and sandwich) in June and July were clustered c. 7km north and northeast of the brine outfall location and also within or at the mouth of Larne Lough, with only a small number of terns (common and sandwich) observed within c. 2.5km of the brine outfall location (Figures 8 & 9).

2011

Some preliminary results from the JNCC 2011 fieldwork season were kindly provided by JNCC for the purposes of this report.

In 2011 the foraging tracks of sandwich terns (n=17) from Larne Lough during the chick-rearing period again highlighted the species preference for foraging within or at the mouth of

Larne Lough but also within Browns Bay (Figure 10). Where birds passed out of the mouth of the Lough, foraging tracks highlighted the species tendency to stay close to the shore. Foraging tracks were noted to extend into the shallow coastal waters between Skernaghan Point and Portmuck Bay and into the limit of significant brine influence. Foraging tracks of common terns (n=30) from Larne Lough during the chick-rearing period showed the species preference to head north-east out of the mouth of the Lough towards the Hunter Rocky Buoys and Maidens. Foraging tracks of Arctic terns (n=14) from Cockle Island and Big Copeland during the chick-rearing period did not extend within c. 18km of the limit of significant brine influence.

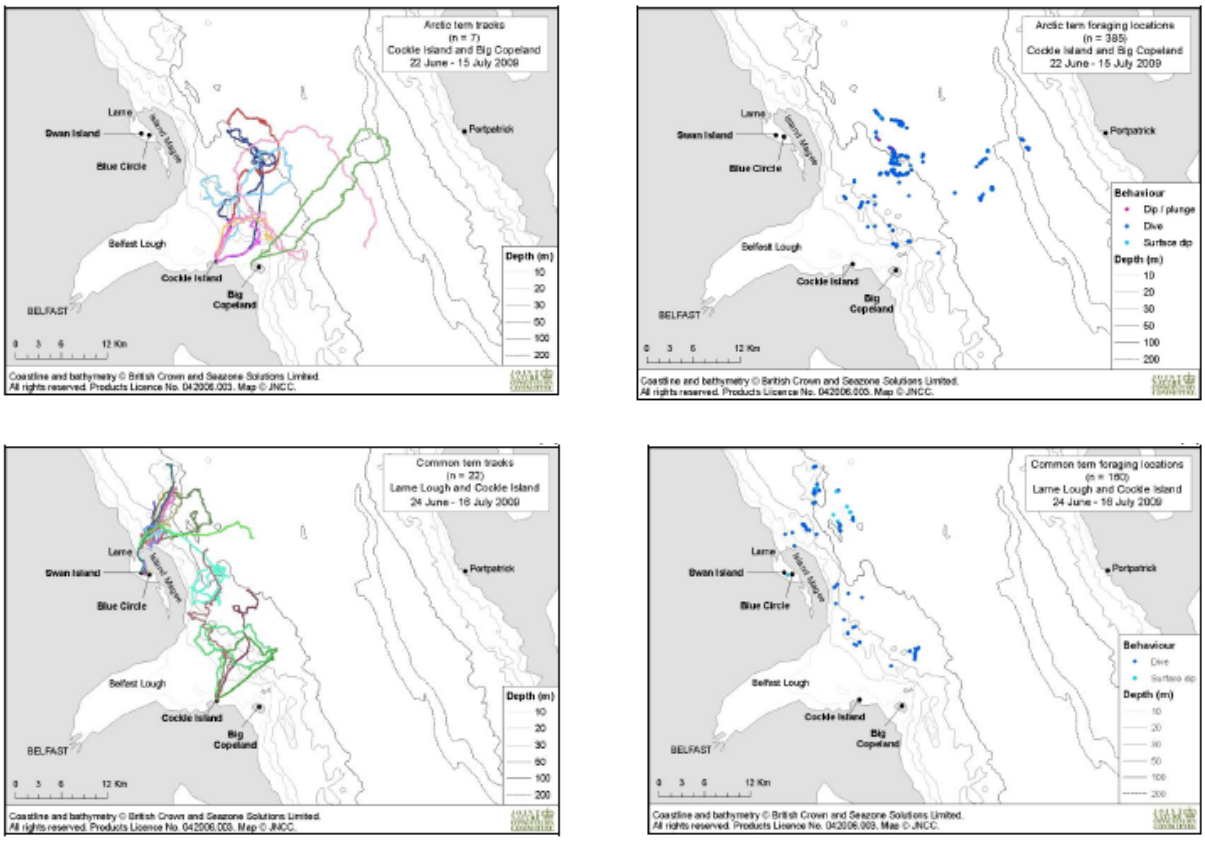

Figure 1: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2009 (Reproduced with permission from JNCC, 2009).

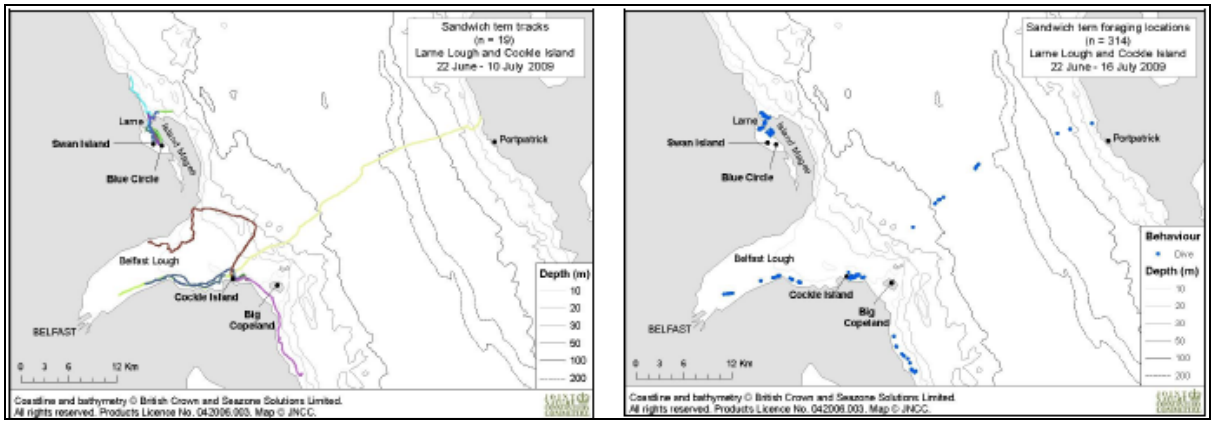

Figure 2: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2009 (Reproduced with permission from JNCC, 2009).

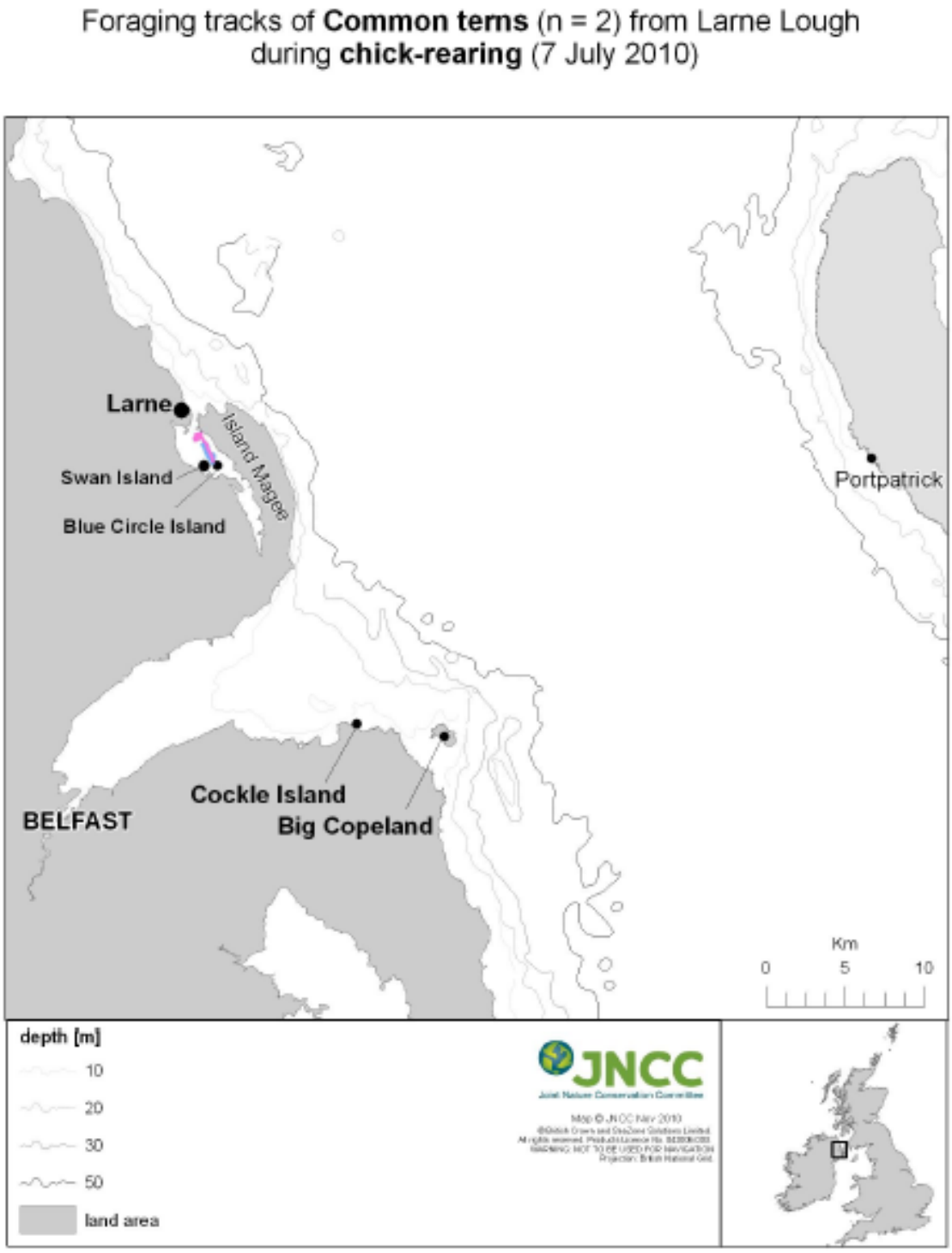

Figure 3: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

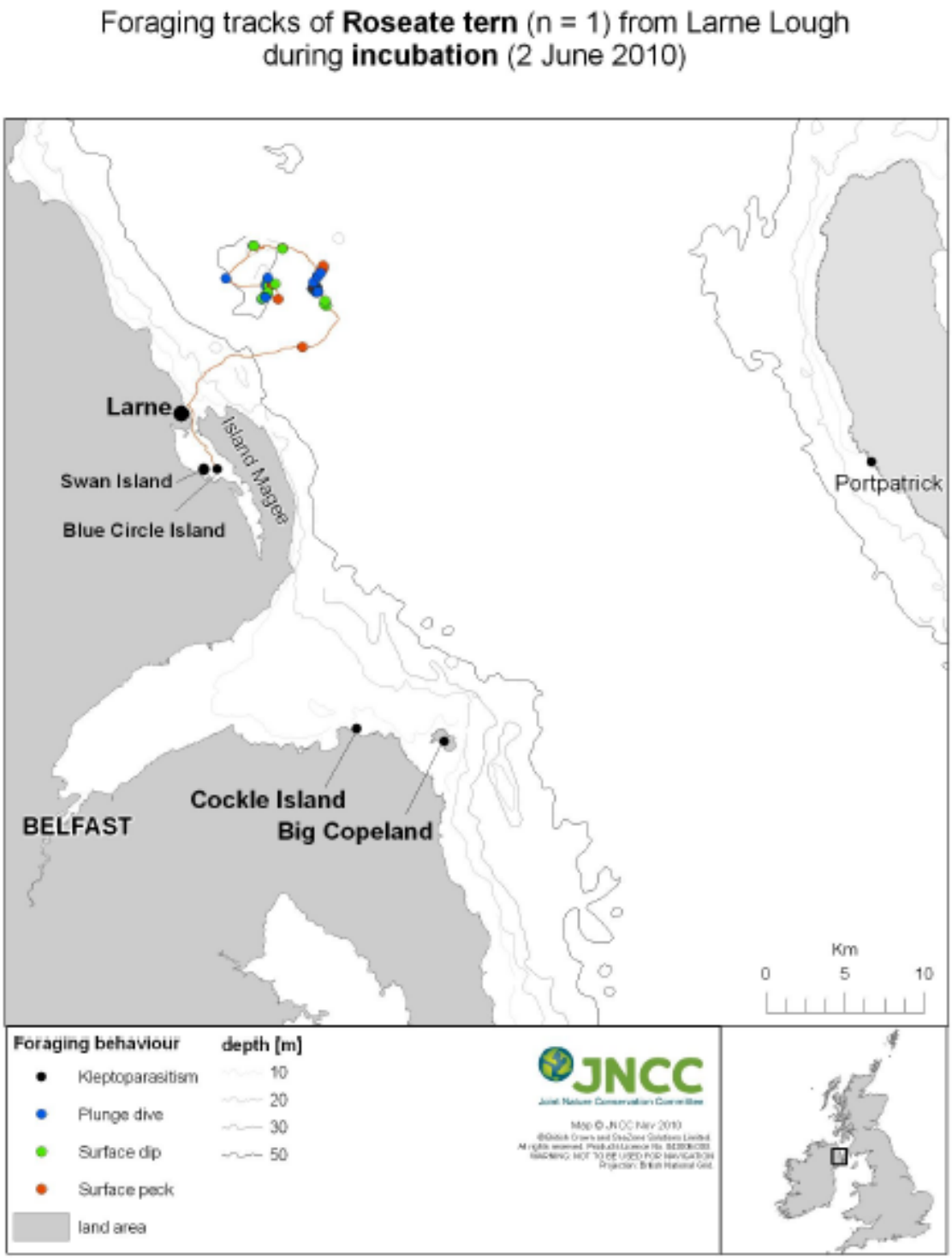

Figure 4: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

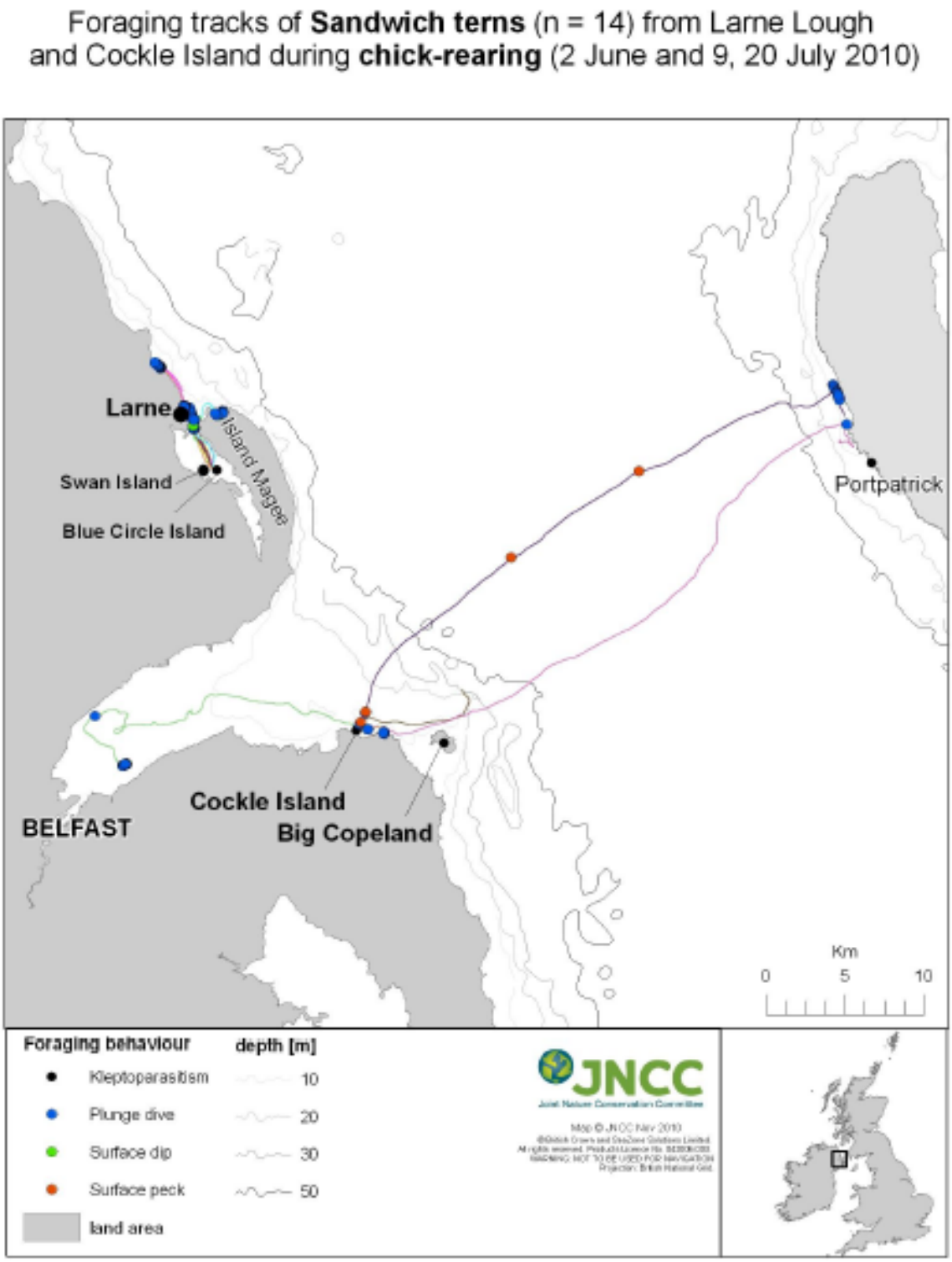

Figure 5: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

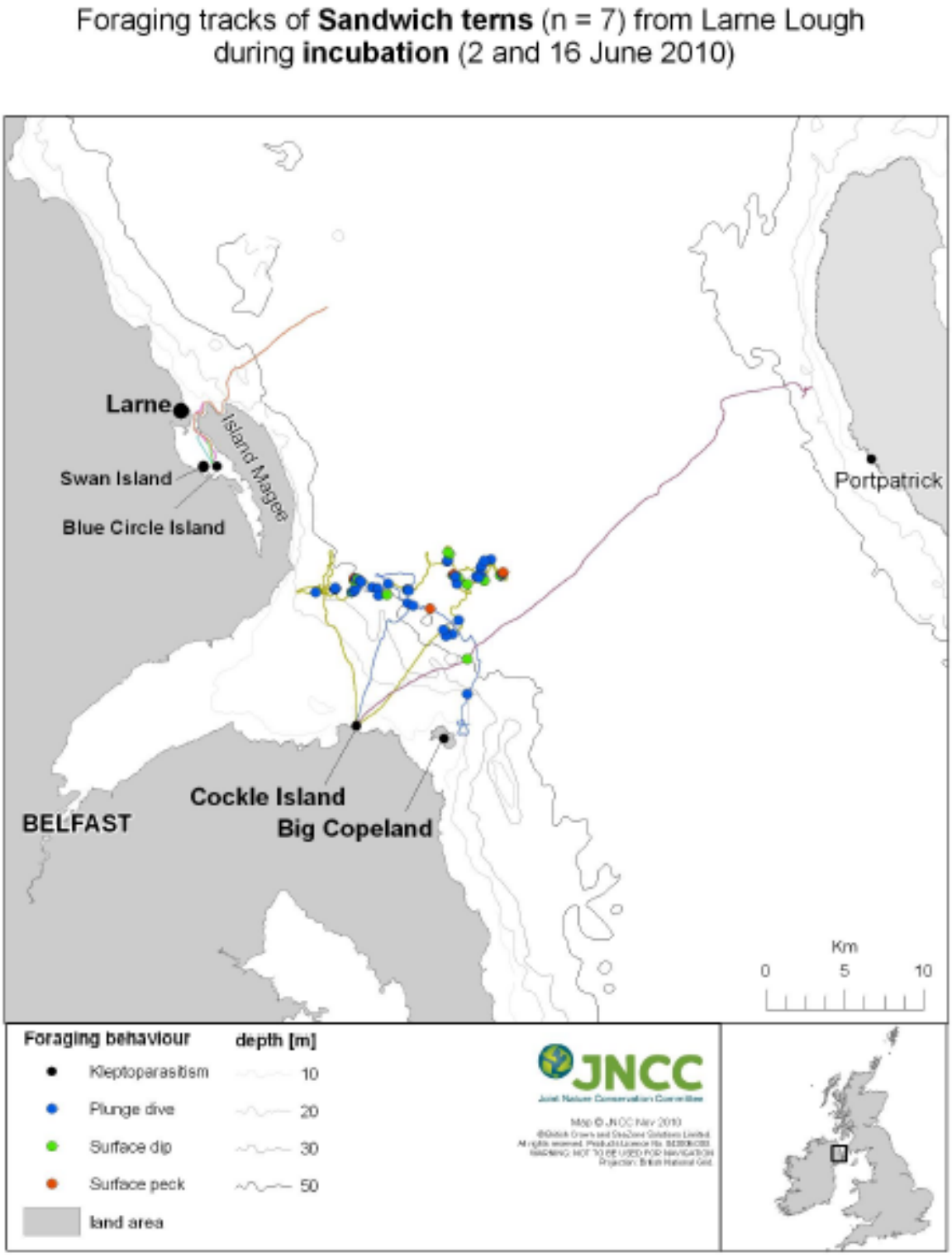

Figure 6: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

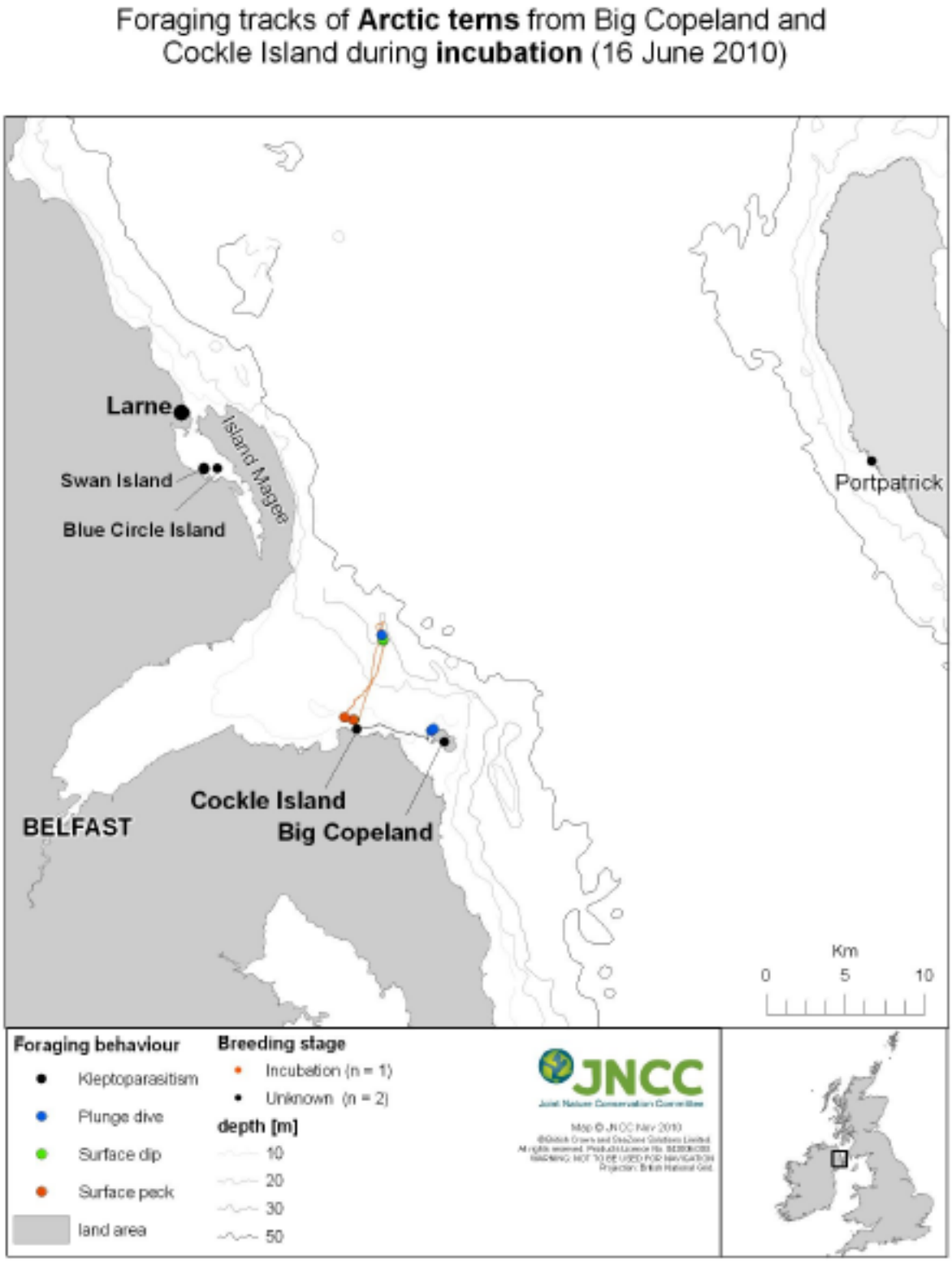

Figure 7: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

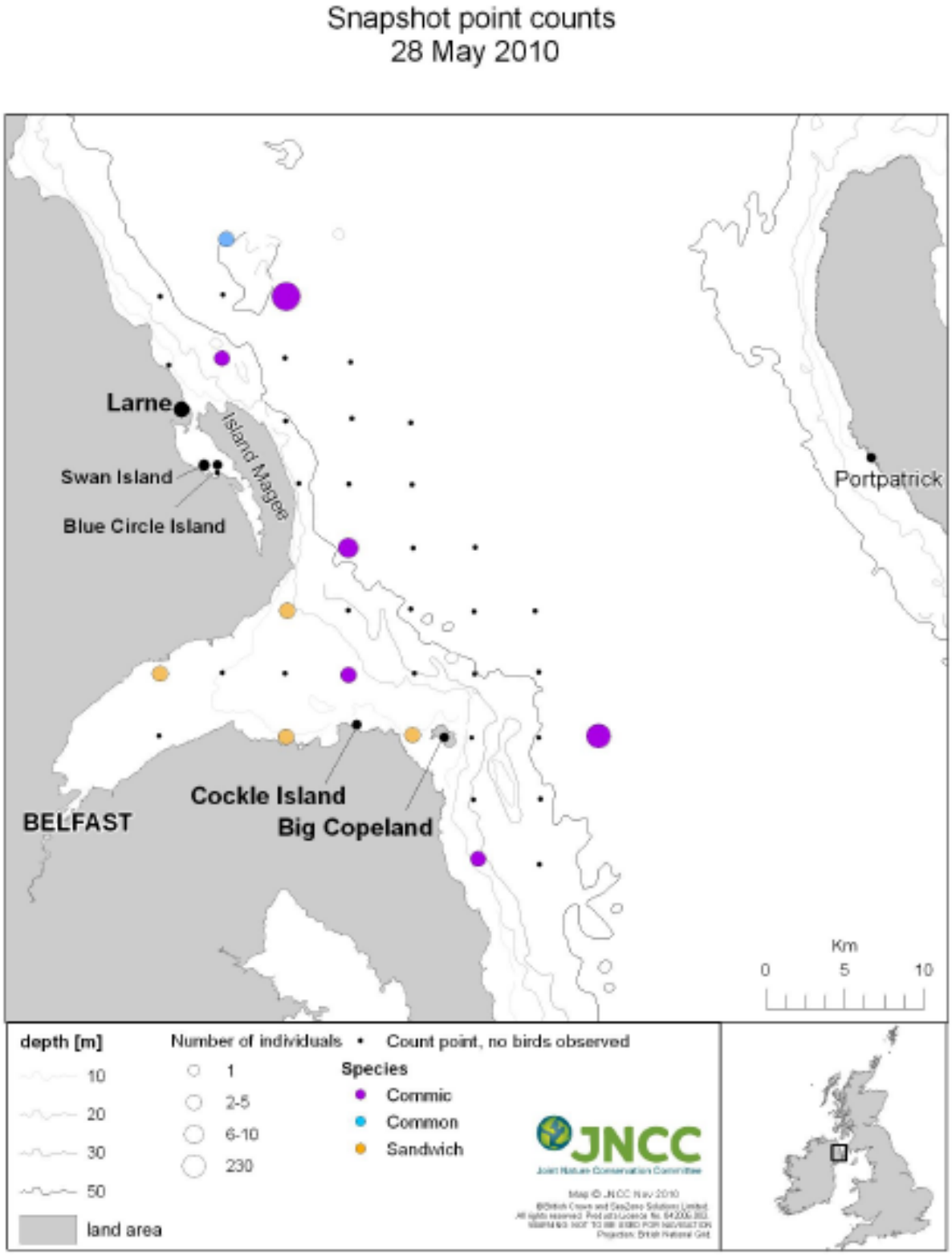

Figure 8: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

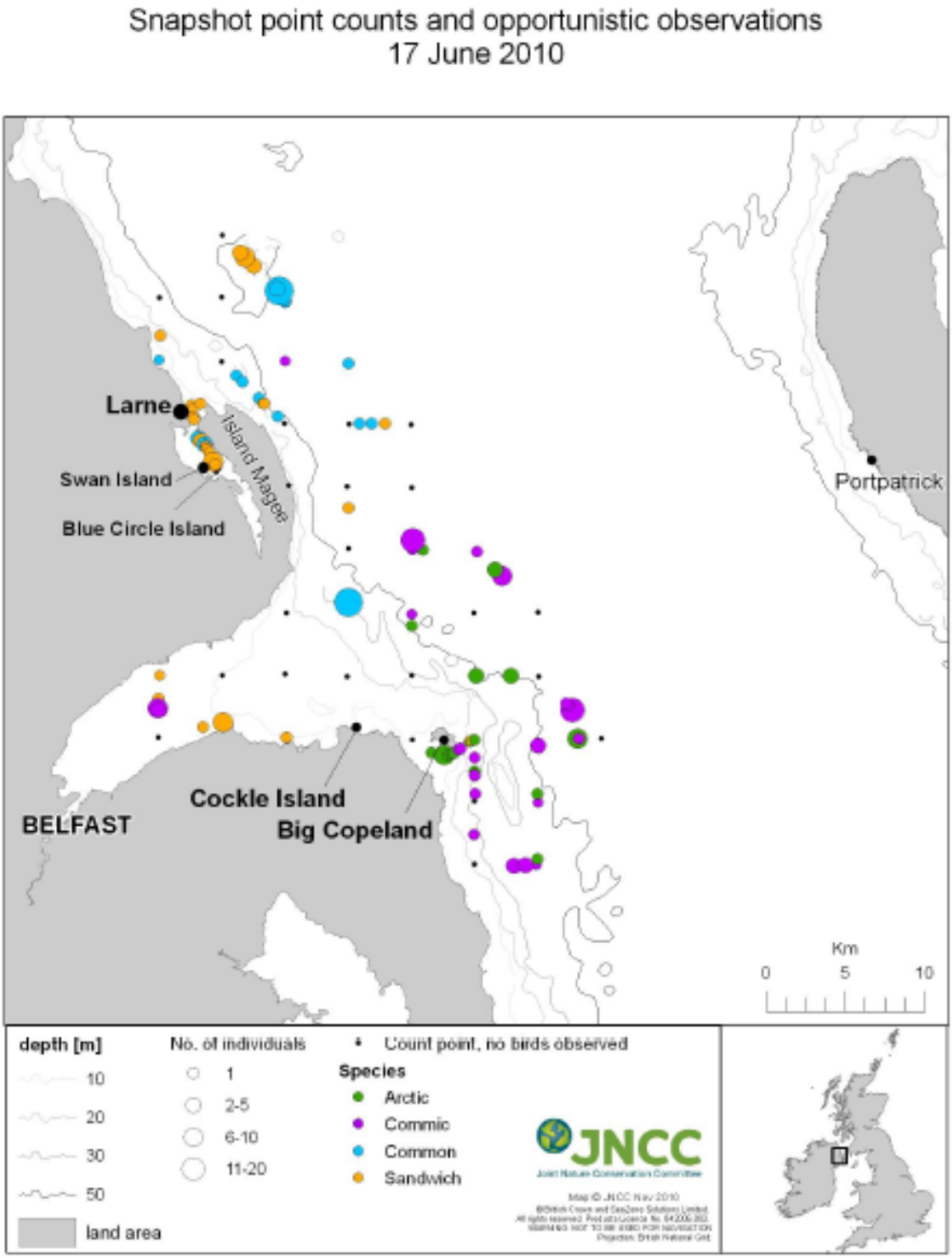

Figure 9: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).

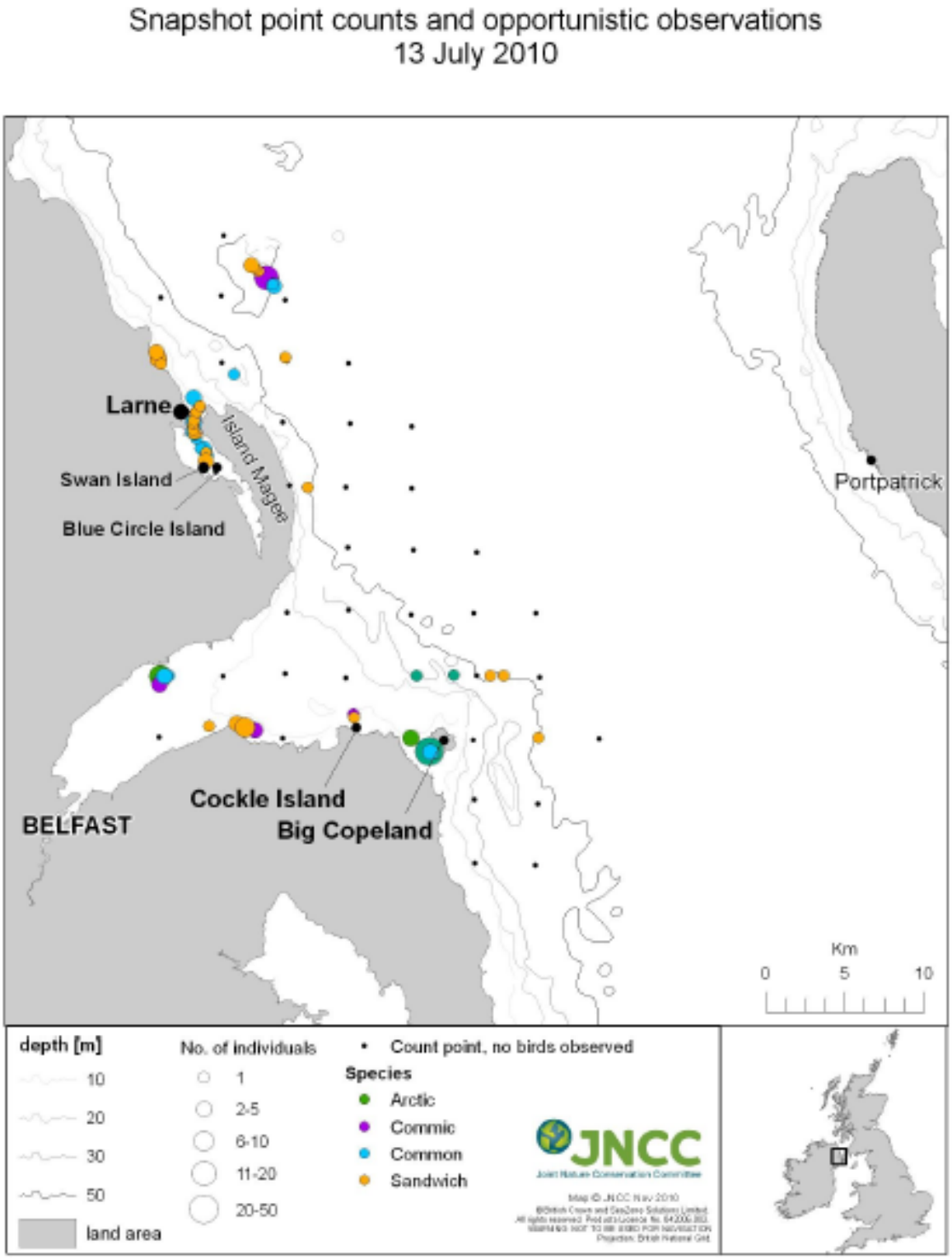

Figure 10: Tern tracks and foraging locations around Larne Lough, Cockle Island and Big Copeland, Northern Ireland, 2010 (Reproduced with permission from JNCC, 2011).