

Role of Beach-Cast Marine Algae in conservation of migratory and beach-nesting shorebirds in the South East of South Australia

Friends of Shorebirds SE Inc.

Introduction

The south-eastern coast of South Australia supports internationally important concentrations of three species of trans-equatorial migratory shorebirds (Ruddy Turnstone, Sanderling and Red-necked Stint), the vulnerable Australian endemic Hooded Plover and nationally important concentrations for an additional five species of shorebirds (Curlew Sandpiper, Pacific Golden Plover, Double-banded Plover, Common Greenshank and Sharp-tailed Sandpiper).

A critical component of these birds' habitats is beach cast seagrass and marine algae also known as wrack.

The fauna associated with wrack provides a rich food source for shorebirds, especially during the migrating and non-breeding periods and shorebird abundances are positively correlated with per cent cover of wrack (Orr 2013). Beaches with beach wrack support significantly more macrofauna and have a greater species richness than beaches where beachwrack had been harvested (Duong 2008) or is absent (Ince et al 2007).

The wrack also provides shelter and camouflage for resident beach nesting birds and roosting migratory shorebirds (Maguire et al 2011)

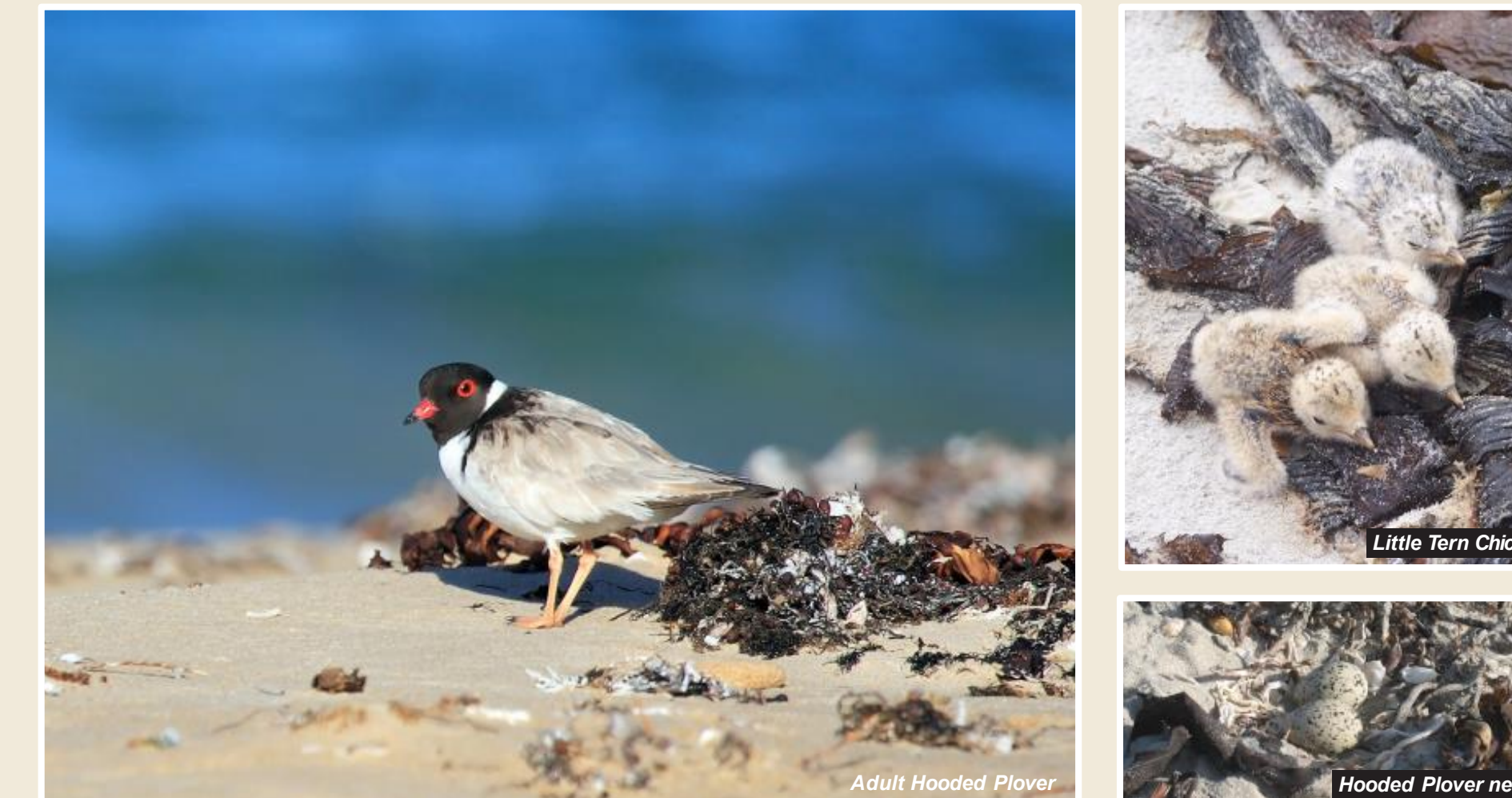
A Miscellaneous Fisheries licence (Y078) has been granted and an Exploratory Permit (EP003) has been applied for to operate a Beach-Cast Marine Algae Fishery within important shorebird habitat on 50% of beaches between Cape Jaffa and the Victorian border. We investigate the potential impacts of beach wrack harvesting within migratory bird and resident shorebird habitat.

Importance of wrack for beach-nesting birds

Habitat selection by breeding Hooded Plover favours sites with high food availability (Cuttriss et al 2015); wrack cover is correlated with invertebrate abundance and provides high nutrient loads for these macrofauna (MacMillan and Quijón 2012).

Chicks are known to use beach wrack for shelter, both from adverse climatic conditions and for escaping threats such as predators or human disturbance (Maguire et al 2011). If wrack is removed from territories, it is unclear whether birds will be forced to abandon these areas or whether they will reduce their breeding efforts due to restricted resources: both will have devastating consequences on the local population.

Wrack harvesting can also impact breeding success directly due to significant disturbance of the birds leading to lengthy absence from the nest or chicks, less time spent feeding by the chicks, or destruction of nests caused by harvesting activities (Maguire et al 2014).



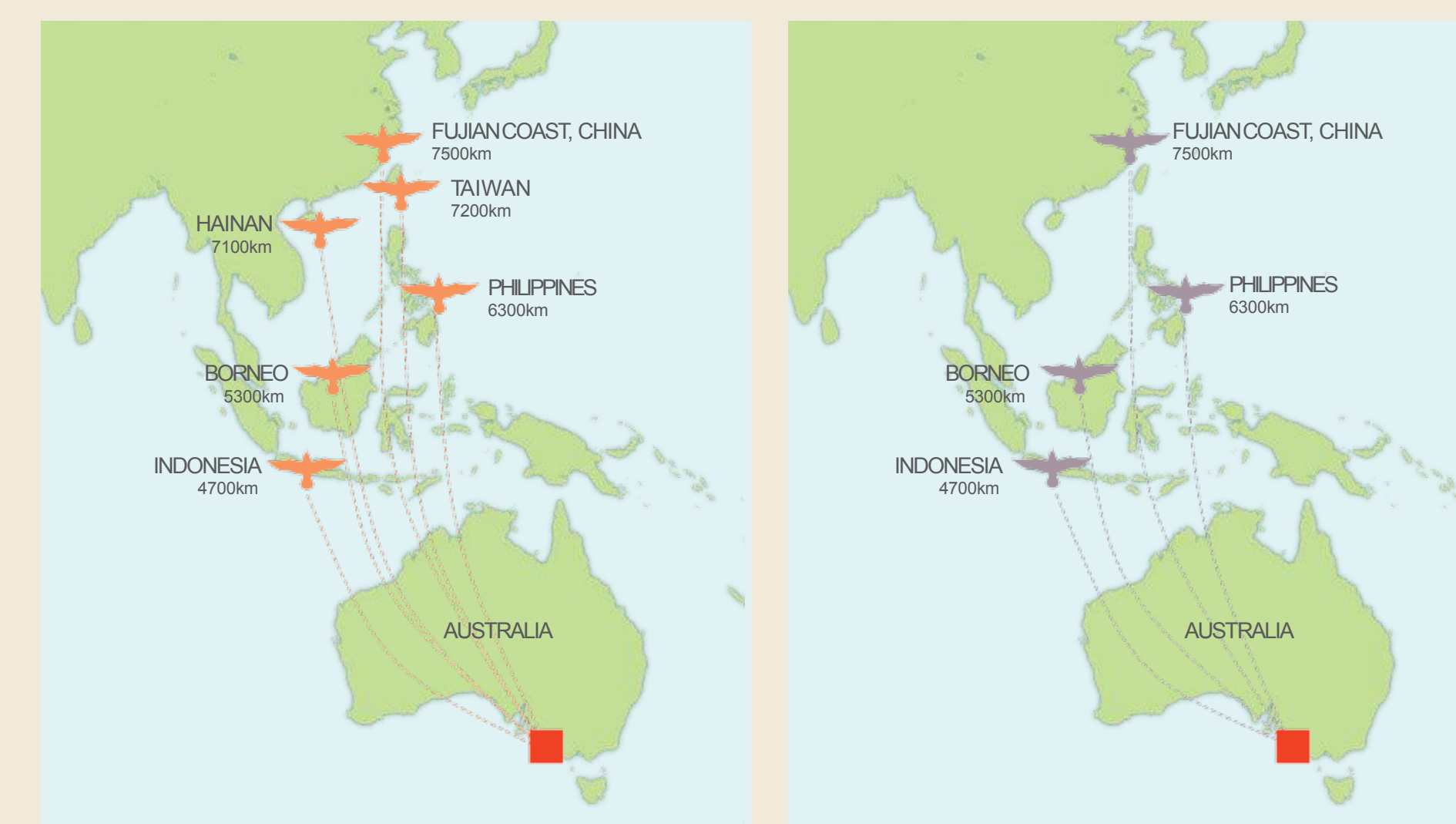
Importance of March - early May for migratory shorebirds

During the eight weeks prior to migration, Ruddy Turnstone and Sanderling feed intensively to dramatically increase their body weight by between 50 – 100% (VWSG unpubl data). This additional fuel must be sufficient to power their non-stop flight to their first stopover location on their way to their breeding grounds in the Arctic (10-12,000kms). Insufficient body fat may lead to failure to reach their breeding grounds.

Light level geolocators (<0.8g) fixed to special leg flags have been used to track distances of migratory movements, times and stopover locations. These have shown that most of the Ruddy Turnstone fly an initial leg of up to 7,500km in 6 days to Taiwan and the coast of China.

Proposed Beach-wrack harvesting period overlaps with critical feeding times immediately prior to the birds' departure.

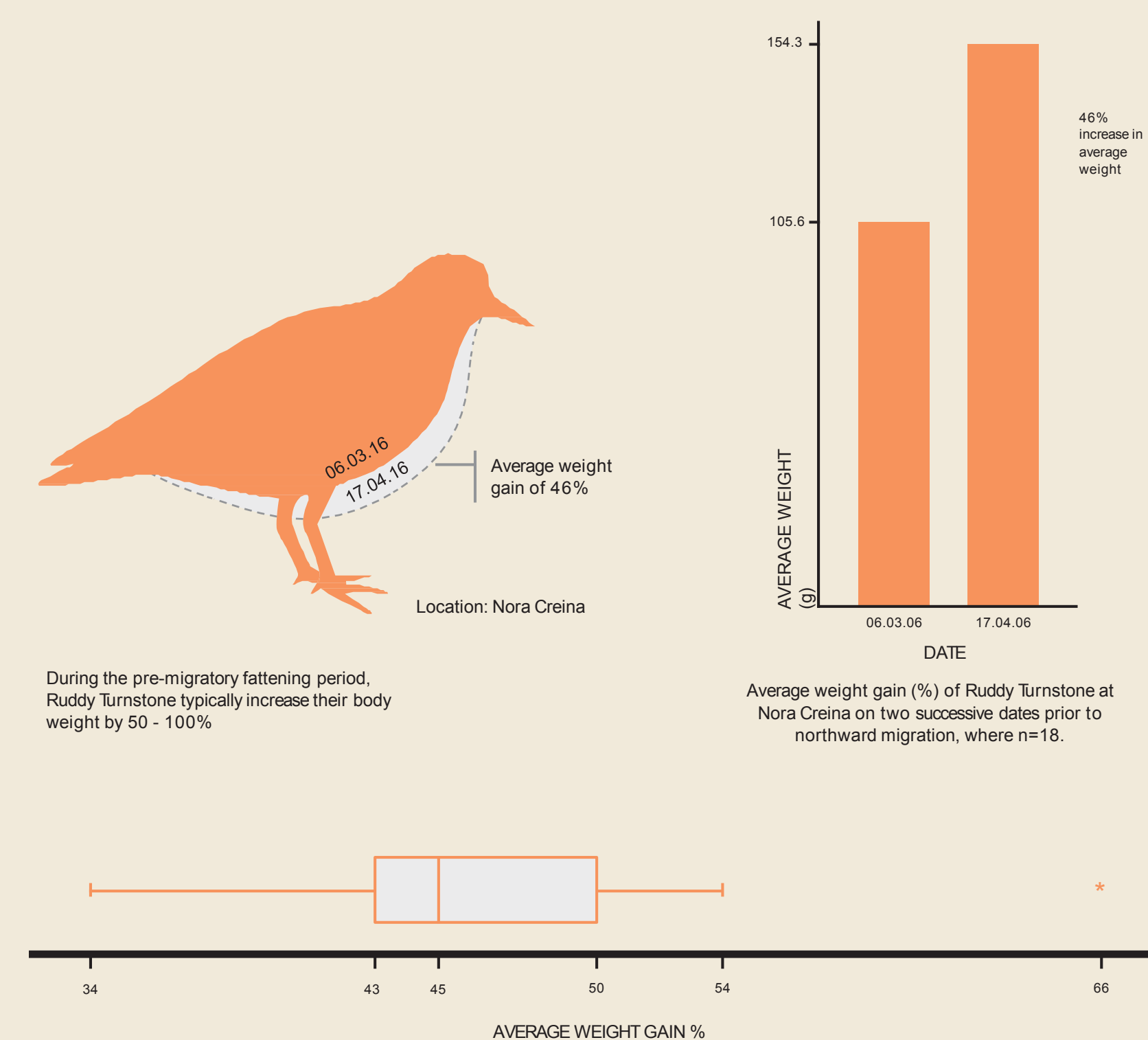
The First Leg of Northward Migration



The first leg of the Ruddy Turnstone's northward migration, showing variation in stopover location and consequently in distance travelled.

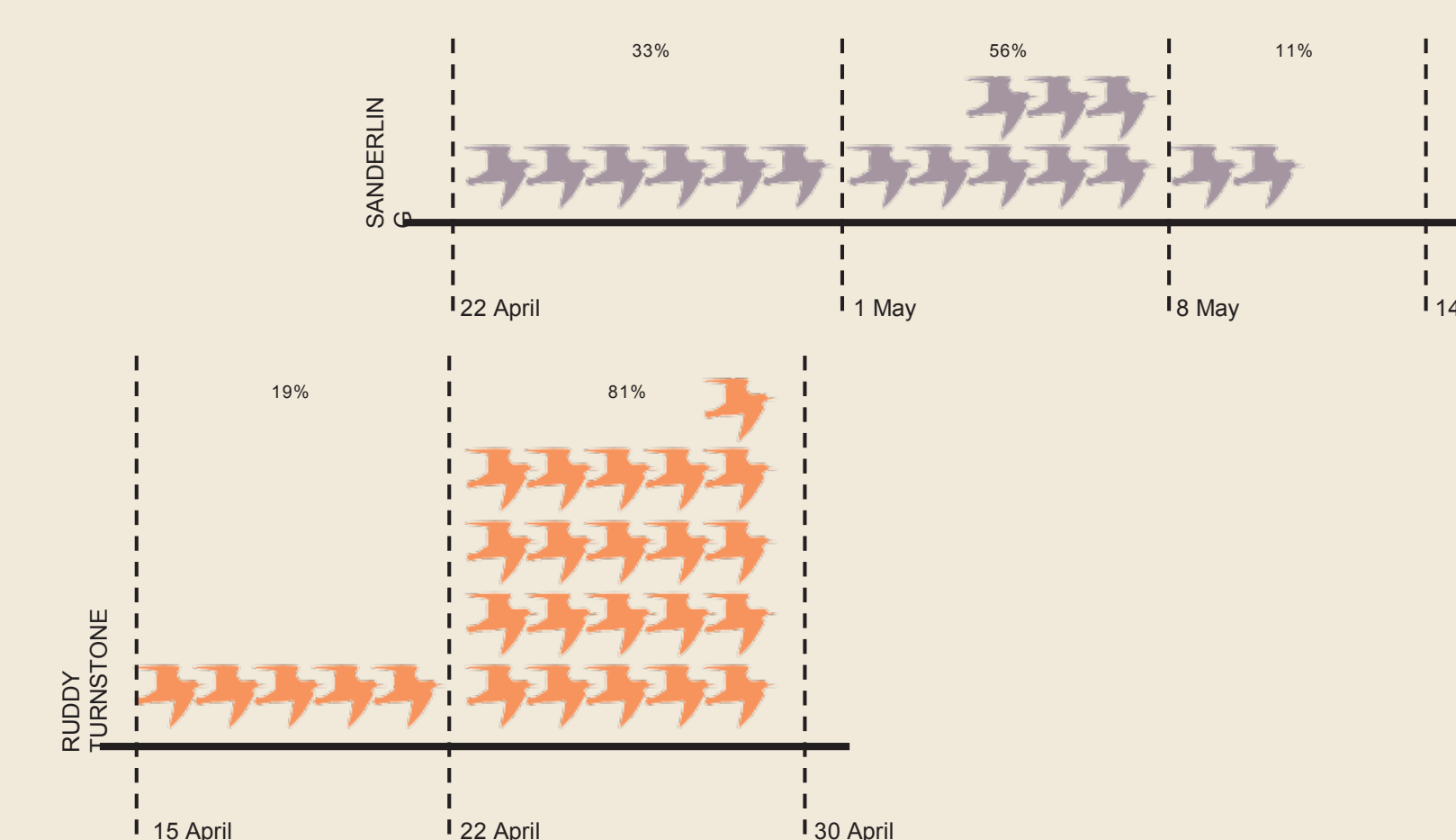
The first leg of the Sanderling's northward migration, showing variation in stopover location and consequently in distance travelled.

Pre-migratory Fattening



Average weight gain (%) of Ruddy Turnstone at Nora Creina between 06.03.06 and 17.04.06 prior to northward migration, where n=18.

Timing of Northward Departure



Timing of northward migration departure for Sanderling and Ruddy Turnstone in south east South Australia, between 2010 and 2014 where n=18 and 26 respectively

Result of Consent Decision at the Administrative Appeals Tribunal.

Hooded Plover – no harvesting within 100 metres either side of breeding birds - everywhere in the license area.

Seasonal closure – there is now only one type of seasonal closure. 1st September to 15th May – during this time Australian Kelp Products (AKP) can harvest within the seasonal closure areas on 8 days per month.

Harvesting will be by hand (assisted by a mechanical winch). Gear/operators will be restricted to 2 utes each with a trailer GVM of 3.5 tonne. Each vehicle will be limited to 3 people.

PIRSA will include in the licence wording similar to 'every endeavour will be made to only collect fresh kelp'. It is the stated intention of AKP to only take fresh kelp and that they have no interest in other species of algae.

Rivoli Bay from the end of Beachport Conservation Park southwards to a point north of Blowhole Road will be closed to all harvesting – see map below.

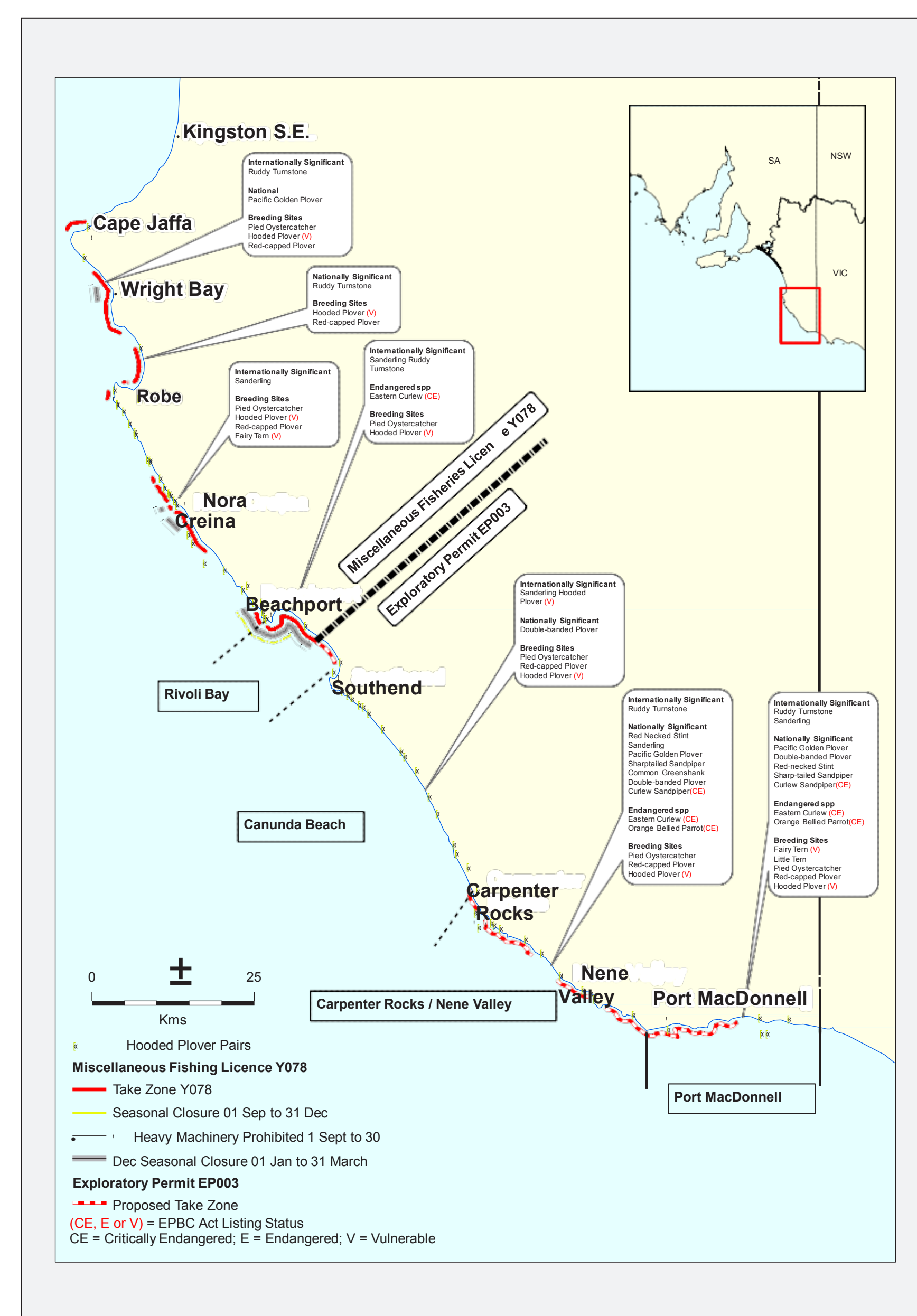


It is critical that:

- **Ecological risks posed by harvesting is researched and monitored** to assess the impact of harvesting on migratory and resident shorebirds.
- **Independent experienced observers** be engaged to ensure compliance with license conditions.

References

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Migratory shorebirds occur in internationally important numbers in the area impacted by the proposed South Australian Beach-Cast Marine algae Fishery.