

PPO2011-07 Pied shag Population review

MIKE BELL

Wildlife Management International Limited, PO Box 607, Blenheim 7240, New Zealand
mike@wmil.co.nz

Presentation of draft final results to the Department of Conservation
CSP Technical Working Group

1 August 2013

Specific Objectives

Draft final results. Previously reported interim results – significant change due to increased data collection.

Objectives

- Describe the range of pied shag
- Estimate regional populations and trends
- Summarise existing knowledge of life history
- Provide recommendations for future research to allow better understanding of commercial fishing on pied shag

Pied shag

- Large (male 2.2kg, female 1.7kg)
black and white shag
- Mainly marine, with only limited
use of freshwater habitats
- Feeding in coastal waters, harbours
and estuaries
- Considered widespread and
moderately common with a
population of 5-10,000 pairs.
- Threat status: Nationally Vulnerable



Existing knowledge of pied shag breeding biology

- Reasonably well known
- Breed throughout NZ
- Colonies primarily marine
- Clutches can be laid in all months
- Two peaks of breeding August/September and February/March
- Nests a large platform of sticks and seaweed
- Colonies primarily in trees but can be on the ground or human structures
- 2-5 eggs laid 2 days apart

Pied shag breeding biology

- Clutch size, mean 3.35, range 2-5
- Incubation period, mean 29 days
- Nestling period, mean 53 days
- Age at independence @130 days
- High breeding success reported 43-75%

Pied shag breeding period

- Courtship mean 15 days (range 5-30)
- Nest building 21.4 days (4-57 days)
- Incubation 28.8 days (25-33 days)
- Chick rearing 53.2 days (47-60 days)
- Post fledgling care min 30 days, max 80 days
- Therefore the full breeding cycle takes between 4 Months (minimum ranges) and 9 months (maximum ranges), but is probably around six months of average.
- Each pair only breeding once per year.

- Has impacts on estimating population size

Pied shag estimating total population size

Non Seasonal breeding impacts population estimation

- Colony counts at specific time, only records proportion of population breeding at anyone time.

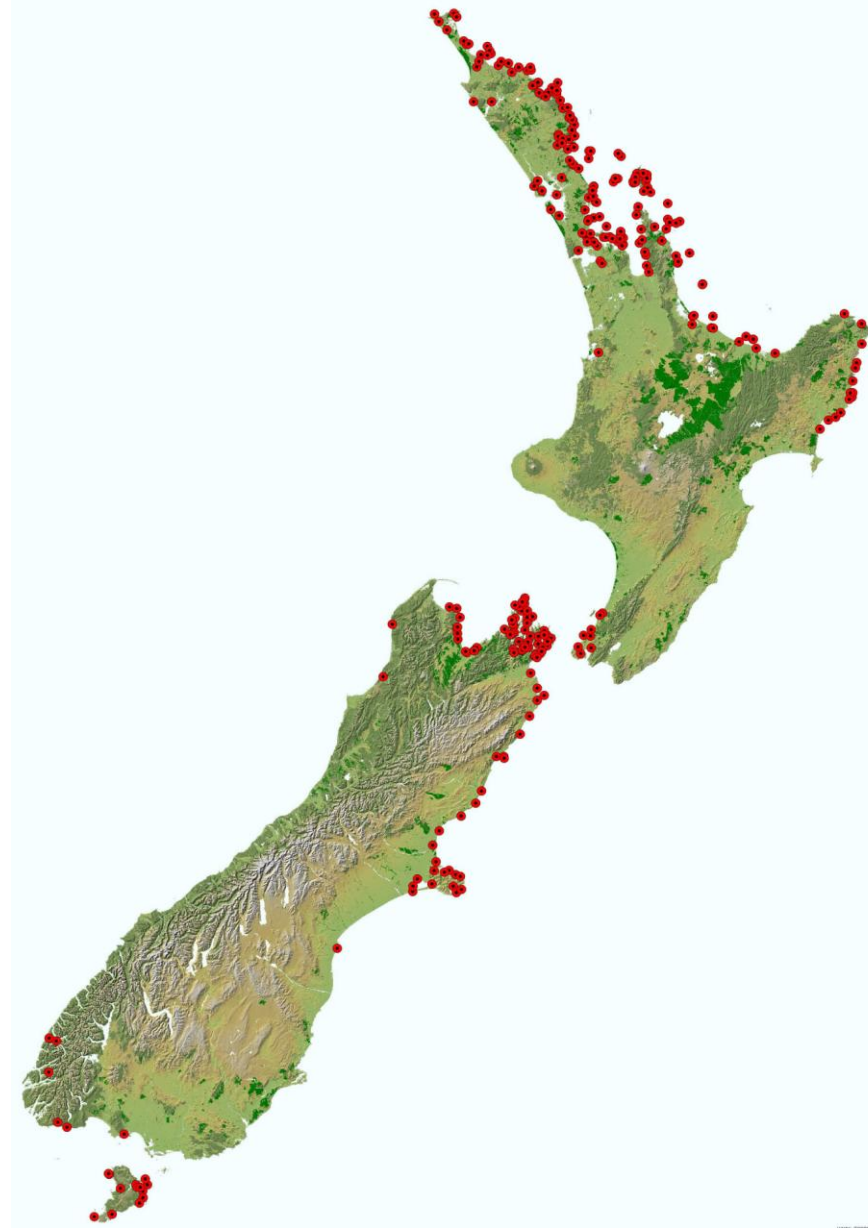
- Two peaks of breeding

- Estimated that 50% of birds at nests Sept-Dec; and 40% March-June

- Due to data sample sizes, figures reported here are colony counts, a correction factor would need to be applied to estimation total national population

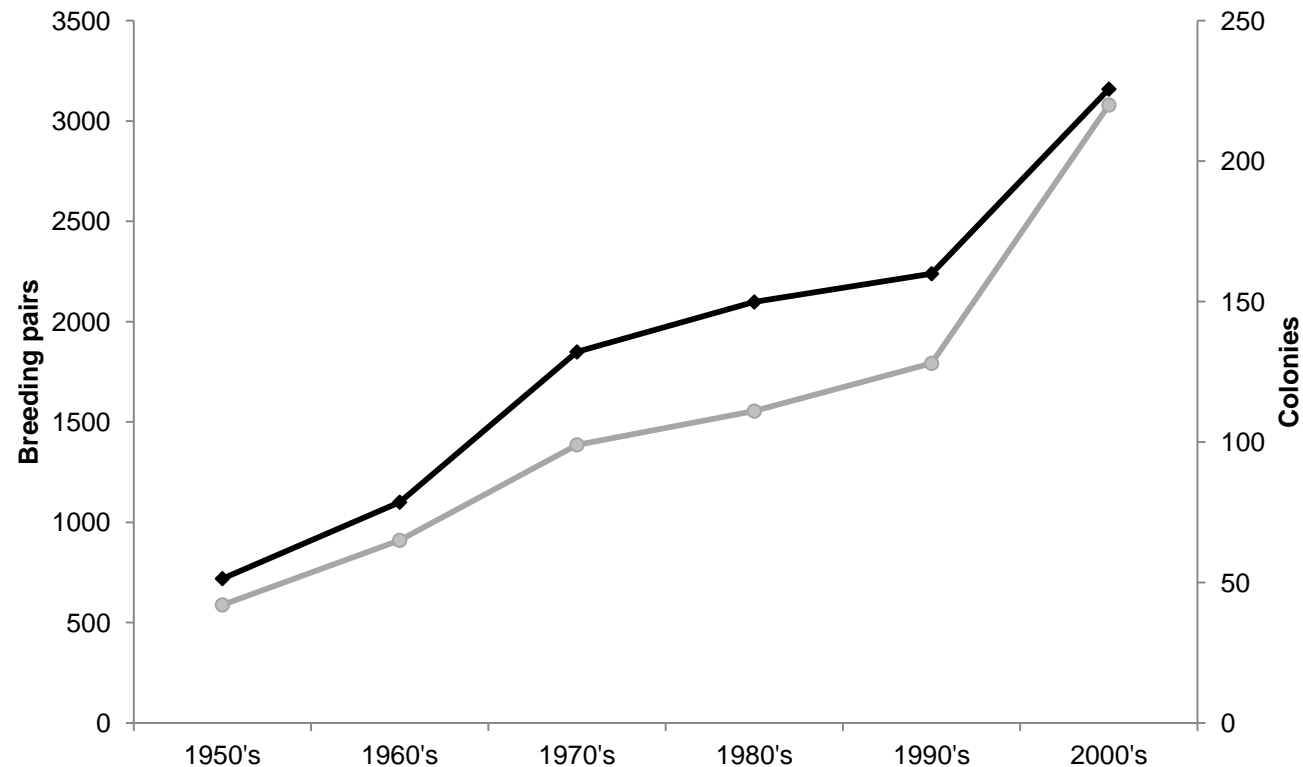
Pied shag – breeding distribution

- 293 colonies reported
- Disjunct breeding distribution
- Northern North Island – 57%
- Central New Zealand – 38%
- Southern South Island – 5%



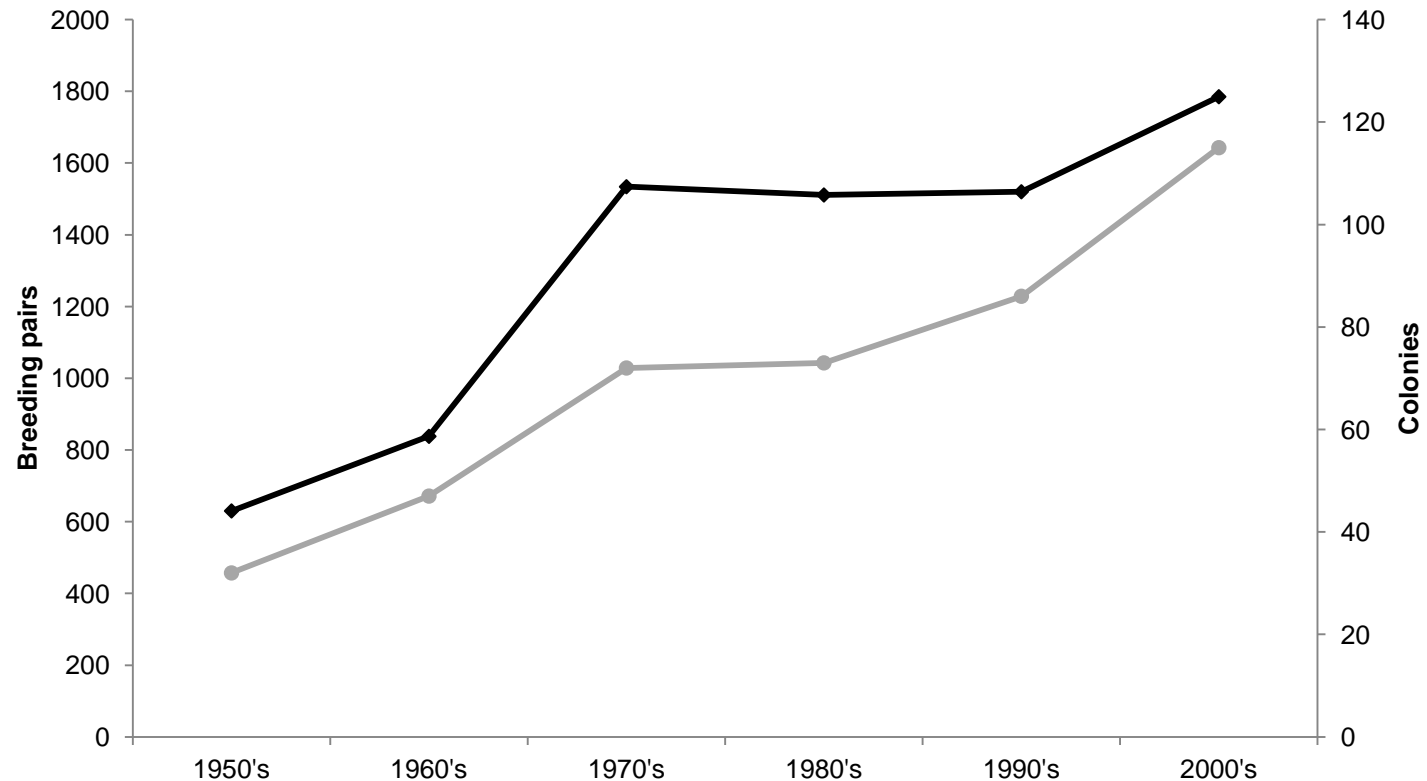
Results – National population trends

- Current population from colony counts 3,159 breeding pairs
- Estimated 6,320 breeding pairs
- Population increasing

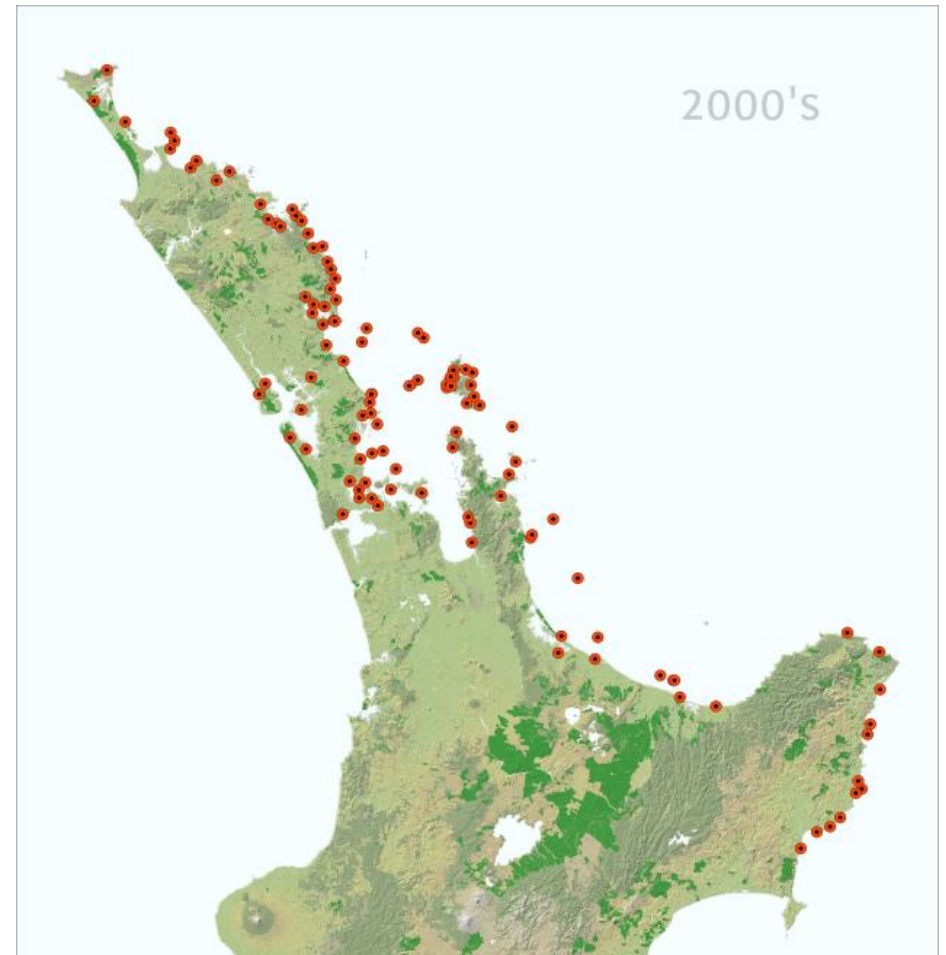
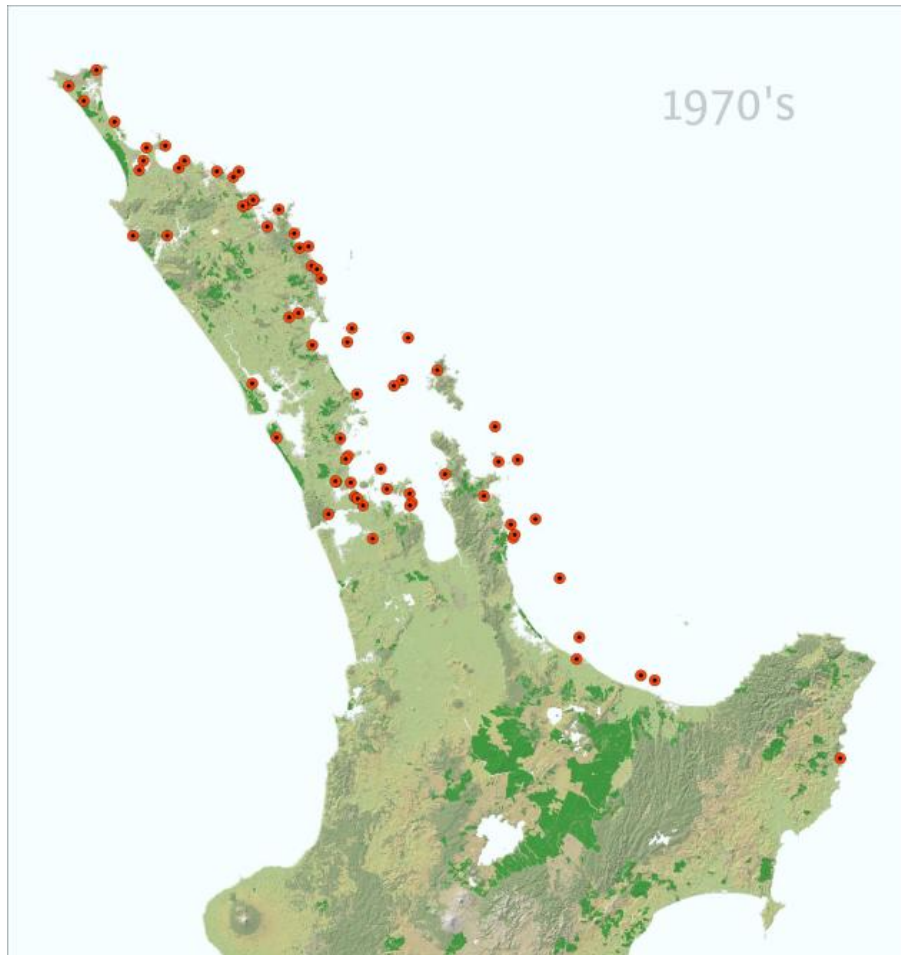


Results – Northern North Island population trends

- Estimated population increase of 1.5% per annum
- Considerable fluctuations in individual regions

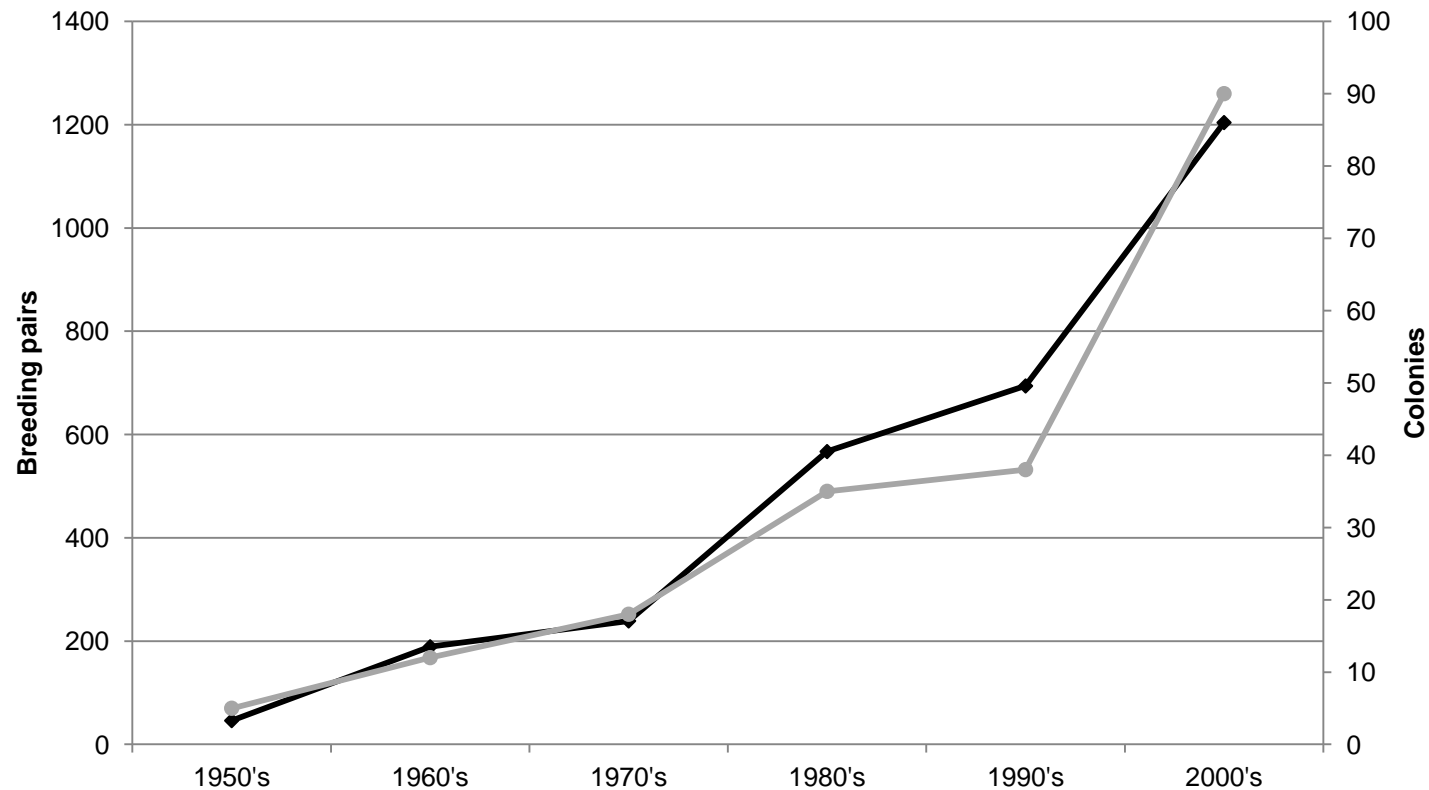


Results – Northern North Island population trends

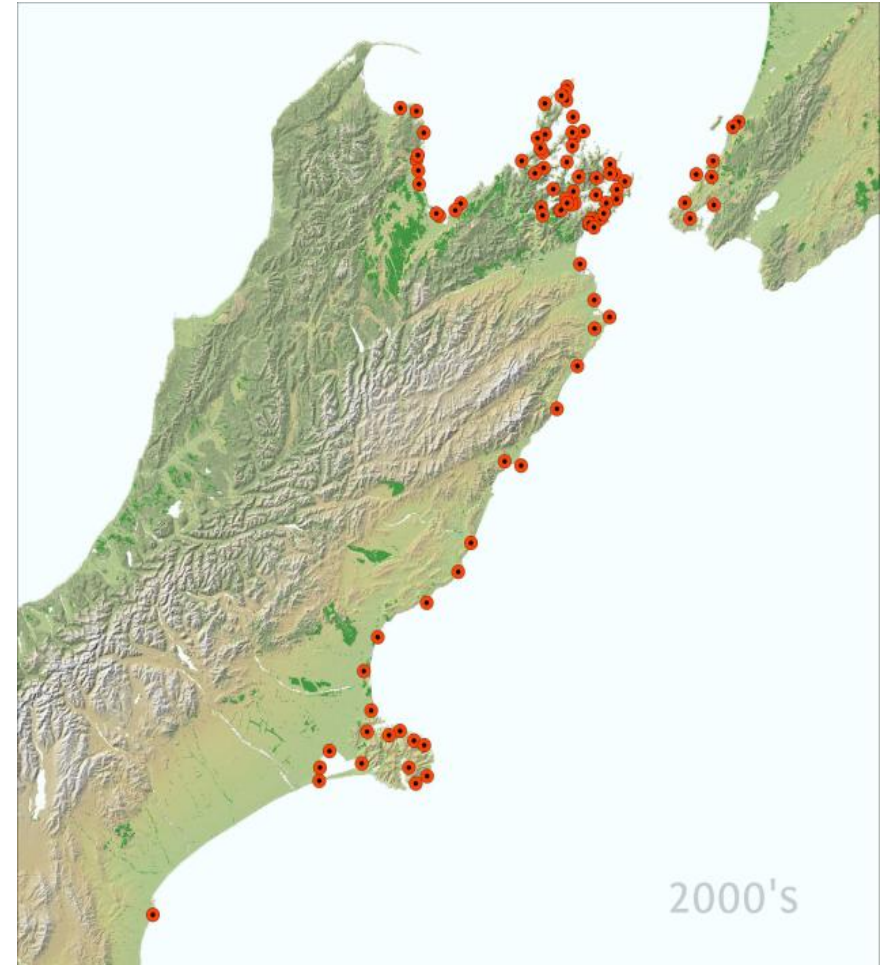
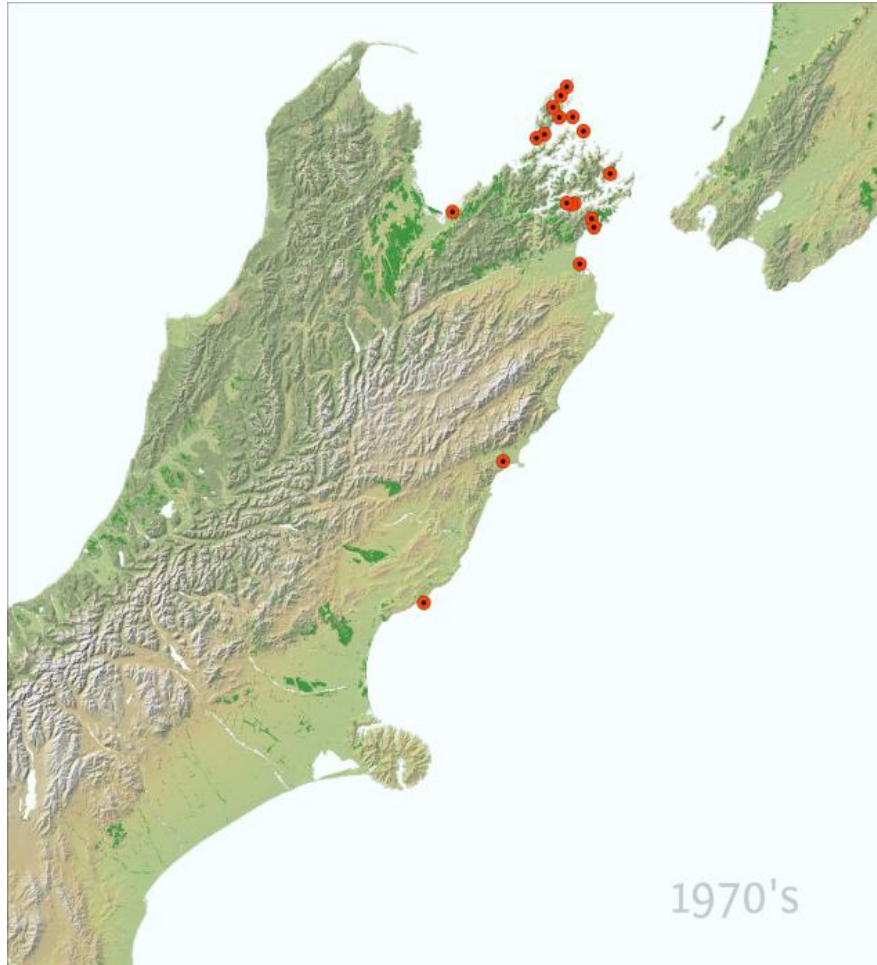


Results – Central New Zealand population trends

- Estimated population increase of 5.4% per annum
- Significant growth and expansion of breeding range



Results – Central New Zealand population trends



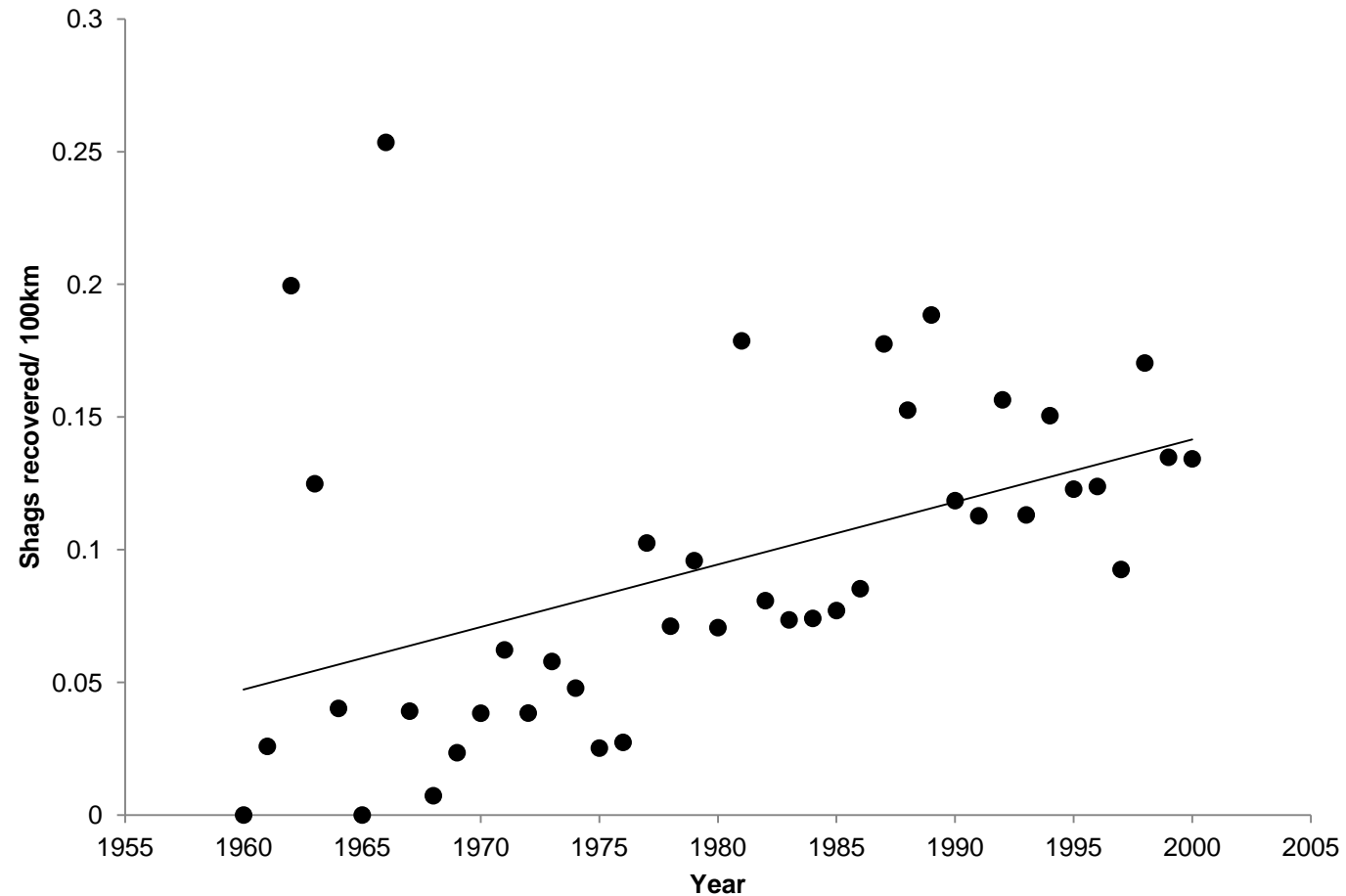
Results – Southern South Island population trends

- Data too limited to estimate population trends

Insert Map

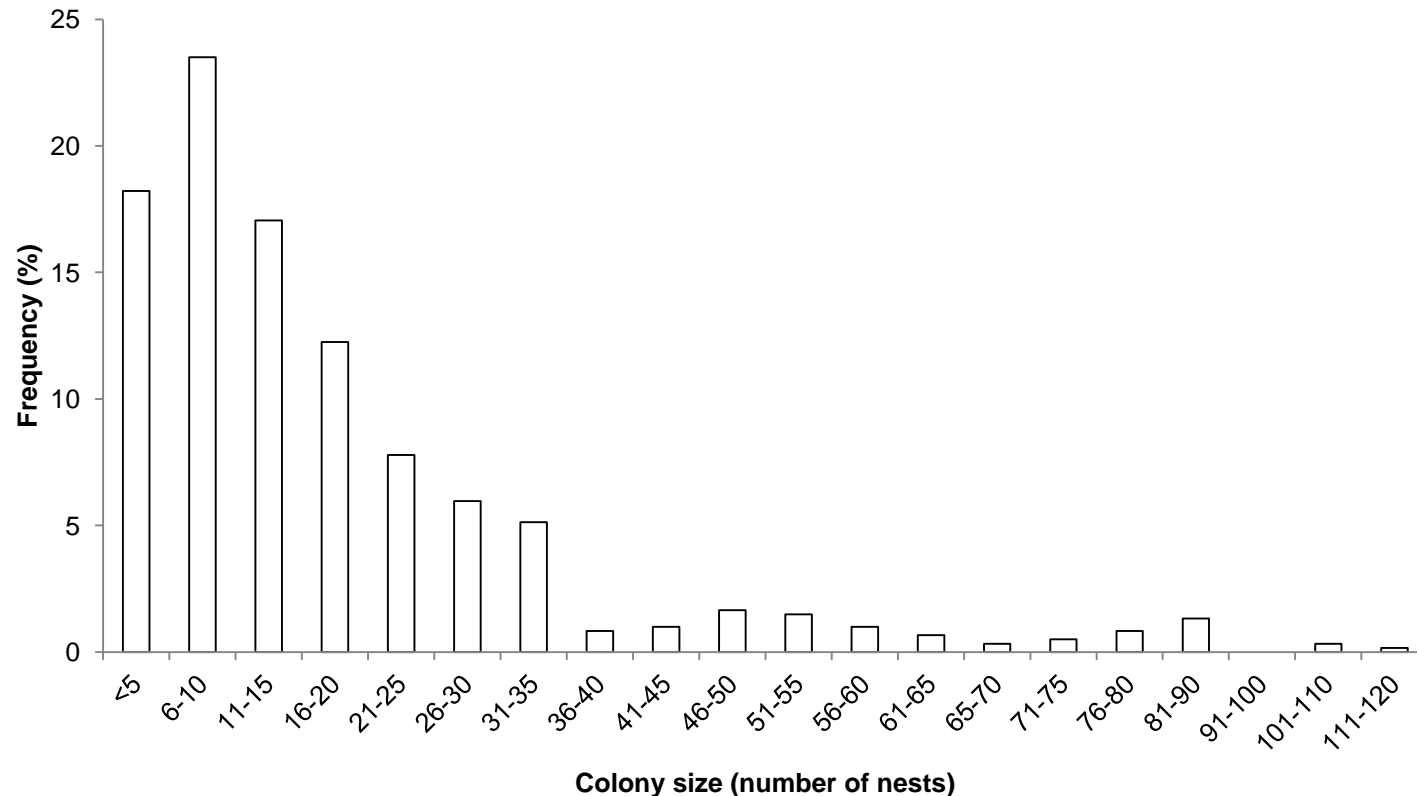
Results – OSNZ beach patrol data

- OSNZ beach patrol data also shows population increase



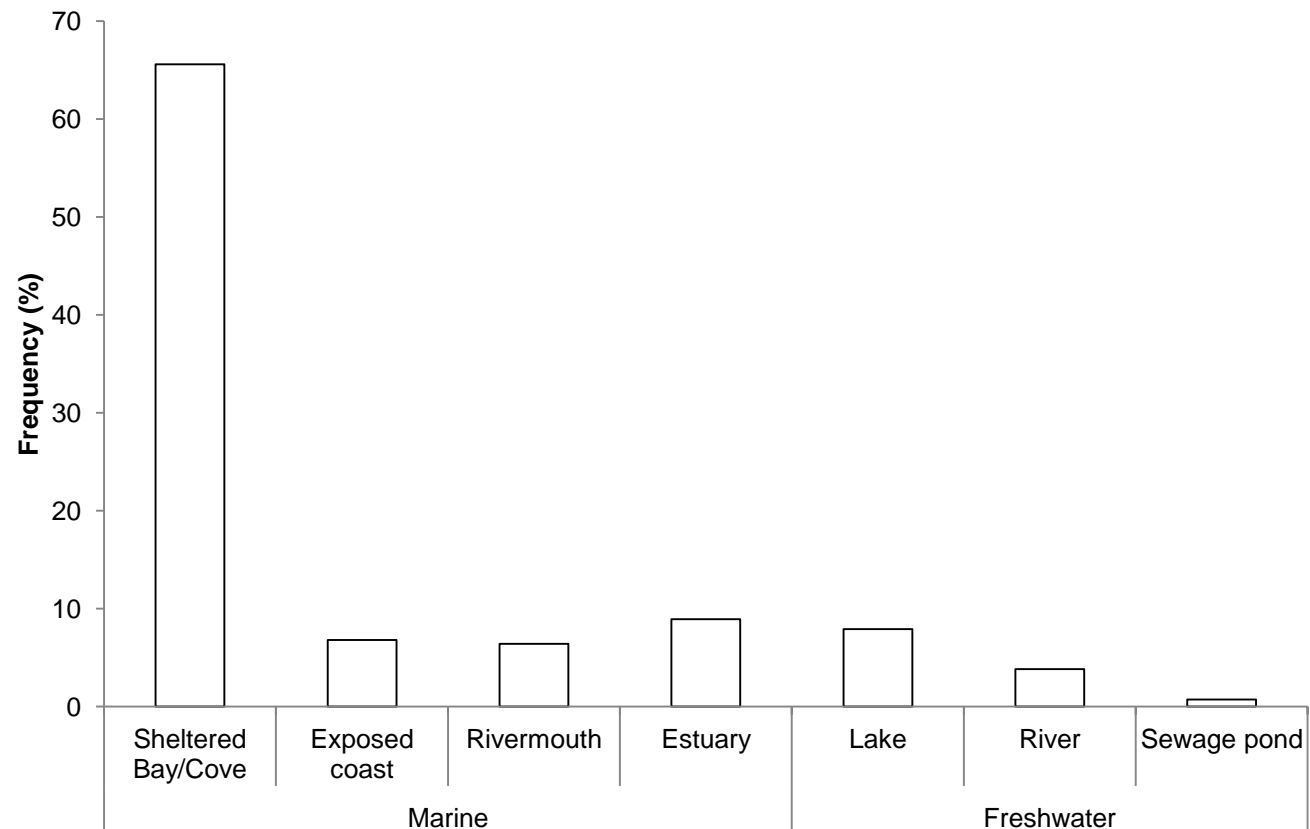
Results – Colony size

- Average colony size 18.5 (range 1-118)
- Most colonies small, 58% <15 nests, 85% <30 nests



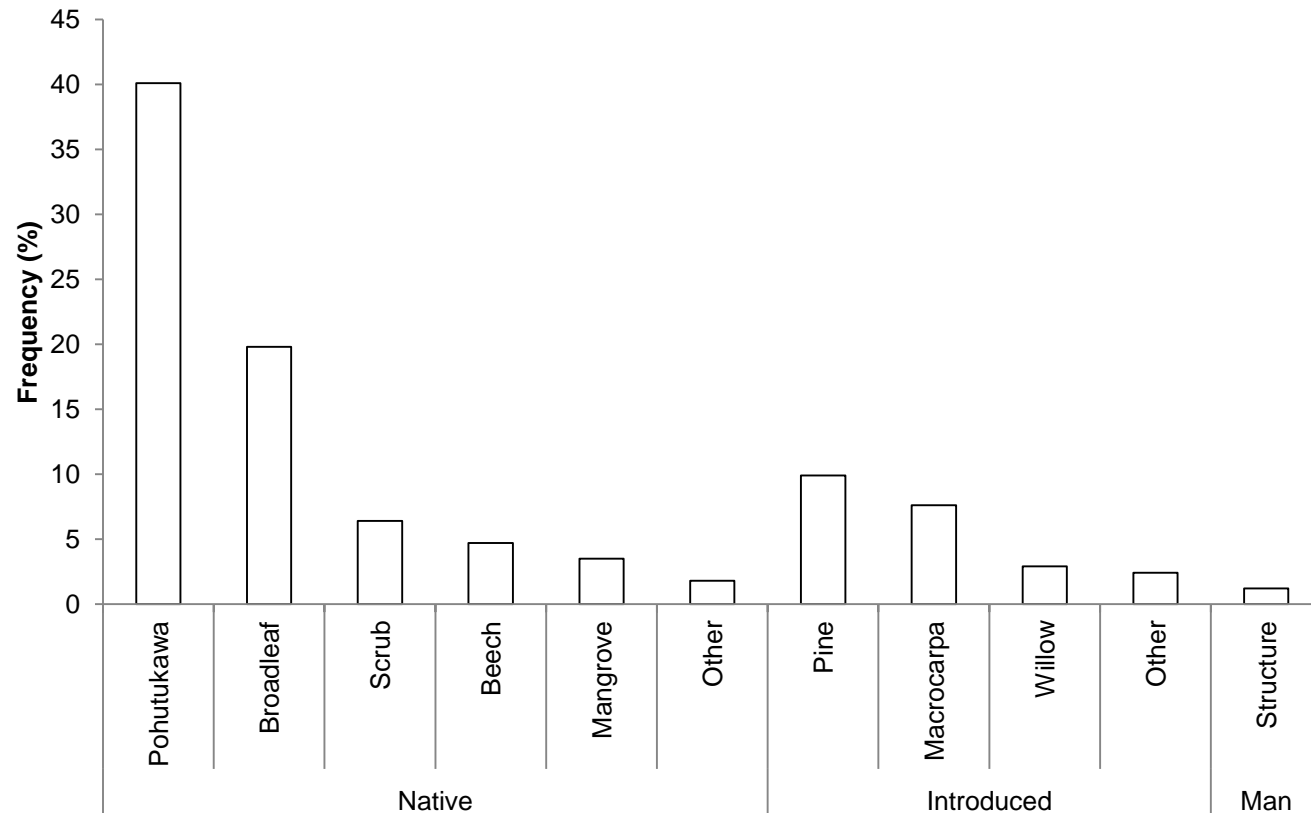
Results – Breeding habitat

- Mostly marine, or within 4km of the sea
- Usually in sheltered locations



Results – Breeding habitat

- Mostly in native vegetation
- Only two on man made structures



Results - Banding studies

- 173 birds banded
- Most are chicks from three colonies in Auckland between 1951-1982
- High recovery rate- 35% of birds recovered (including repeat observation of colour banded birds)
- Oldest recovered bird 18 years
- Comparable to Australian oldest recovery of 20 years
- Little movement of banded birds

Results - movements

Considered sedentary, with some dispersal of juveniles

- 85% of recoveries of birds <1 year old
- Limited movement of banded birds
- <1 year old moved on average 11.3 km (range 0-39km)
- >1 year old moved 12.5km (range 0-23km)



Results - Banding results: causes of mortality

Only 13 birds with cause of death recorded

- 1 Shot (in 1970)
- 1 Oiled
- 1 caught on fishing line
- 8 caught in fishing net



Results – Line entanglement

- Often reported by observers when sending in results
- In systematic survey of 67 northern colonies, 9 (13%) had shags killed by line entanglement
- All appeared to be recreational fishing gear
- Recreational fishing impacts may be under reported, and significant



Recommendations

- Estimating total population size is difficult due to non seasonal breeding. Investigation of the proportion of birds breeding at any one time would improve population estimates. This study should include any effect of colony size on breeding timing.
- GPS foraging study to better understand foraging range and fisheries overlap
- Investigate the impacts of recreational fishing on pied shags, especially line entanglement.
- Promote advocacy for pied shags to reduce possible negative human shag interactions.

Recommendations

- Considerable data is held in wide ranging sources on many species presently considered not well known. Reviews of other species at risk from fisheries should be carried out.
- Timeframes for such reviews should be 18-24 months to cover to OSNZ conference periods

ACKNOWLEDGEMENTS:

- This work is funded through the Conservation Services Programme (Project POP2011/07), Department of Conservation.
- Thanks to everybody who provided data on pied shag colonies. In particular members of the Ornithological Society of New Zealand (OSNZ) and staff from Area Offices of the Department of Conservation.
- Kelvin Floyd (WMIL) developed the WMIL database and produce the maps for this presentation.