Black-fronted terns

Population status, trends and threats

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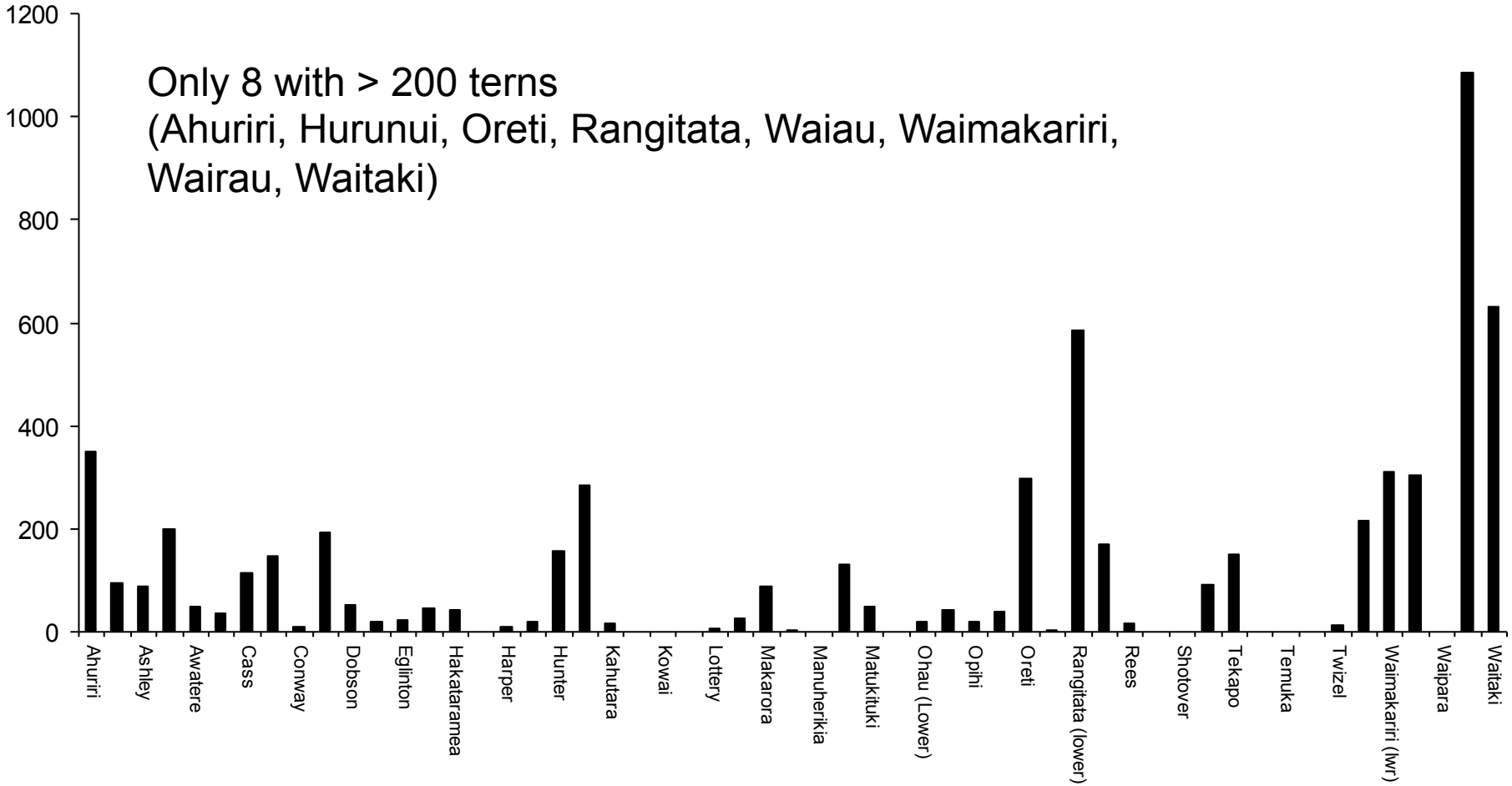
Black-fronted terns

- Braided river specialist
- Breeds on rivers then most migrate to coast and to North Island
- Thought to be declining

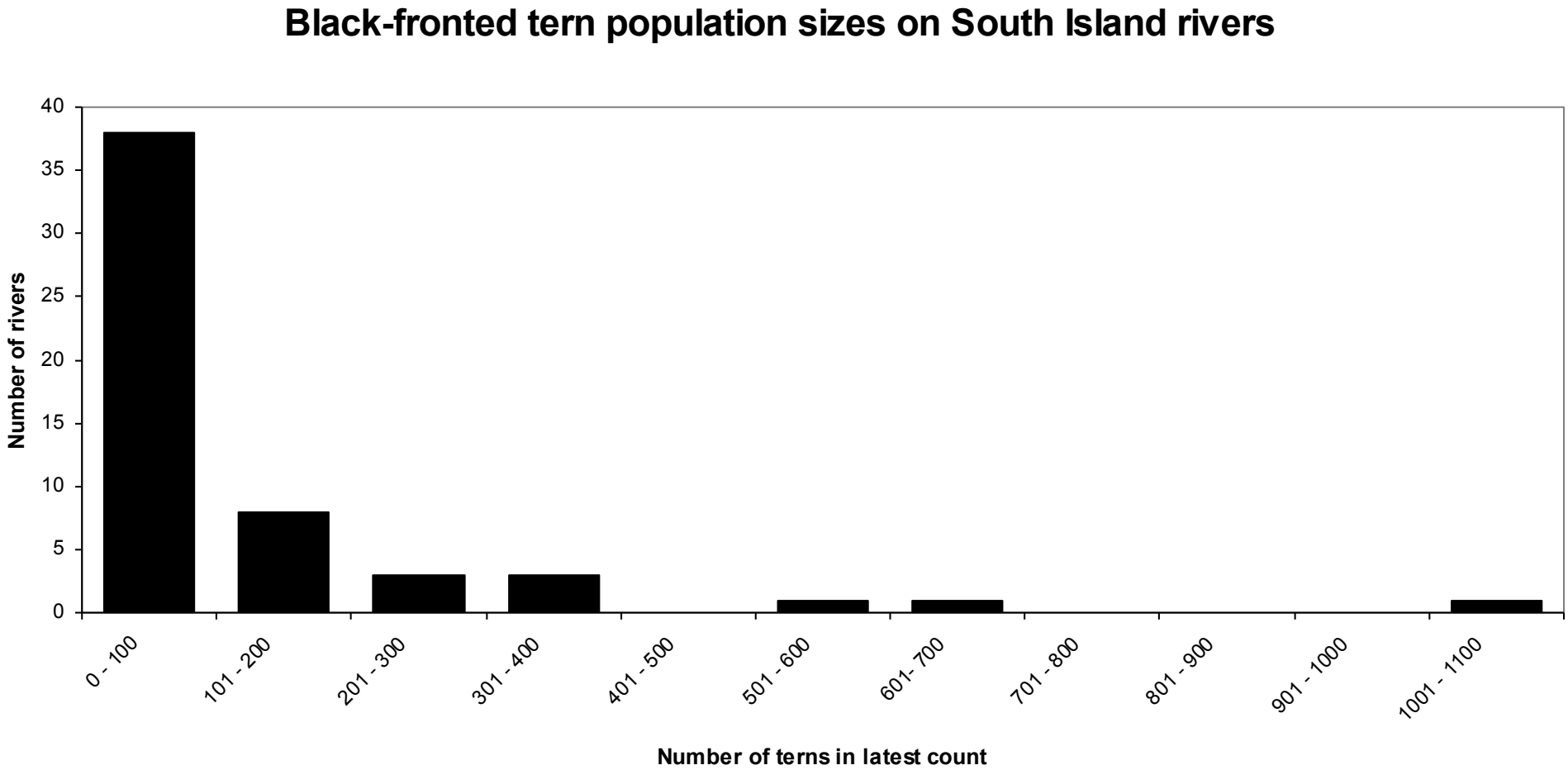
Status - Endangered

- Reviewed historic counts for 55 rivers
- Data for 1962-2007
  - 24 rivers = >4 counts
  - 9 rivers = >8 counts (max=17 counts)
- GLMs used to explore population trends
- Preliminary results-overall decline
  - Highly significant trends detected for the 9 rivers where n >8

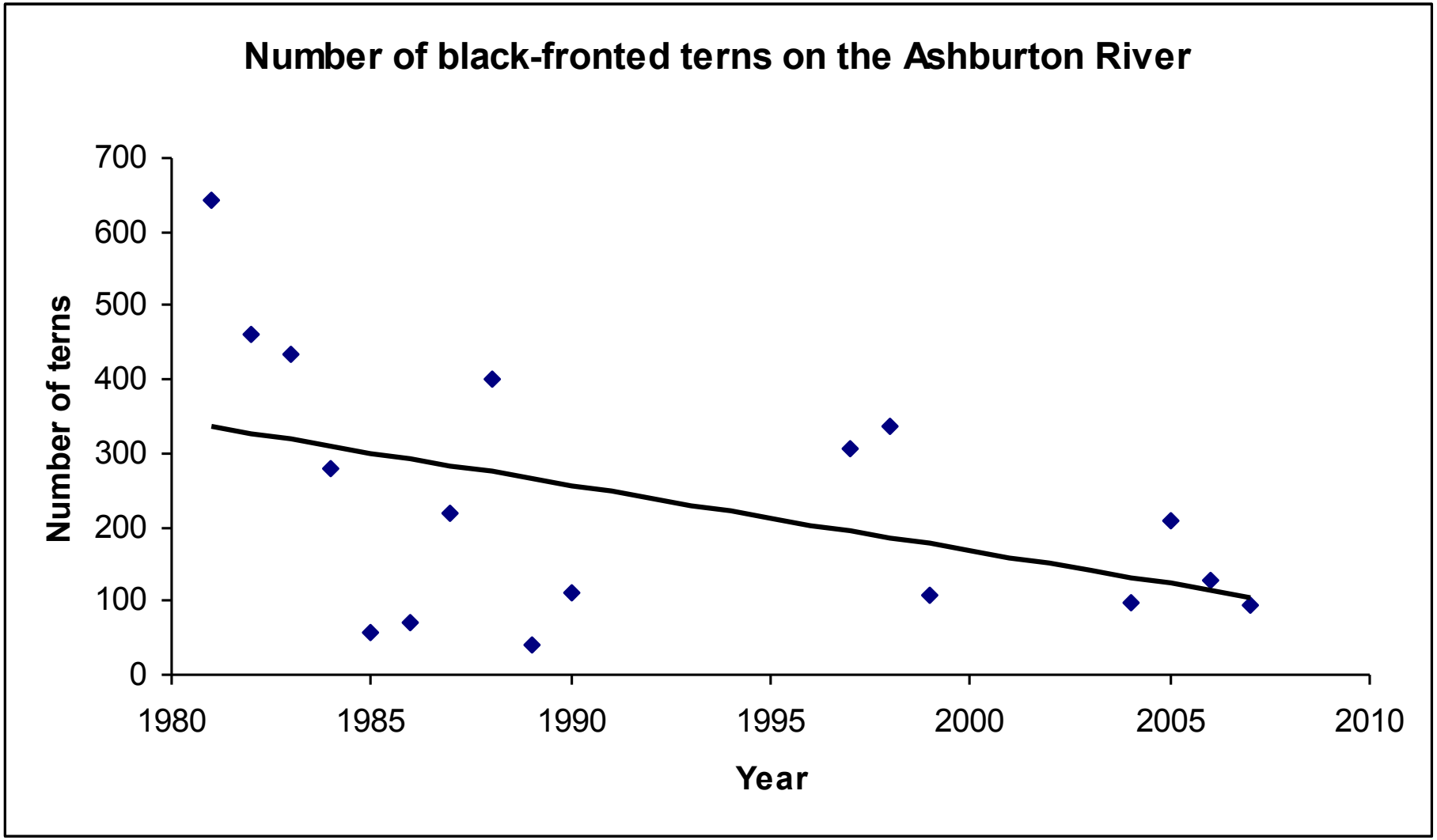
Number of black-fronted terns on 55 rivers (Post 1995 counts)



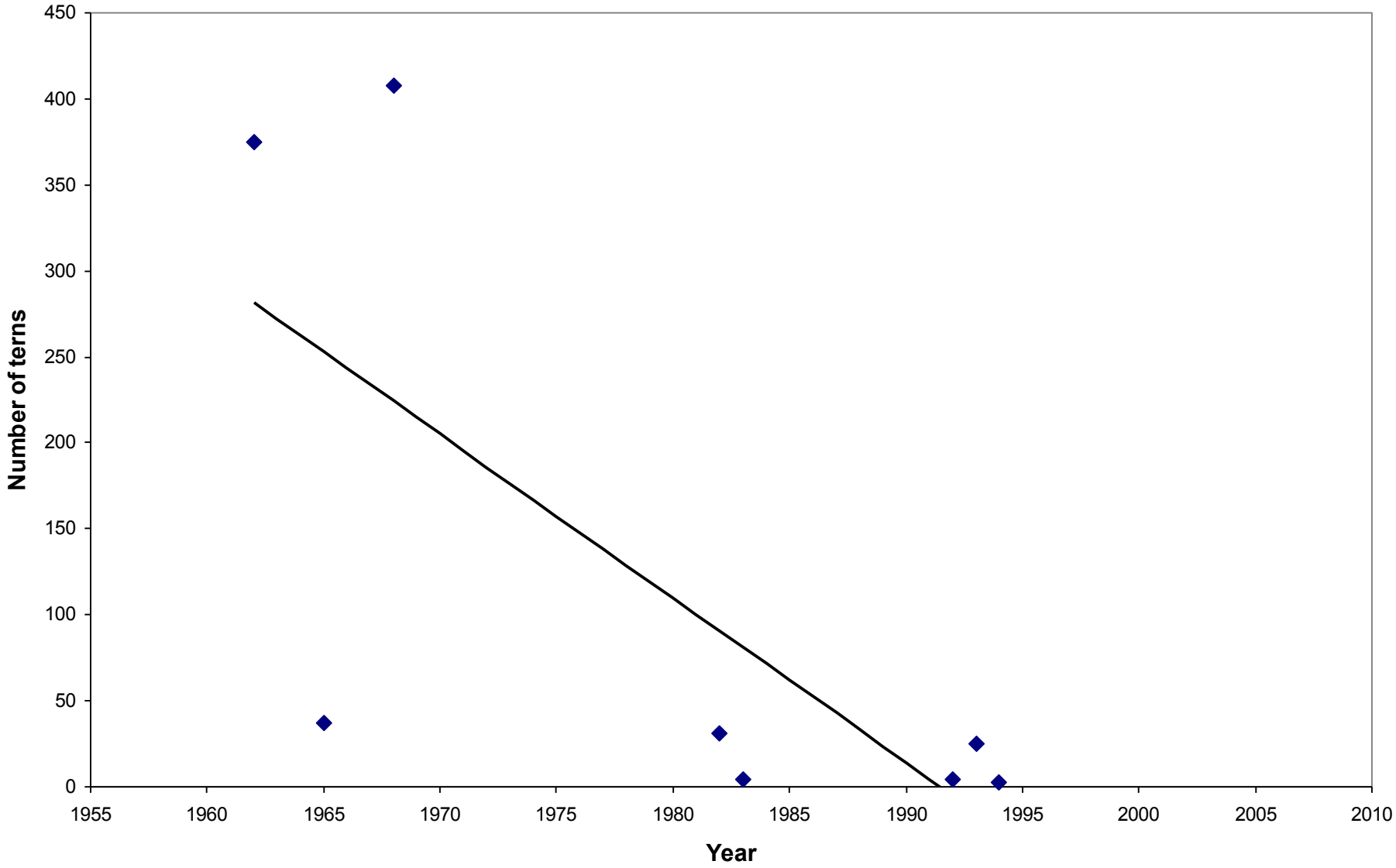
- 67% of rivers had lower counts than when first surveyed (post 1995 counts)
- mean = -ve 68% difference between first and last counts in series



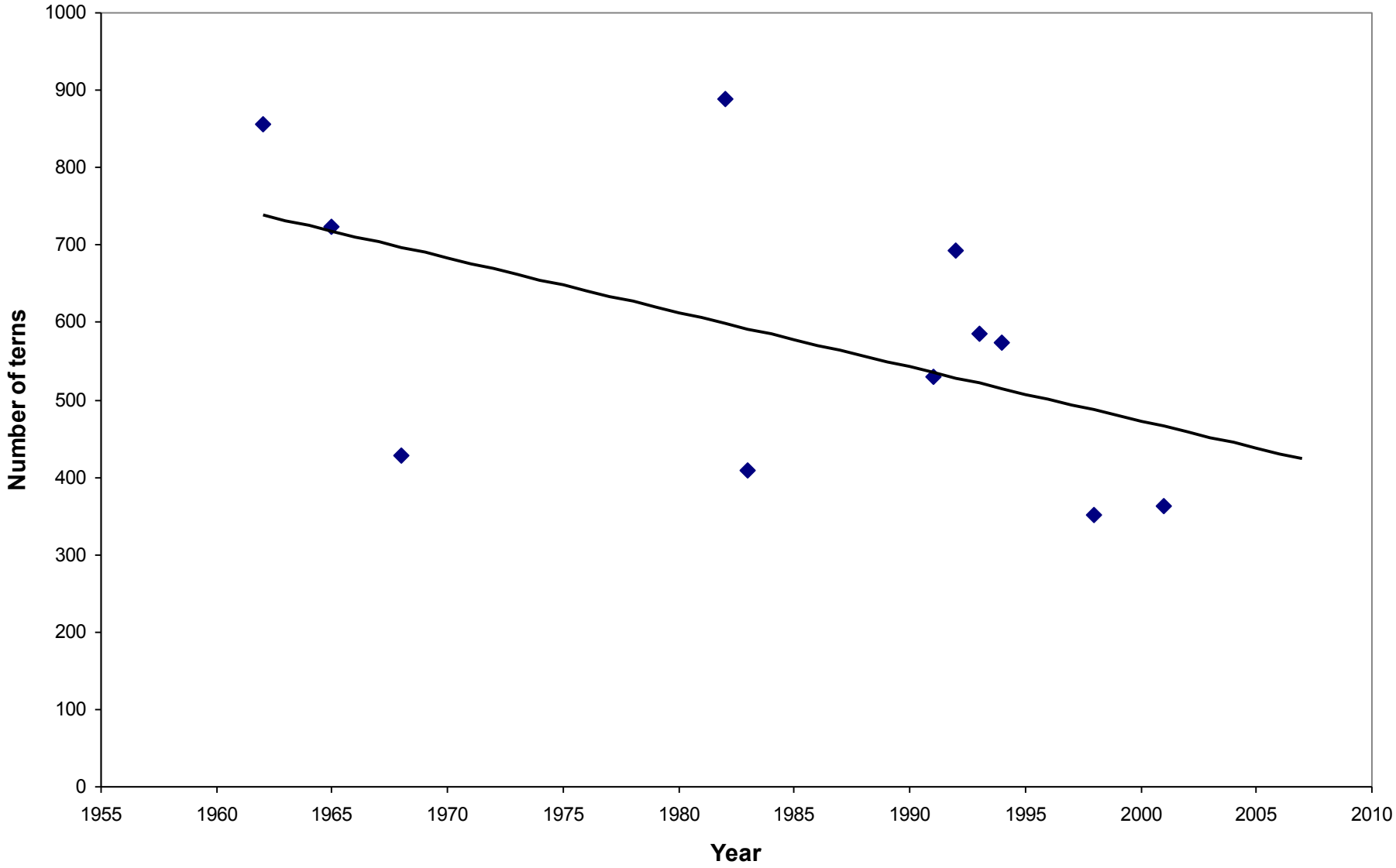
Typical pattern of decline



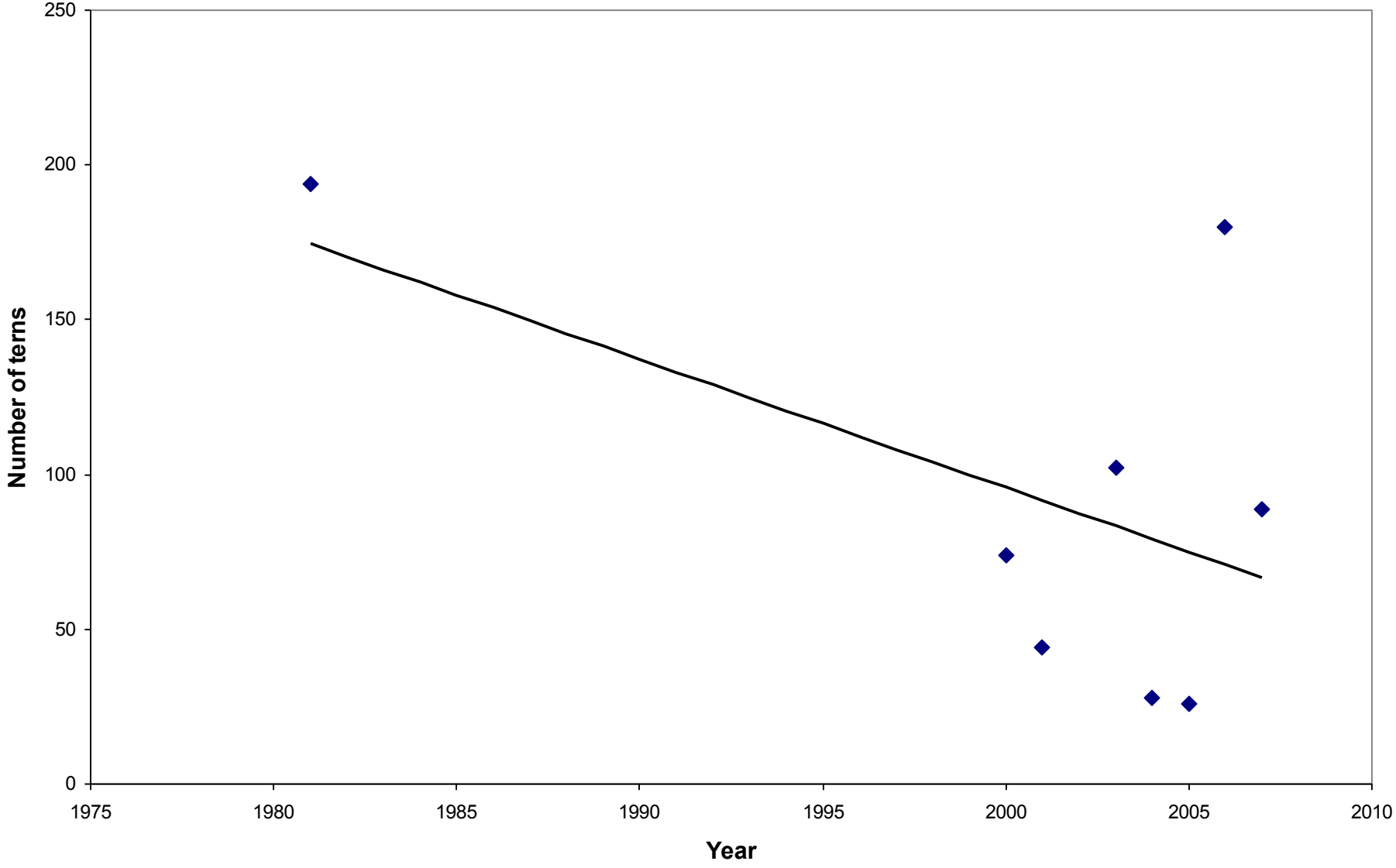
Number of black-fronted terns on the Pukaki River



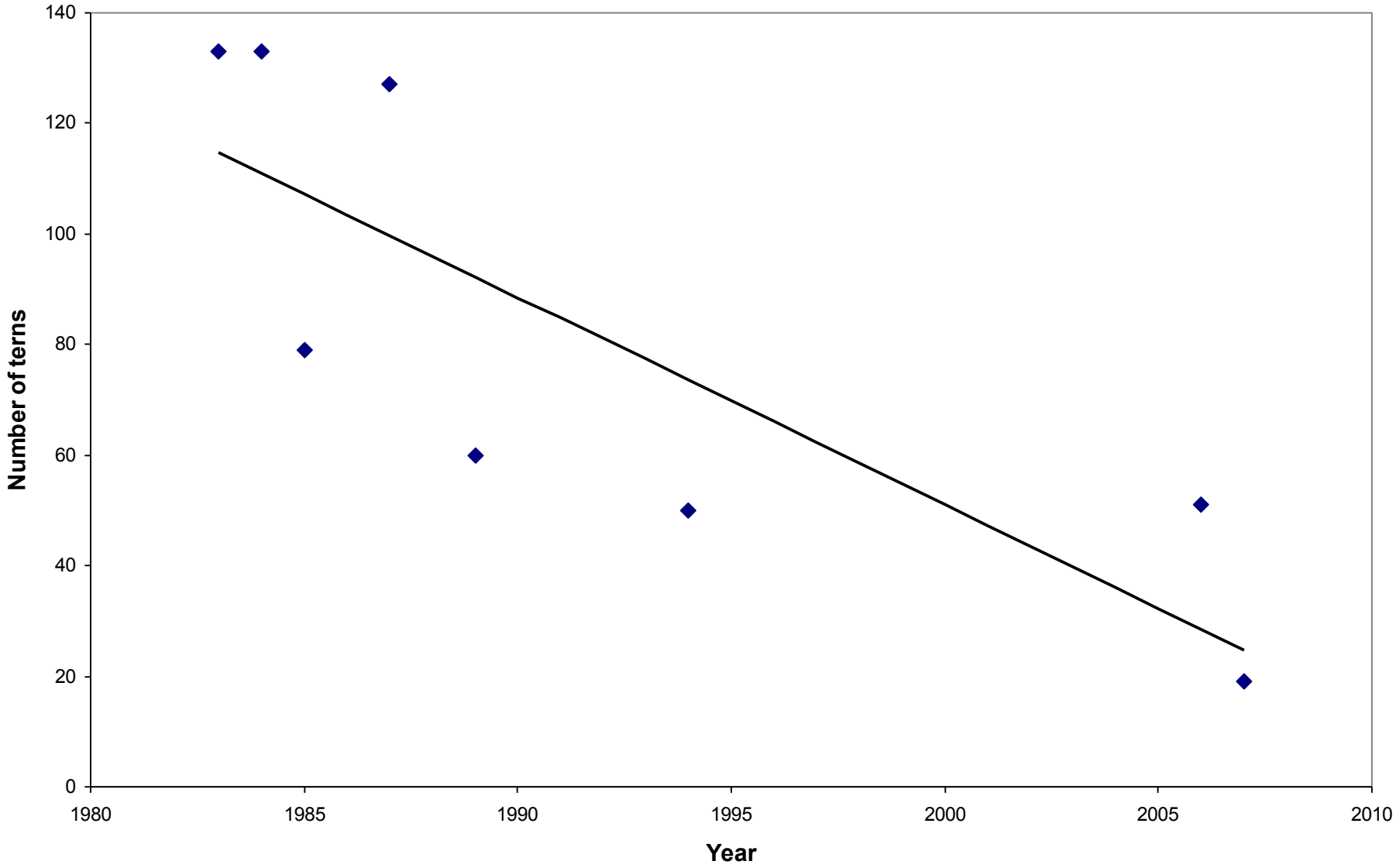
Number of black-fronted terns on the Ahuriri River



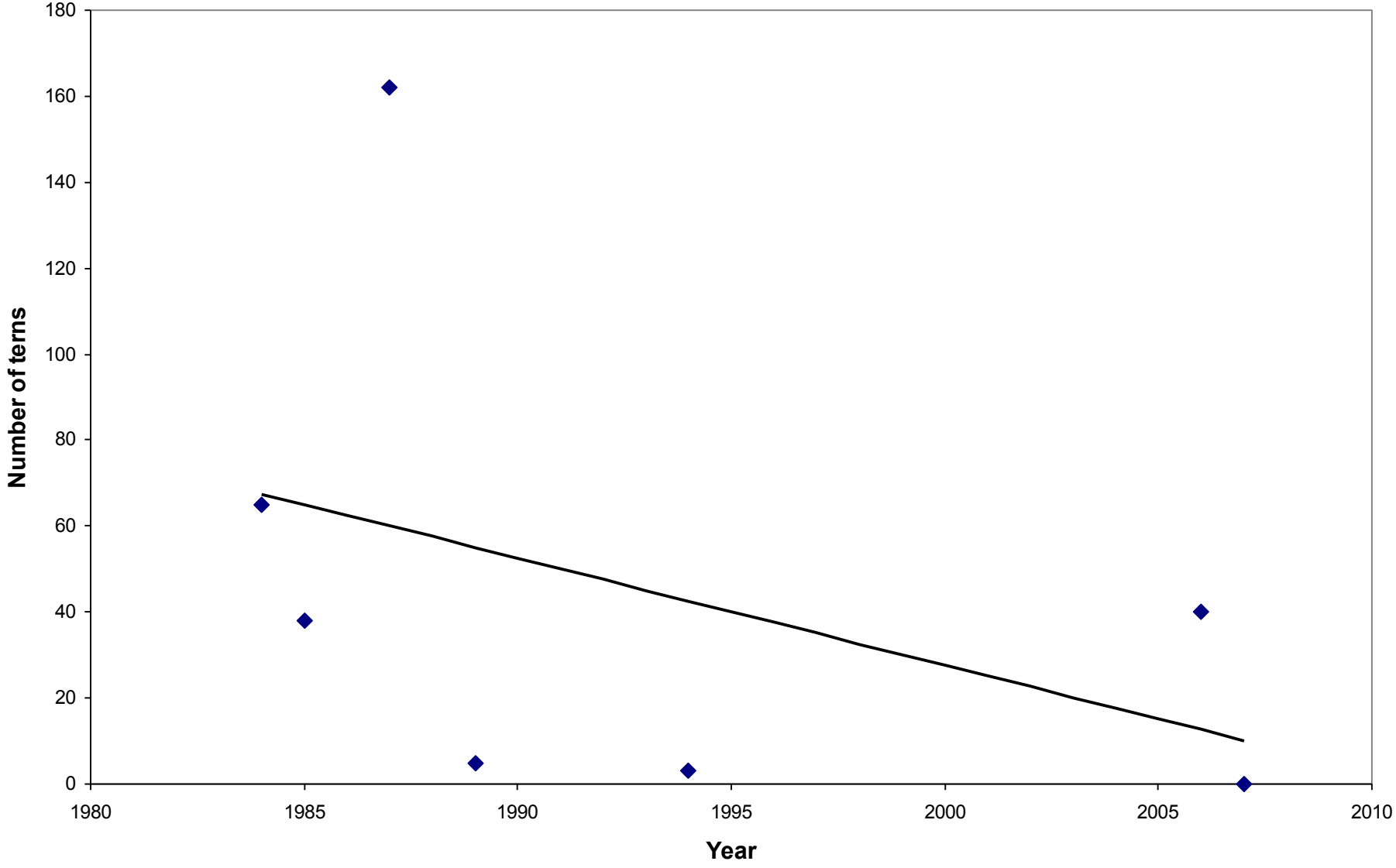
Number of black-fronted terns on the Ashley River



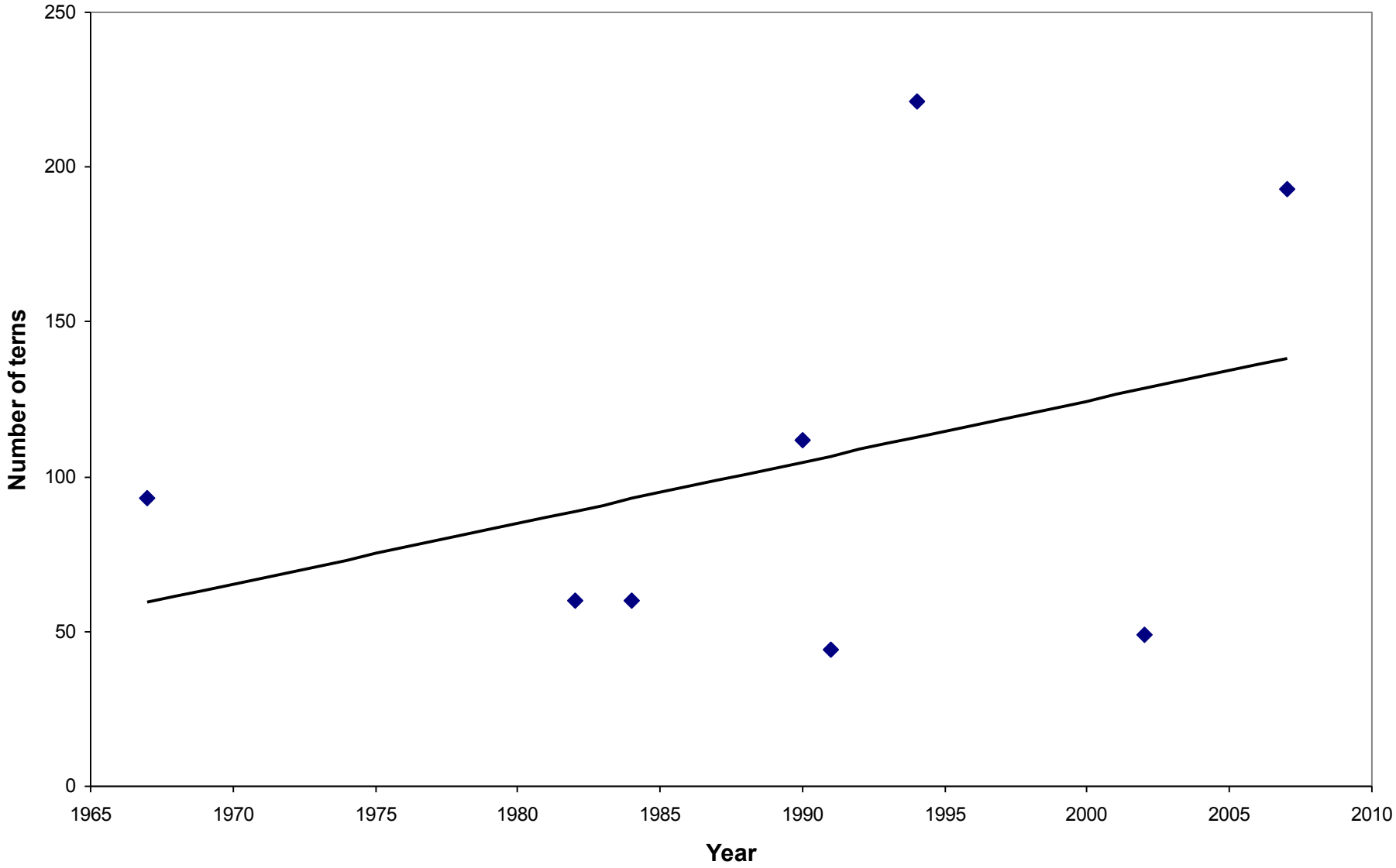
Number of black-fronted terns on the Opihi River



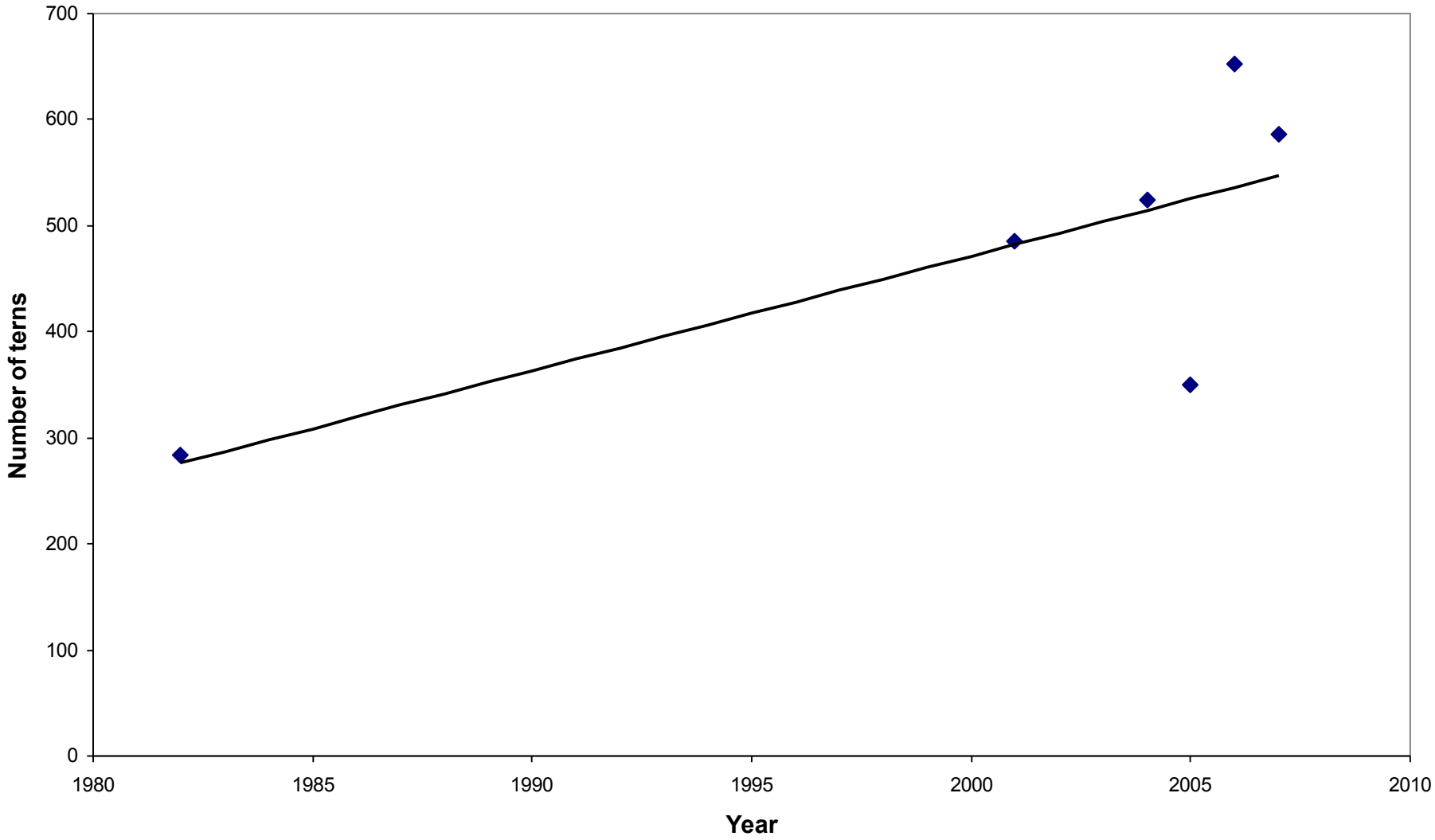
Number of black-fronted terns on the Orari River



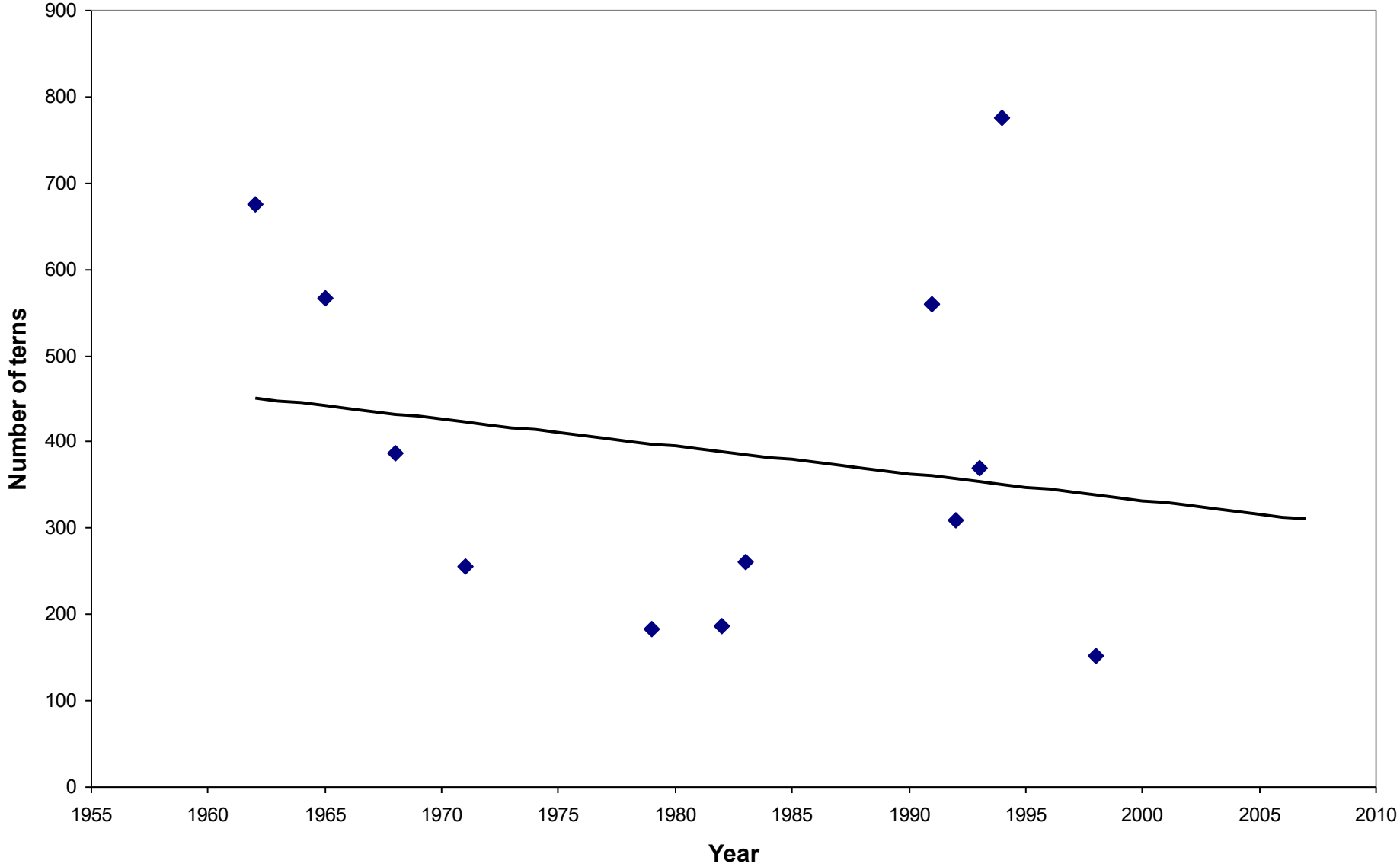
Number of black-fronted terns on the Dart River



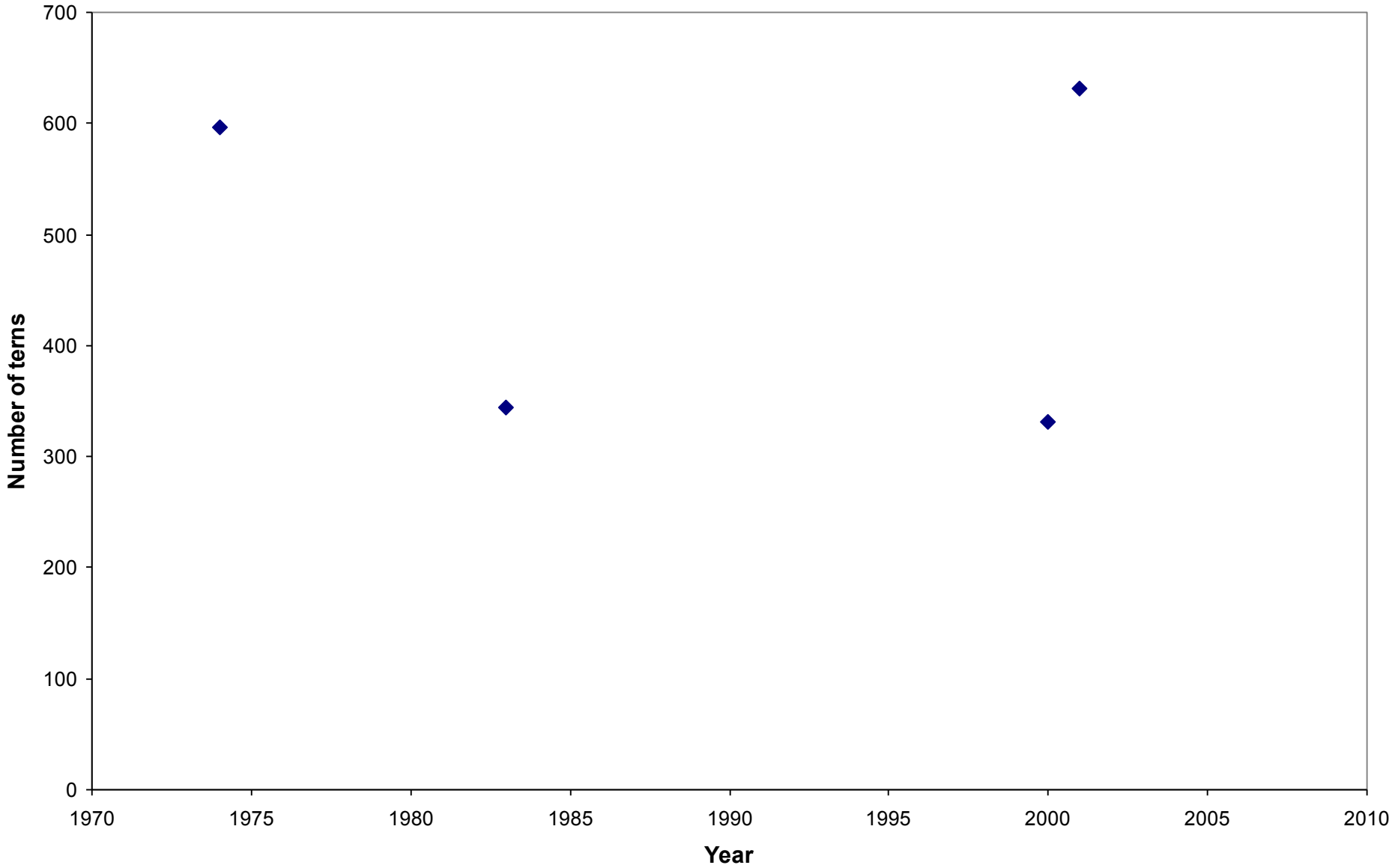
Number of black-fronted terns on the Lower Rangitata River



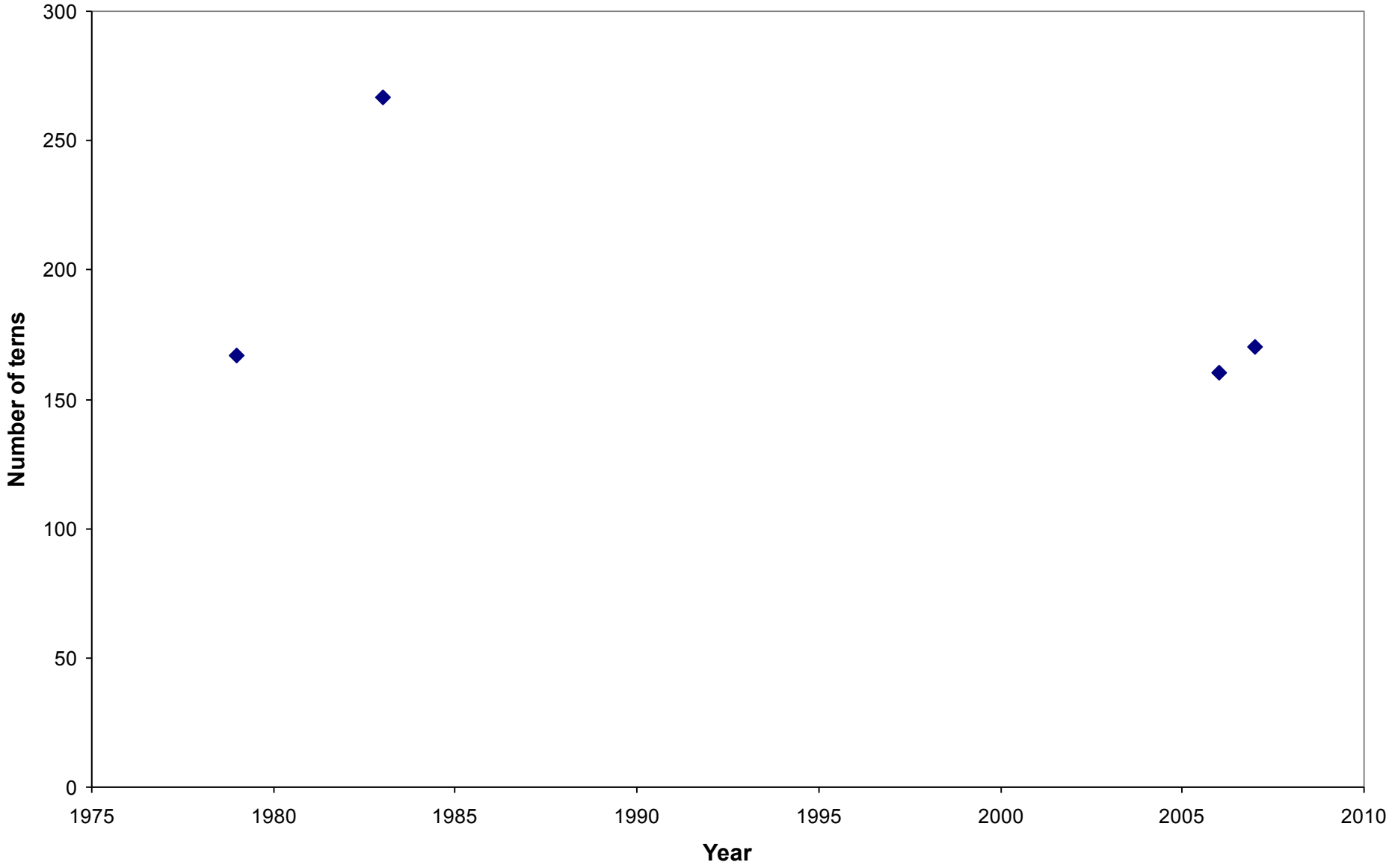
Number of black-fronted terns on the Tekapo River



Number of black-fronted terns on the Waitaki River



Number of black-fronted terns on the Lower Rakaia River



Flows and threatening processes

Reducing flow

Loss of foraging habitat

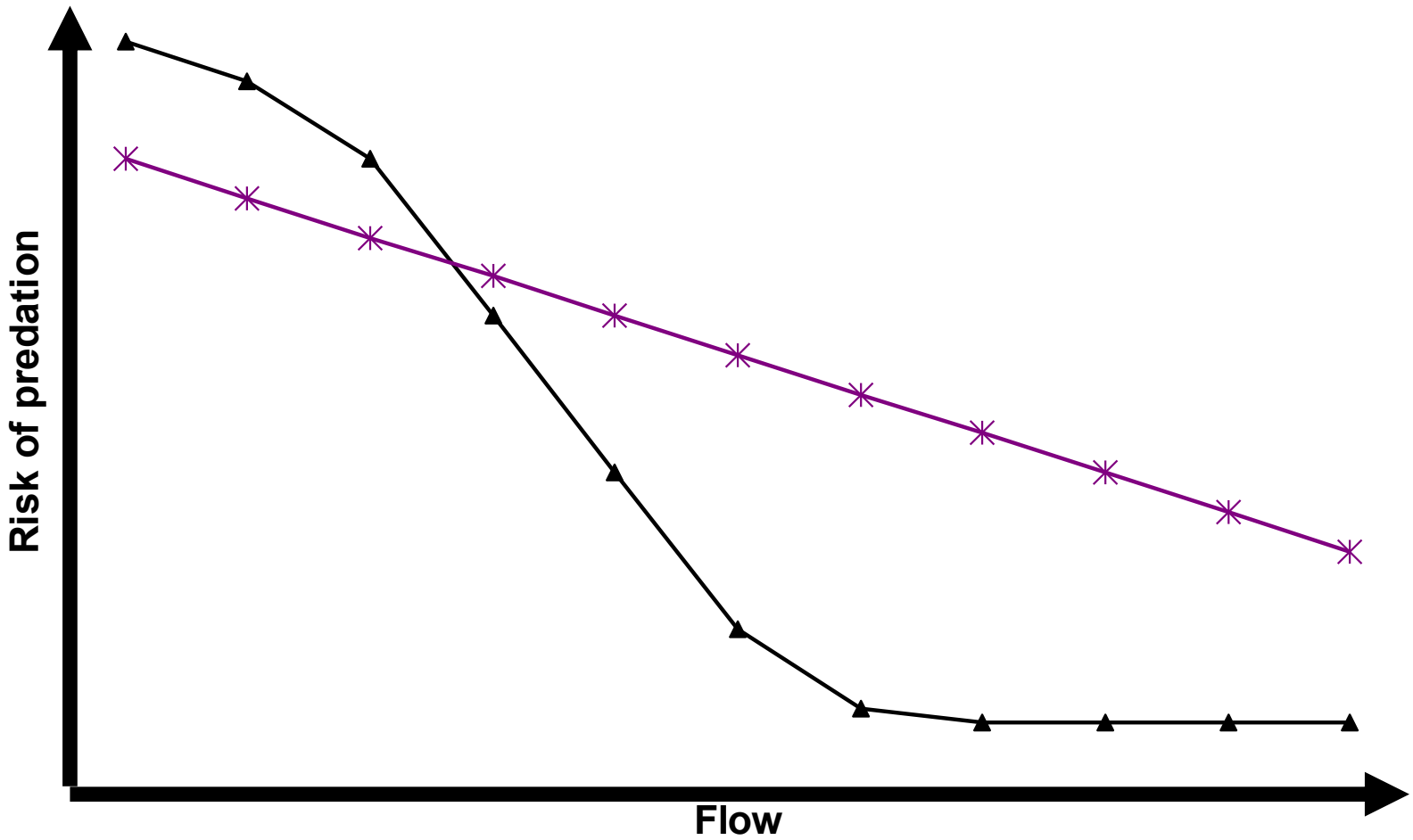
Increased weed encroachment

Increased predation

Lower breeding success and survival

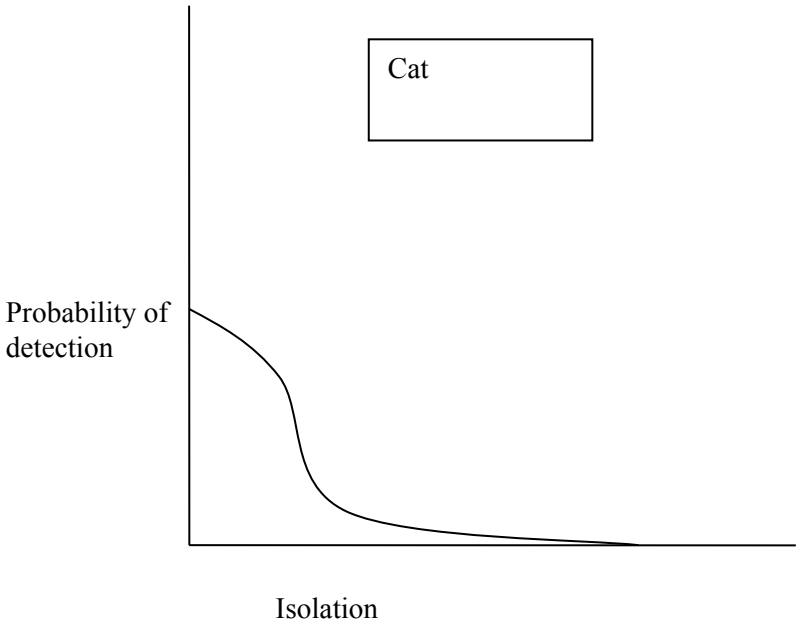
The ‘moat’ effect – islands separated from the mainland by large flows appear to limit predation

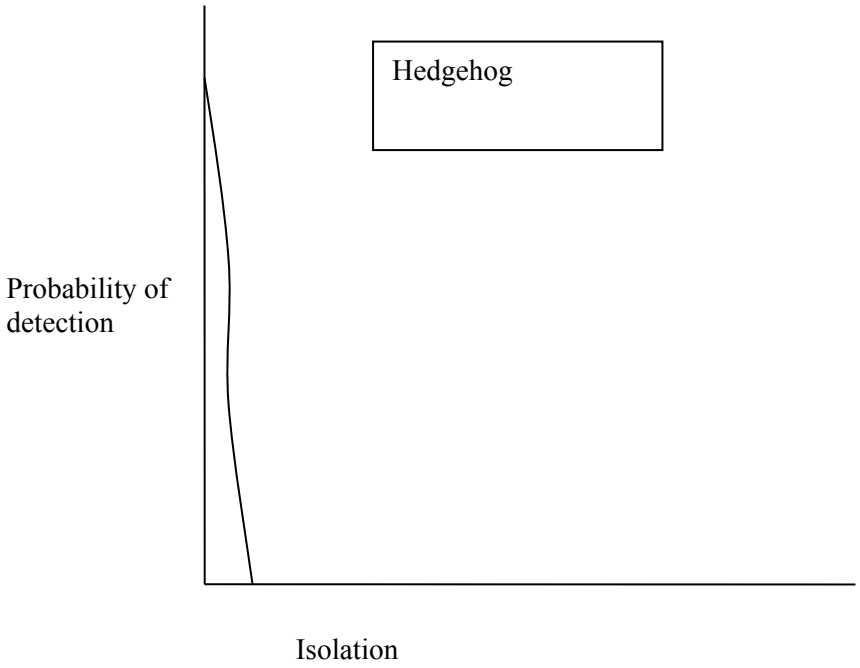
Need to understand relationship between predator risk and flows

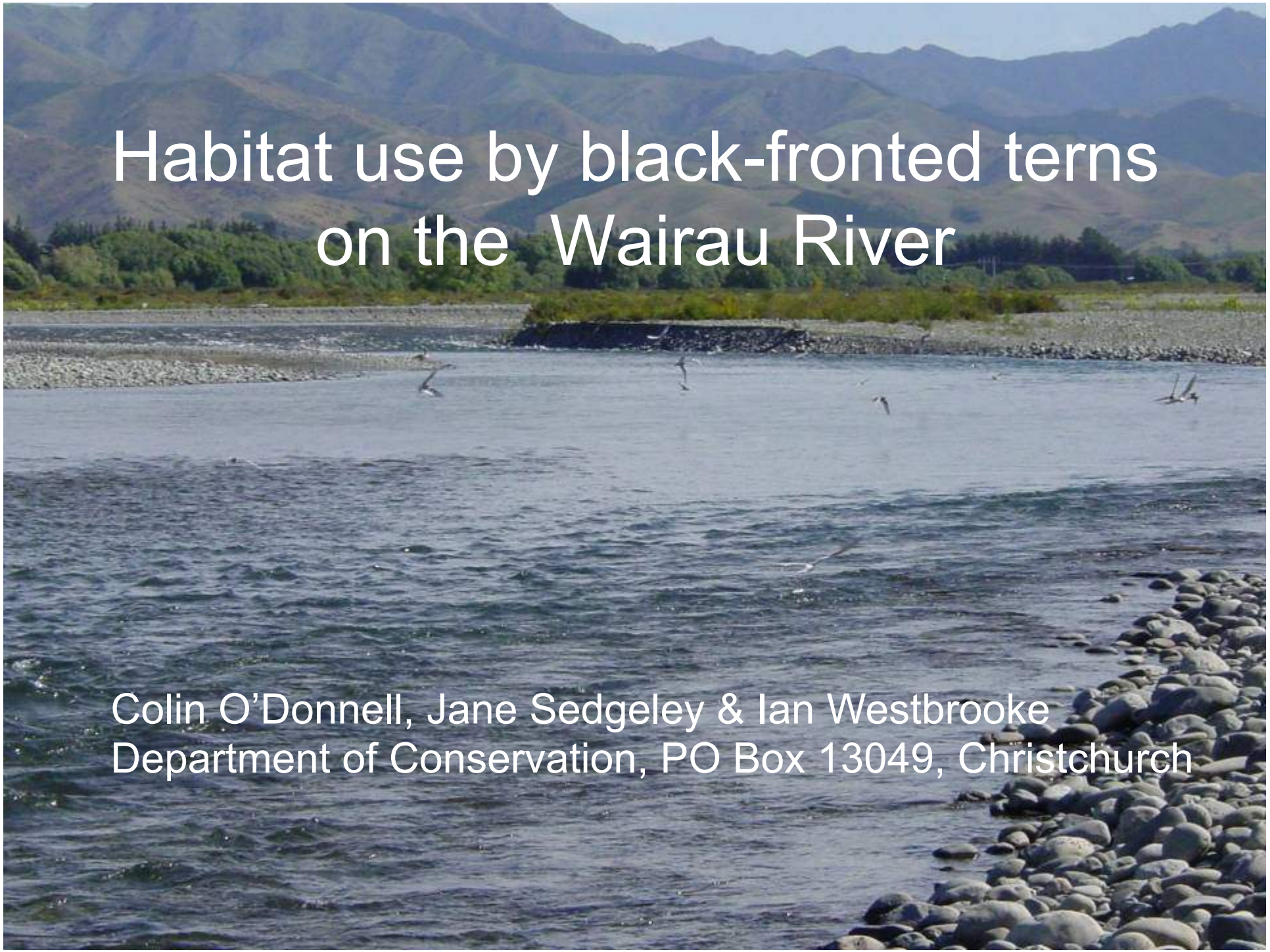


Modelling island “isolation”
(Georgina Pickerell, PhD, Otago)

- Predicted to be functions of flow, distance, connectivity, island size







Habitat use by black-fronted terns on the Wairau River

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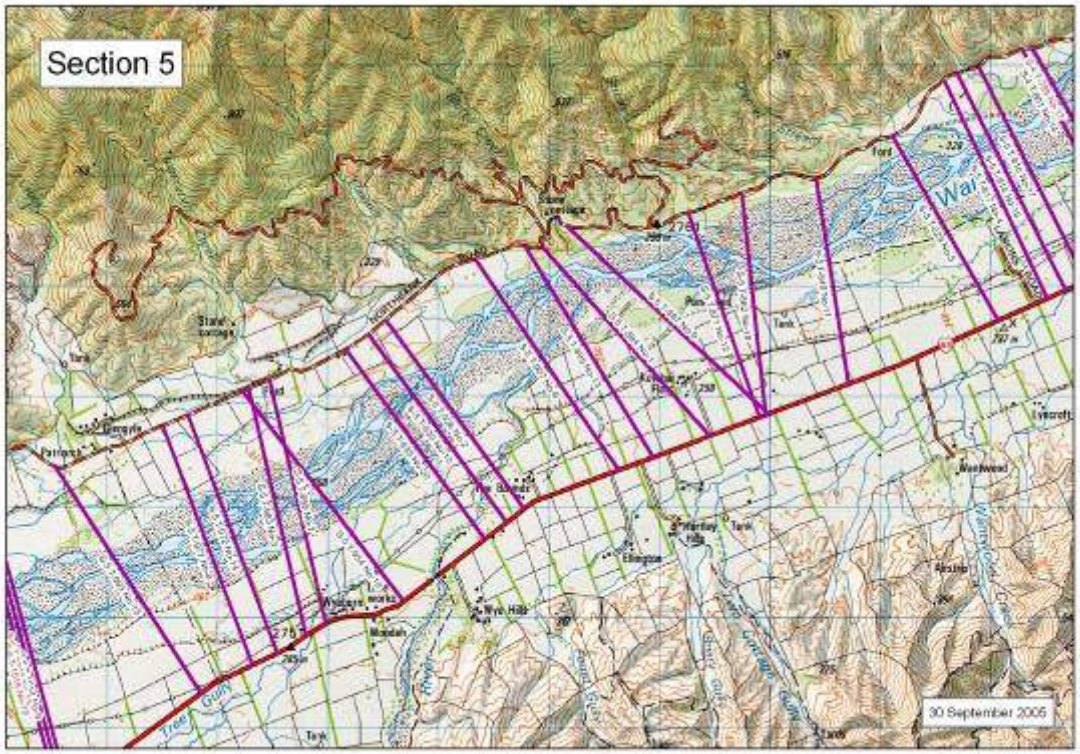
Objectives

- To establish the importance of aquatic versus terrestrial habitats for feeding by black-fronted terns on the Wairau River during the breeding season.
- To determine the relative importance of aquatic microhabitats within the river for black-fronted terns.

Sampling design

- Instantaneous sampling on random transects

Numerous habitat features measured where terns were feeding

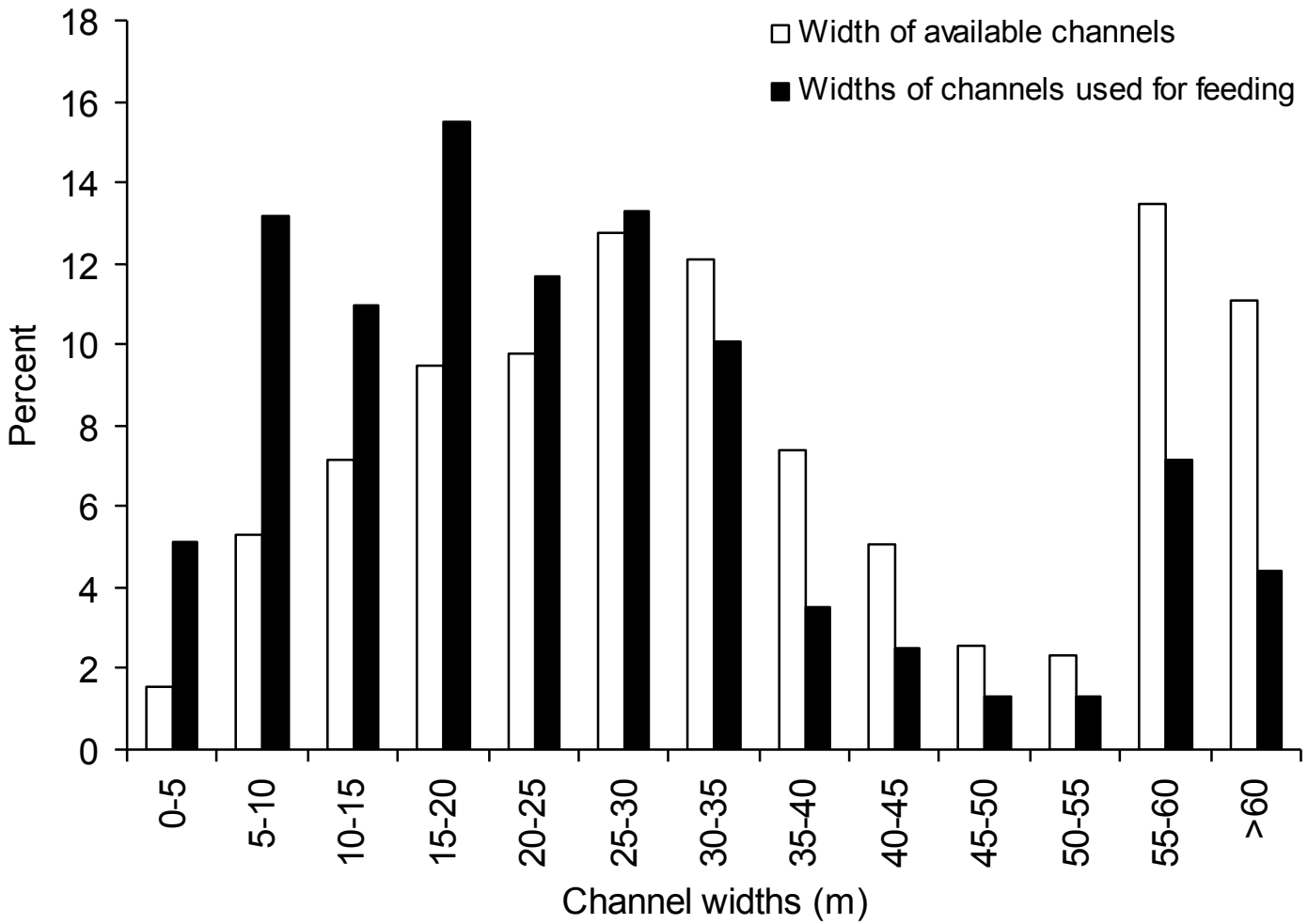


Sampling……

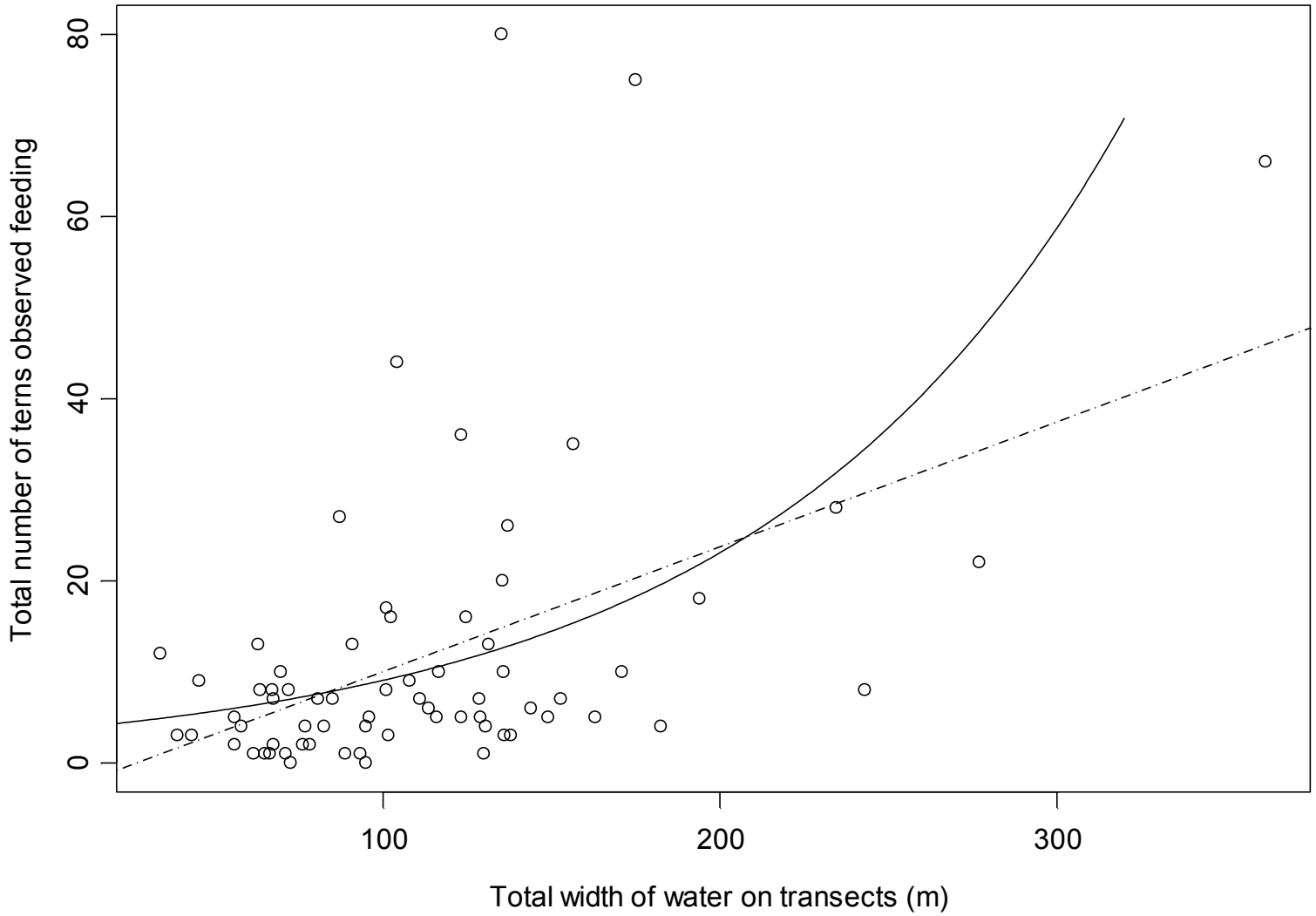
Results

- 2005-2006
  - 80 transects
  - 68622 m sampled (22% farmland, 22% terraces etc, 42% islands, 14% aquatic)
  - Median flow = 15.016 cumecs (13.120 during sampling)
  - 1384 observations
- 2006-2007
  - 80 transects
  - 107328 m sampled (42% farmland, 21% terraces etc, 26% islands, 11% aquatic)
  - Median flow = 26.553 cumecs (21.898 during sampling)
  - 1244 observations

Terns selected small to medium sized channels, but shallow water wherever they fed



Preliminary models: Greater the wetted area, the larger the number of terns feeding



Urgent need for research:

- Develop robust predictive models of impacts – focusing on interactions
  - Requirements of a range of threatened species
  - Sample full variability in flows and seasons across a range of rivers
- The costs and benefits of maintaining flows
- Experimental weed management