

## **DIET, INDIVIDUAL SPECIALISATION AND BREEDING OF BROWN SKUAS (*CATHARACTA ANTARCTICA LONNBERGI*): AN INVESTIGATION USING STABLE ISOTOPES**

Anderson Orea<sup>1</sup>, Richard Phillips<sup>2</sup>, Richard Shore<sup>3</sup>, Rona McGill<sup>4</sup>, Robbie MacDonald<sup>5</sup> and Stuart Bearhop<sup>6</sup>

<sup>1</sup> School of Biological Sciences, MBC, 97 Lisburn Road, Belfast BT9 7BL, UK  
E-mail: [oanderson02@qub.ac.uk](mailto:oanderson02@qub.ac.uk)

<sup>2</sup> British Antarctic Survey, High Cross, Madingley Road, Cambridge, CB3 0ET, UK

<sup>3</sup> Centre for Ecology and Hydroglogy, Lancaster Environment Centre, Library Avenue, Bailrigg, Lancaster, LA1 4AP, UK

<sup>4</sup> Scottish Universities Environmental Research Centre, Scottish Enterprise Technology Park, Rankine Avenue, East Kilbride, G75 0QF, UK

<sup>5</sup> Central Science Laboratory, Sand Hutton, York, YO41 1LZ, UK

<sup>6</sup> University of Exeter, Cornwall Campus, Penryn, Cornwall, TR10 9EZ, UK

The diet of brown skuas (*Catharacta antarctica lonnbergi*) on Bird Island, South Georgia was assessed using a combination of stable isotope analysis (SIA) and mixing model techniques. We found evidence that individual specialisation in diet of adult brown skuas was related to timing of breeding, which may reflect differences in intrinsic quality. Adults with more enriched  $^{13}\text{C}$  values hatched chicks earlier than those with depleted  $^{13}\text{C}$  values. Individuals with enriched  $^{13}\text{C}$  fed predominantly on Antarctic fur seal (*Arctocephalus gazella*) carrion and placenta while those with lower ratios appeared to rely more on burrowing petrels (e.g. Antarctic prions *Pachyptila desolata*). Individual foraging differences clearly influenced timing of breeding and potentially the reproductive output of breeding pairs. We confirmed that the main components of the diet of brown skuas during incubation are, in decreasing order of importance, Antarctic fur seal placenta, burrowing petrels and fur seal muscle. In addition, we identified fur seal faeces in the diet during this stage, which had not been detected previously by traditional sampling methods. Finally we identified a correlation in  $\delta^{13}\text{C}$  values between pair members, attributable to the influence of courtship feeding of females by males, or assortative mating according to foraging preference or intrinsic quality.