❑ Abstracts of the Symposium Papers Not Published in This Volume

Status of Adélie Penguins Breeding in Lützow-Holm Bay

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Approximately 1000-1500 pairs of Adélie penguins breed in Lützow-Holm Bay. This area is unique as fast sea-ice remains throughout the summer while large open water appears around colonies in the spring or early summer in other areas where large number of Adélie penguins breed. Colony size of Adélie penguins in Lützow-Holm Bay is smaller ($10\text{-}10^3$ breeding pairs) than other areas. Number of breeding pairs in this area fluctuated annually but has shown no long-term trends for these 20-30 years. They forage in small (< 100 m^2) open water along tide cracks or around ice-bergs very close to colonies during chick rearing season. Comparing to Adélie penguins breeding in Prydz Bay and King George I., those breeding in this area forage with shorter foraging trip duration (10-20 hr.) and brought smaller amount of food (300 g) but more frequently (1/bird- day). They forage in shallow water (< 10 m) probably under sea-ice, mainly in 9:00-18:00 without clear daily pattern in dive depth.

The Diet of the Blue-eyed Shag, *Phalacrocorax atriceps bransfieldensis* at the West Antarctic Peninsula

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The diet of the Antarctic Blue-eyed Shag *Phalacrocorax atriceps bransfieldensis* was analyzed based on the identification of the prey items in 50 regurgitated casts collected at Duthoit Point, Nelson Island, in February 1991. Benthic organisms and chiefly fish were found to be the main components. Fish remains occurred in 100% of the casts and represented 68% by number and 90% by weight of the total prey items. From a total of 2112 otoliths found, 1176 fish specimens were identified and belong to four demersal-benthic species: *Harpagifer antarcticus*, *Notothenia neglecta*, *Nototheniops nudifrons* and *Trematomus newnesi*. For these populations in the area, equations to estimate total length and weight from otolith length are provided. *H. antarcticus* and *N. neglecta* were the most frequent (92%) and important by weight (66%) respectively. The cephalopods beaks found in the samples indicate benthic octopods as the second group in importance behind fish. Other invertebrates (e.g., polychaetes, gastropods, bivalves and crustaceans) were occasional and did not represent an important part of the diet. The presence of algae and stones in the casts are also discussed and suggested to be ingested accidentally. Our results are in general agreement with those previously published for other Antarctic localities which indicates *P. atriceps* as a benthic coastal feeder, with fish as its main food items.

Seasonal Variation in Net Phytoplankton Assemblages under the Coastal Fast Ice near Syowa, East Antarctica

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Phytoplankton assemblages were collected with a plankton net at two sites in the coastal fast ice area near Syowa Station (69° 00′ S, 39° 35′ E) from mid-February, 1983 to mid-January, 1984 and examined with light microscopy for species composition. The assemblages showed a remarkable seasonality. Diatom species, especially pennates dominated the assemblages in number, from March to December. A blooming of *Phaeocystis pouchetii* was observed in mid-February, 1983. Dinoflagellates and silicoflagellates were observed substantially in summer-fall and in early spring. Centric diatom species e.g. *Chaetoceros* spp., *Eucampia balaustium* and *Rhizosolenia* spp., which are common in off-shore phytoplankton assemblages, occurred in the net samples from mid-February to early June, mid-September and early October. This suggests that off-shore water was advected into the area studied, i.e. to the eastern part of Lützow-Holm Bay in those periods. The increase in relative abundance of *Nitzschia* spp., which often dominate ice assemblages, in the net samples in early summer indicated that the bottom-ice assemblage was released into water column from melting of the sea ice.

Maturity Stages and Spawning of Antarctic Krill (*Euphausia superba* Dana) in the Prydz Bay Region

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This paper presents the results of net sampling carried out on two marine cruises during the austral summer of 1989/1990 and 1990/1991 in the Prydz Bay region (Indian Ocean sector of the Southern Ocean) by the Chinese R/V "Jidi". The sexual maturity stages of totally 8243 specimens of Antarctic krill (*Euphausia superba* Dana) were examined. The spawning season begins in January and extends to March with the maximum spawning occurring in mid- or late- February, about one month later compared with the Atlantic sector. The L/F distribution of gravid females (3DF) shows that the spawning population mainly consists of two age groups: 3^+ and 4^+. The 3^+ adults are the main spawners with the 4^+ adults partly contributing. 2^+ and 5^+ seems to be very scare in the spawning population if any. Among the 5916 specimens determinable sex only 34.1% are males. The percentage of males decreases with the increasing of body size. It drops to 22.9% when the body length exceeds 50 mm.

Ecology of the Antarctic Limpet *Nancella concinna* in the Intertidal Zone of King George Island

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The ecology of *Nancella concinna* is described from studies of it's diversity, biomass, oxygen consumption, ammonia excretion and faecal egestion in the intertidal zone of King George Island during the austral summer of 1992/93. Limpets were mainly sampled from a tide pool, the others from a boulder area. Some results are compared between the two habitats. In the tide pool, the limpet diversity is 326 ind./m^2, mean biomass is 73.66 g/m^2. For a limpet of 250 mg dry mass, the oxygen consumption is 30.7 μgO_2/hr, the ammonia excretion is 2.31 μg/hr, faecal egestion is 566. 7 μg/hr, and the O:N atomic ratio is 11.6.

❑ International and domestic Antarctic research programs and policies were introduced by the following representatives from various organizations.

- **Sabourenkov, Eugene** (*Secretariat, CCAMLR*): The Role, Objectives, and Activities of CCAMLR in the Antarctic Biological Sciences
- **Penhale, Polly** (*Program Manager, Polar Biology and Medicine, National Science Foundation, USA*): Biological Oceanography Research in the US Antarctic Program
- **Naganobu, Mikio** (*Chief Scientist, National Research Institute of Far Sea Fisheries, Japan*): Antarctic Research Program by the R/V Kaiyo Maru of the Japanese Fisheries Agency in 1993/1994 Season
- **Kim, Suam** (*Chief Scientist, Polar Biological Sciences Group, Polar Research Center, KORDI, Korea*): Current Structure and Future Research Plan of KORDI Antarctic Biological Research Group
- **Holt, Rennie S.** (*Chief Scientist, US AMLR Program, USA*): The US Antarctic Marine Living Resources (AMLR) Program
- **Naito, Yasuhiko** (*Head, Division of Data Collection and Process, National Institute of Polar Research*): The Activities of Japanese Antarctic Research Program