

**Program of the 14th Symposium on Polar Biology  
held at the National Institute of Polar Research, Tokyo,  
December 4-5, 1991**

**—Contributed Papers—**

**—Keynote Address I.—**

**“Foraging Ecology of Seabirds and Marine Mammals”**

- S1. Distributional characteristics of Antarctic krill in the foraging area of penguins and Antarctic fur seals at Seal Island. T. ICHII, H. ISHII and M. NAGANOBU.
- S2. Foraging behavior and dive bout of chinstrap penguin at Seal Island, Antarctica in 1990/1991. Y. MORI, T. ICHII, J. BENGTSON, D. CROLL and Y. NAITO.
- S3. Breeding and foraging ecology of Adélie penguins. Y. WATANUKI, Y. MORI, A. KATO and Y. NAITO.
- S4. Feeding ecology of fur seals and their management at Mcquarie and Heard Islands. P. SHAUGHNESSY.
- S5. Benthic foraging of male elephant seals on the Antarctic continental shelf. D. SLIP, M. HINDELL and H. BURTON.
- S6. Current occurrence of Cetacea in the Antarctic: Results from the IWC/IDCR Southern Minke Whale Assessment Cruises, 1978/79-1987/88. F. KASAMATSU, G. JOYCE, P. ENSOR and J. MERMOZ.

**—Keynote Address II.—**

**“Terrestrial Ecosystems in King George Island”**

- S7. Floristic characteristics of lichens of King George Island. M. INOUE.
- S8. Freshwater algae from the Fildes Peninsula, King George Island. S. OHTANI.
- S9. A revision of the bryophile algae in the Fildes Peninsula, King George Island, Antarctica. F. CHEN, X. LI and J. LIU.
- S10. A revision of the family Amblystegiaceae in the Fildes Peninsula, King George Island, Antarctica. X. LI and F. CHEN.
- S11. Microclimate and photosynthesis of moss communities in King George Island. T. NAKATSUBO.
- S12. Moss flora in the King George Island, South Shetland Islands. H. KANDA.

**Special presentation**

New significance for Antarctic biological collections. S. RUSSELL.

**—Poster Session I. Marine Biology—**

**A. Physical Chemical Environments / Primary Production**

- P1. On the Effects of shape of sediment traps for determination of vertical flux of particles: Preliminary results. S. TAGUCHI, H. SATO and H. KASAI.
- P2. Outlines of the sixth Antarctic Ocean survey cruise of R/V KAIYO MARU in 1990/91. M. NAGANOBU, T. ICHII and H. ISHII.
- P3. Characteristics of oceanographic structure in the waters around the South Shetland Islands during R/V KAIYO MARU cruise. M. NAGANOBU, T. ICHII, H. ISHII, K. KATAYAMA and K. NASU.
- P4. Distribution and composition of particulate matter near the South Shetland Islands during R/V KAIYO MARU cruise. A. SHIOMOTO, M. NAGANOBU, T. ICHII and H. ISHII.
- P5. Study of underwater spectral irradiance using MER-1032 in the waters around the South Shet-

- land Islands during R/V KAIYO MARU cruise. K. MAHAPATRA, S. MATSUMURA, Y. OKADA, H. ISHII, T. ICHII and M. NAGANOBU.
- P6. Bio-optical studies in south-west Atlantic sector of Antarctic Ocean. K. MAHAPATRA, S. MATSUMURA, Y. OKADA, Y. SUGIMORI and T. ICHII.
- P7. Distribution of nutrients and chlorophyll a in the waters around the South Shetland Islands during R/V KAIYO MARU cruise. H. ISHII, T. ICHII, M. NAGANOBU and K. KOMORI.
- P8. Determination of pigments in the sediments of the Ongul Strait by LC-MS. H. KAMEYAMA, H. SASAKI and K. MORIWAKI.
- P9. Phosphatase activity under the Antarctic fast ice with special reference to temperature dependency. O. MATSUDA, S. ISHIKAWA and K. KAWAGUCHI.
- P10. Do phytoplankton in the Antarctic Ocean adapt to the cold environment? T. YAMAMOTO.
- P11. Nanoplankton in Austral summer in Great-wall Bay, King George Island, Antarctica. B. CHEN.
- P12. Distribution of bacterioplankton, nanoplankton and microzooplankton at the surface in the Southern Ocean in March, 1991. M. ISHIYAMA, J. HIROMI, S. KADOTA and A. TANIMURA.

#### B. Zooplankton / Krill / Fish

- P13. Ecology of *Calanoides acutus* and *Calanus propinquus* (Copepoda) in the Prydz Bay, Antarctica: I. Vertical distribution. A. TANIMURA, U. WATANABE, G. HOSIE, S. NICOL and T. KUBOTA.
- P14. Ecology of *Calanoides acutus* and *Calanus propinquus* (Copepoda) in the Prydz Bay, Antarctica: II. Gonad maturity and gut contents. U. WATANABE, A. TANIMURA, K. WATANABE, G. HOSIE, S. NICOL and T. KUBOTA.
- P15. *In-situ* feeding habits of copepodid stages of *Eucalanus bungii* in the Chukchi and northern Bering Seas in October 1988. S. OHTSUKA, S. OHAYE, A. TANIMURA, M. FUKUCHI, H. HATTORI, H. SASAKI and O. MATSUDA.
- P16. Distribution of copepods in the northern Bering Sea (Sept. 1989). H. HATTORI, H. SASAKI, T. ISHIKAWA, M. FUKUCHI and A. TANIMURA.
- P17. Distribution of euphausiid larvae in the northern Bering Sea and the southern Chukchi Sea. Y. ENDO, T. TAKAHASHI, A. TANIMURA, M. FUKUCHI, H. HATTORI, H. SASAKI and O. MATSUDA.
- P18. Gut contents of *Euphausia superba* and *Euphausia crystallorophias* in the ice-edge region along the Antarctic Peninsula. Y. NISHINO and A. KAWAMURA.
- P19. Acoustic estimation of Antarctic krill biomass near the South Shetland Islands during R/V KAIYO MARU cruise. T. ICHII, H. ISHII and M. NAGANOBU.
- P20. Biological characteristics of Antarctic krill near the South Shetland Islands during R/V KAIYO MARU cruise. T. ICHII, H. ISHII, M. NAGANOBU and N. OBITSU.
- P21. Gut contents of Antarctic krill captured in the waters around the South Shetland Islands during R/V KAIYO MARU cruise. H. ISHII, T. ICHII and M. NAGANOBU.
- P22. Cold adaptation of  $M_4$  lactate dehydrogenase from the Antarctic fish, *Trematomus bernacchii*. K. WATANABE and M. FUKUCHI.
- P23. Feeding ecology of Pacific cod, *Gadus macrocephalus*, southeastern coast of Hokkaido, Japan. O. YAMAMURA, K. WATANABE and K. SHIMAZAKI.
- P24. Larval and juvenile fishes collected by R/V KAIYO MARU near the South Shetland Island. T. IWAMI, T. ICHII, M. NAGANOBU and H. ISHII.
- P25. On the pituitary gland of the saffron cod, *Eleginops gracilis* and their cold adaptation. M. OGAWA, O. IGARASHI, A. URASHIMA and M. FUKUCHI.
- P26. Fish composition in the St. Lawrence Island Polynya area in the northern Bering Sea in summer 1990 and 1991. T. NISHIYAMA, K. MASUDA, M. YABE, M. FUKUCHI and V. ALEXANDER.

#### C. Marine Mammals Seabirds

- P27. Oceanographical analysis on the southern minke whale distribution based on the data during

- Japanese research take in 1990/91. M. NAGANOBU, H. KANO and F. FUJISE.
- P28. Distribution of marine mammals and sea birds near the South Shetland Islands during R/V KAIYO MARU cruise. T. ICHII, H. ISHII and M. NAGANOBU.
- P29. Correlation between diving depth change of Antarctic fur seal, *Arctocephalus gazella*, and estimated underwater irradiance. Y. NAITO, W. SAKAMOTO, F. TSUJIMURA and J. CROXALL.
- P30. Diving behavior of a northern elephant seal recorded by a velocity meter and a TDR. H. HAKOYAMA, Y. NAITO, B. J. LE BOEUF, W. SAKAMOTO and T. ASAGA.
- P31. Diving behavior of blue-eyed shag; comparison between incubating and chick rearing birds and annual variation. A. KATO, Y. WATANUKI, Y. NAITO and J. P. CROXALL.
- P32. Diving behavior of Weddell seals in Ongul Straits in summer. A. MANABE, Y. NAITO, Y. WATANUKI and H. OKUMURA.
- P33. Correlation between environmental water temperature and stomach temperature of the free-ranging loggerhead turtles (*Caretta caretta*). K. SATO, W. SAKAMOTO, Y. NAITO and I. UCHIDA.
- P34. Preliminary study on ecology of three species penguins. Z. FAN.
- P35. Heavy metal distribution in Weddell seals (*Leptonychotes weddellii*) from Antarctica during JARE-32. K. NODA, T. KURAMOCHI, N. MIYAZAKI and R. TATSUKAWA.
- P36. The relationship between stable isotopes and ecology of Sooty (*Puffinus griseus*) and short-tailed (*P. tenuirostris*) shearwaters in the North Pacific. H. MINAMI, M. MINAGAWA and H. OGII.
- P37. Observation on the emperor penguin rookery using satellite image techniques and tracking observation by Argos system. Y. NAITO, Y. WATANUKI, Y. YAMANOUCHI, H. KANZAWA and K. NAKAGAWA.
- P38. Growth of Adélie penguin chicks. Y. OSA, T. KURAMOCHI, Y. WATANUKI, Y. NAITO, M. MURANO, S. HAYAMA, H. ORIMA and M. FUJITA.
- P39. Foraging ecology of seabirds and marine mammals in the Weddell Sea, Antarctica C. R. JOIRIS.
- P40. Distribution and ecology of seabirds and marine mammals in the Barents and Greenland Seas. C. R. JOIRIS.
- P41. Timing of foraging by the wandering albatross *Diomedea exulans*: predation by day or scavenging by night? J. COOPER, R. P. WILSON and N. J. ADAMS.
- P42. Feeding habits of southern bottlenose whales (*Hyperoodon planifrons*). K. SEKIGUCHI, N. KLAGES, K. FINDLAY and P. B. BEST.
- P43. Weddell seal vocalizations in two fjords in the Vestfold Hills, Antarctica. M. MORRIS, K. GREEN and H. BURTON.
- P44. A remotely operating automated weighing and recording system as an aid for the study of Adélie penguins. K. R. KERRY, G. ELSE and J. CLARKE.
- P45. Gentoo penguin's diet in winter 1986 on King George Island. K. FILCEK.
- P46. Variation of inter-nest distances in colonies of the Adélie penguin (*Pygoscelis adeliae*) in the Windmill Islands, Antarctica. K. EVANS and H. R. BURTON.

#### —Poster Session II. Terrestrial Biology—

##### D. Algae/Bacteria

- P47. Floristic studies on algae from inland waters near Syowa Station, Antarctica. VI. Rumpa. A. OGUNI and E. TAKAHASHI.
- P48. Effects of temperature on the photosynthesis of Antarctic green algae. H. NAGASHIMA, M. SHIMIZU, S. OHTANI and H. MOMOSE.
- P49. Adaptation of Antarctic alga, *Dunaliella* from high salt lake to stresses of osmotic pressure, light shield and low temperature. T. WATANUKI, K. MATSUSHITA and K. KATO.
- P50. Octadecapentaenoic acid and its distribution in algae. H. OKUYAMA and K. KOGAME.

- P51. Diatom from Mildred Lake in Jasper National Park, Canada. Y. OKAMOTO, T. Ko-BAYASHI, H. FUKUSHIMA and H. FUJITA.
- P52. Diatom from Marigne Lake in Jasper National Park, Canada. T. TOGASHI, T. Ko-BAYASHI, H. FUKUSHIMA and H. FUJITA.
- P53. Diatom from Colombia ice field, Canada. T. NAKAZATO, T. Ko-BAYASHI, H. FUKUSHIMA and H. FUJITA.
- P54. Biogeochemical study of hydrocarbons in cyanobacterial mats from the McMurdo Dry Valleys region, Antarctica. G. I. MATSUMOTO, S. OHTANI, K. HIROTA, K. WATANUKI and T. TORII.
- P55. The features of fatty acids in cyanobacterial mats from the McMurdo Dry Valleys region, Antarctica. K. HIROTA, S. OHTANI and G. I. MATSUMOTO.

#### E. Invertebrates/Fungi/Mosses/Higher Plants

- P56. Tardigrades in King George Island (Antarctica). K. UTSUGI and Y. OHYAMA.
- P57. Unstable cold-hardiness of the Antarctic oribatid mite *Alaskozetes antarcticus* during the austral summer at King George Island. K. SHIMADA, C. PAN and Y. OHYAMA.
- P58. Intersitial fauna of beach sand at Fildes Peninsula in King George Island. S. HIRUTA, Y. OHYAMA and K. SHIMADA.
- P59. Isolation of yeasts from the McMurdo Dry Valleys region, Antarctica. J. NISHIKAWA, G. I. MATSUMOTO, H. NAGASHIMA and H. IZUKA.
- P60. Development of bryophytes on soil from the population of mosses in Antarctica. S. IMURA, M. HIGUCHI, H. KANDA and Z. IWATSUKI.
- P61. Chromosome study on a moss species grown in Antarctic lake. H. KANDA and H. OKADA.
- P62. Seasonal changes in reserve substances of herbaceous perennials on alpine zone of Mt. Fuji. T. KANAI and T. MASUZAWA.
- P63. Relationships among vegetation, earth hummocks, and topography in the high arctic environment of Canada. S. KOJIMA.
- P64. Freshwater microfauna around Arctowski Station, King George Island. K. JANIEC.
- P65. Influence of penguin manuring on chemical composition of *Deschampsia antarctica*. A. TATAR and A. MYRCHA.