

**Program of the 17th Symposium on Polar Biology  
held at the National Institute of Polar Research, Tokyo,  
December 7–9, 1994**

—Contributed Papers—

**Theme I: Sea Ice Ecology**

Session 1: Introduction and history

- S 1. Introductory remarks. FUKUCHI, M. and NAITO, Y.
- S 2. A study of ice biota at Syowa Station, Antarctica. HOSHIAI, T., KUDOH, S. and TANIMURA, A.
- S 3. Ice algae investigations: Historical perspective. HORNER, R.

Session 2: Primary production

- S 4. Sea ice dynamics and primary production in the Arctic. ALEXANDER, V.
- S 5. Eco-physiological aspects on sea ice algal production—On latitudinal difference of available diel light and ice algal photosynthesis-light reaction. KUDOH, S., SUZUKI, Y. and TAKAHASHI, M.
- S 6. Snow algae on Arctic pack ice floes. GRADINGER, R.
- S 7. Resistance of phytoplankton communities of the Bering and Chukchi Seas to the most widespread organic pollutants and heavy metals. BELEVICH, T. A. and KORSAK, M.N.

Session 3: Carbon cycling

- S 8. Marine snow in Antarctic coastal waters. MARCHANT, H.
- S 9. The biological CO<sub>2</sub> pump in ice cover waters. LEGENDRE, L.
- S10. Temperature dependent vertical flux of ice algae in Saroma Ko lagoon. TAGUCHI, S.

Session 4: Remote sensing application

- S11. Interrelationships of large scale biological and geophysical features of the Southern Ocean as observed from space. SULLIVAN, C. W.
- S12. Sea ice dynamics and its relation to biological production. ACKLEY, S.

Session 5: Secondary production

- S13. On the biology of sea ice animals. SPINDLER, M.
- S14. Ecology of ice-associated copepods in Antarctica. TANIMURA, A.
- S15. Cryopelagic fauna—Arctic versus Antarctic. MELNIKOV, I.

Session 6: Higher trophics

- S16. Cold adapted fishes—Antarctic fish biology. IWAMI, T.
- S17. Effect of salmon prolactin on plasma osmolality the saffron cod. OGAWA, M.
- S18. Marine mammals and ice cover in Russian Arctic. BELIKOV, S. E., BOLTUNOV, A. N. and GORBUNOV, Y.A.
- S19. Sea-ice and Adélie penguin foraging behavior: Comparison between Prydz Bay and Lützow-Holm Bay. WATANUKI, Y., KATO, A., NAITO, Y., ROBERTSON, S. and ROBINSON, S.
- S20. Breeding on sea-ice: The breeding and foraging constraints of the Emperor penguin (*Aptenodytes forsteri*). LE MAHO, Y.
- S21. Closing remarks of “Sea ice ecology”. ALEXANDER, V.

**Theme II: Polar Terrestrial Ecosystems**

- S22. Interactions between bacterial and algal communities in Antarctic soils. BÖLTER, M.
- S23. Taxonomy and ecology of snow algae. OHTANI, S.
- S24. Invertebrate survival in polar environments. BLOCK, W.

- S25. Animal community of the glacier. KOHSHIMA, S.
- S26. Vegetation at the deglaciated terrain in Spitsbergen Island. KANDA, H.
- S27. Adaptation in plants exemplified by transplantation studies at two latitudes. WIELGOLASKI and FOHUSON, E. E.

#### Poster Session I: Marine Biology

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

- P 1. Size-fractionated primary productivity at the surface in the northern North Pacific and the Bering Sea in winter. SHIOMOTO, A., NAGASAWA, K., UENO, Y., MITO, K. and NANBA, M.
- P 2. Primary production of phytoplankton during the white night in Kongs-fjord, Svalbard, Norway. YAMAGUCHI, Y., MATSUDA, O. and KUDOH, S.
- P 3. Temporal changes of microalgal and bacterial assemblages in and under the sea-ice of Saroma Ko lagoon. YASUDA, M., KUDOH, S. and FUKUCHI, M.
- P 4. Ecological studies of marine bacterioplankton in the high arctic Kong's fjord, Ny-Ålesund (Norway)—Quantitative relationships to algae and protozoan during sea ice melting in early summer 1994. YASUDA, M., KUDOH, S. and FUKUCHI, M.
- P 5. Survival and activity of the ice biota during the austral winter. GARRISON, D. L.
- P 6. The effect of Ultraviolet-B irradiation on the growth rate and DMS release of Antarctic ice alga *Phaeocystis antarctica*. YANG, H., Y., RIEGGER, L., BAUMAN, M. and KIGGT, G. O.
- P 7. Phytoplankton assemblages in the Antarctic Peninsula area. KOPCZYNSKA, E. E.
- P 8. A seasonal study of coastal marine bacteria in Admiralty Bay (Antarctica). DONACHIE, S. P.
- P 9. Seasonal changes in sea ice algae in the coastal fast ice near Zhongshan Station, Antarctica. CHEN, B. and HE, J.
- P10. Occurrence of dissolved protein molecules in the Antarctic Ocean. TANOUYE, E., ISHII, M. and MIDORIKAWA, T.
- P11. Seasonal variability in downward particulate flux under the Antarctic fast ice. SASAKI, H., SATOH, N., OGUMA, H., TANIMURA, A. and FUKUCHI, M.
- P12. Light response of ice algae assemblages in Lagoon Saroma Ko, Hokkaido, Japan. SATOH, H., KUSAKA, K. and YAMAGUCHI, Y.
- P13. Specific growth rate of ice algae and daily particulate flux as estimated from copepod feeding in ice-covered Resolute Passage, Arctic Canada. HATTORI, H. and SAITO, H.
- P14. Dynamics of phytoplankton under the Antarctic fast ice in summer. ODATE, T. and FUKUCHI, M.
- P15. Culture of *Phyllophora antarctica*, Antarctica red seaweed. OHNO, M.
- P16. The ultrastructure and phylogeny of *Mantoniella antarctica* (Prasinophyceae) from Antarctic sea. NAKAYAMA, T., KAWACHI, M. and INOUE, I.
- P17. Taxonomy and ultrastructure of two species of cryptomonads from Antarctica. ERATA, M., KAWACHI, M. and INOUE, I.
- P18. Taxonomy and phylogeny of a new species of chrysophyte from Antarctica. KAWACHI, M., NAKAYAMA, T., HONDA, D. and INOUE, I.
- P19. Isolation and microbial characterization of psychophilic and barophilic deep-sea bacteria. SAKIYAMA, T., MATSUI, H., LEE, W. and OHWADA, K.
- P20. Seasonal fluctuation of heterotrophic microflagellates in the coast near Syowa Station, Antarctica. TAKAHASHI, E.
- P21. Distribution of the planktonic foraminifer *Neogloboquadrina pachyderma* in sea ice of the eastern part of Lützow-Holm Bay, Antarctica. IGARASHI, A., NUMANAMI, H., TSUCHIYA, Y., FUKUCHI, M. and SAITO, T.
- P22. Benthic fossil foraminiferal assemblages in marine sediments in the eastern part of Lützow-Holm Bay, Antarctica. IGARASHI, A., NUMANAMI, H., TSUCHIYA, Y., HARADA, N., FUKUCHI, M. and SAITO, T.
- P23. Estimation of vertical profile of chlorophyll-a concentration around the Antarctic peninsula derived from the satellite image (Nimbus-7/czcs). KIMURA, N. and OKADA, Y.
- P24. Autonomous underwater vehicle as a survey platform for under-ice observation. SHIRASAKI, Y. and ASAKAWA, K.

**B. Zooplankton/Krill/Fish**

- P25. Distribution of laval euphausiids in the southeast Bering Sea shelf area. KOHNO, N., NISHIMURA, A., YANAGIMOTO, S., KATAKURA, S. and NISHIYAMA, T.
- P26. Deep-sea caridean shrimps collected during JARE-35 Expedition. KOMAI, T., TAKEUCHI, I. and TAKEDA, M.
- P27. Inshore fauna of Fildes Bay, King George Island., Antarctica. SAKURAI, H., ARAI, H., TAKASAKI, A., TADA, S., HORI, H., KODAMA, M., KIMPARA, I., MATSUYAMA, T. and SATO, T.
- P28. Benthos and fish community associated with clumps of submerged drifting algae in Fildes Bay, King George Island, Antarctica. TADA, S., KODAMA, M., KIMPARA, I., SATOH, T., ARAI, H. and SAKURAI, H.
- P29. Relationships between mouthpart structures and in site feeding habits of five neritic calanoid copepods in the Chukchi and northern Bering Sea in October 1988. OHTSUKA, S., SHIMOZU, M., TANIMURA, A., FUKUCHI, M., HATTORI, H., SASAKI, H. and MATSUDA, O.
- P30. Distribution of marine cladocerans in the Northern Bering Sea and the Chukchi Sea. ONBE, T., TANIMURA, A., FUKUCHI, M., HATTORI, H., SASAKI, H. and MATSUDA, O.
- P31. Systematic status of *Eubrachilla*, a genus of Copepoda parasitic on Antarctic teleosts. HO, J. and TAKEUCHI, I.
- P32. Record of benthos collected with a bait trap at Syowa Station, Antarctica. HOSHIAI, T. and NUMANAMI, H.
- P33. Vertical distribution of benthic octopods in the Antarctic shelf waters. KUBODERA, T., NUMANAMI, H., IWAMI, T. and OKUTANI, T.
- P34. Benthic gastropods and bivalves collected by 33rd, 34th and 35th JARE. NUMANAMI, H., OKUTANI, T., IWAMI, T., TAKEUCHI, I., TUCHIYA, Y., IGARASHI, A. and FUKUCHI, M.
- P35. Benthic gastropod fauna around Syowa Station and adjacent waters, Antarctica. NUMANAMI, H., OKUTANI, T. and HOSHIAI, T.
- P36. Baited trap system carried out during JARE-35th Cruise. TAKEUCHI, I., MIYAZAKI, T., KAWACHI, M. and WATANABE, K.
- P37. Food web structure of demersal fish assemblages: trophic pathways and anthropogenic influence. YAMAMURA, O. and INADA, T.
- P38. The visual acuity of *Trematomus bernacchii*. MIYAZAKI, T., IWAMI, T. and NAITO, Y.
- P39. Record of *Dissostichus mawsoni* NORMAN and *Aethotaxis mitopteryx* DEWITT from Syowa Station, Antarctica. TANIMURA, A., MIYAMOTO, Y., IWAMI, T., NUMANAMI, H., TSUCHIYA, Y., IGARASHI, A. and FUKUCHI, M.
- P40. Stomach contents of a nototheniid fish, *Pagothenia borchgrevinki* (BOULENGER) at Syowa Station, Antarctica. IWAMI, T., NUMANAMI, H. and HOSHIAI, T.
- P41. Feeding behavior of fishes of the family Artedidraconidae (Pisces, Notothenioidei). IWAMI, T., NUMANAMI, H. and NAITO, Y.
- P42. Fishes caught along with the Antarctic krill in the vicinity of the South Shetland Islands during the austral summer months of 1994. IWAMI, T.
- P43. Ice as an agent for dispersal of Antarctic fish? WHITE, M. G. and MURPHY, E. J.
- P44. On the behaviour and food detection of the Antarctic fish *Ophthalmolycus concolor* (Zoarcidae) FANTA, E., MEYER, A.A. and SANTANNA, F.
- P45. Tracking of emerald rock cod using ultrasonic pinger at Syowa Station. MIYAMOTO, Y., HAN, J., HAMADA, E. and TANIMURA, A.
- P46. Vertical movement of the flounders off the coast of Niigata, Japan Sea. IWAO, K., NASHIDA, K., NAITO, Y. and KANAMARU, S.
- P47. Changes in swimming behavior of free ranging flounders in relation to ampient temperature. NASHIDA, K., IWAO, K., KANAMARU, S. and NAITO, Y.

**C. Seabirds/Marine Mammals**

- P48. Diving pattern and stomach temperature of foraging king cormorant. KATO, A., NAITO, Y.(NIPR), NISHIUMI, I., WATANUKI, Y. and SHAUGHNESSY, P.
- P49. Individual variation in the diving pattern of male and female king cormorants. KUROKI, M., KATO,

- A., WATANUKI, Y., SHAUGHNESSY, P., INO, Y. and NAITO, Y.
- P50. Diving behavior of harbour porpoises and their ambient temperature in southern Hokkaido 1994. NAITO, Y., OHTANI, S., KAWAMURA, A., NISHIWAKI, S., KAWASAKI, M. and ONO, N.
- P51. Trace element concentrations in tissues of the hatching year and adult Adélie penguins. YAMAMOTO, Y., KANESAKI, S., KURAMOCHI, T., MIYAZAKI, N., WATANUKI, Y. and NAITO, Y.
- P52. Ultrasonographic visualization of inner organs of penguins. SEINO, S., HORI, H. and TSUTSUI, K.
- P53. Diving record in relation to water temperature in the harbor porpoise (*Phocoena Phocoena*) in Funka Bay, Hokkaido. OHTANI, S., NAITO, Y., KAWAMURA, A., NISHIWAKI, S., KAWASAKI, M. and KATO, A.
- P54. Oceanographical analysis on the southern minke whale distribution based on the data during Japanese research take in 1993/94. NAGANOBU, M., KANO, H. and FUJISE, Y.
- P55. Establishment of a model for diurnal variation of feeding activity of the Antarctic minke whale. KUWAHARA, S. and OHSUMI, S.

#### Poster Session II: Terrestrial Biology

##### D. Bacteria/Cyanobacteria

- P56. Low-temperature inducible expression of the gene encoding isocitrate dehydrogenase of a psychrophilic bacterium, *Vibrio* sp. strain ABE-1. FUKUNAGA, N., SUZUKI, M., SAHARA, T., TSURUHA, J. and TAKADA, Y.
- P57. The isolation of fungi from the McMurdo Dry Valleys region, Antarctica. NISHIKAWA, J. and IIZUKA, H.
- P58. Comparative physiology of cyanobacteria from thermal extremes, Antarctica and hot spring. SHIMIZU, A. KIMURA, K. and WATANUKI, T.
- P59. Long-chain and branched hydrocarbons in cultured microalgae and cyanobacteria from Antarctica. MATSUMOTO, G. I., YAMADA, S., OHTANI, S., NAGASHIMA, H., FUJII, M., AIDA, H. and SATO, H.
- P60. Development of picocyanobacterial bloom in pelagic zone of southern Lake Baikal. KATANO, T., WATANABE, Y., MOLOGAWAYA, O. and DRUCKER, V.

##### E. Algae

- P61. Soil algae in Antarctic region. NAKANO, T., IHDA, T., OHTANI, S. and DEGUCHI, H.
- P62. Soil algae from Syowa Station area. OHTANI, S. and NAKANO, T.
- P63. How to glycerol is synthesized with carbon source in Antarctic Dunaliella. WATANUKI, T., MATSUSHITA, K., NISHINA, M., HORI, E., SUMIYA, K. and KATO, K.
- P64. Diatoms from Tierra del Fuego. FUKUSHIMA, H., KOBAYASHI, T., YOSHITAKE, S. and FUJITA, H.
- P65. Diatoms epiphytic on moss communities at the summit of Mt. Fuji. MATSUSAKA, T. and OHTANI, S.
- P66. Temperature characteristics of an Antarctic green alga *Chlorella* and the lipid composition. NAGASHIMA, H., KIJIMA, S., OHTANI, S., MATSUMOTO, G. I. and MOMOSE, H.
- P67. Taxonomical studies on some species of Chaetophorales in Antarctica. IHDA, T., NAKANO, T., OHTANI, S. and DEGUCHI, H.

##### F. Lichens/Mosses

- P68. Photobionts isolated from some Antarctic lichens. AOKI, M., NAKANO, T., KANDA, H. and DEGUCHI, H.
- P69. Lichen communities in Yukidori Valley, Langhovde. INOUE, M.
- P70. The human impact on terrestrial ecosystems in West Antarctica. OLECH, M.
- P71. Vegetation on the moraine of the glacier foreland in Spitsbergen Island. KANDA, H., MINAMI, Y. and KIBE, T.
- P72. Estimation of the decomposition rates of moss layers in boreal and subalpine forests. NAKATSUBO, T., UCHIDA, M., HORIKOSHI, T. and NAKANE, K.
- P73. Photosynthesis and products in *Rhacomitrium canescens* var. *ericoides* on alpine zone of Mt. Fuji. SAKAI, N., MASUZAWA, T., NAKATSUBO, T. and KANDA, H.

**G. Higher Plants/Invertebrates**

- P74. Growth of two *Carex* species in Spitsbergen Island. KIBE, T., MASUZAWA, T. and KANDA, H.
- P75. *Saxifraga oppositifolia* at the deglaciated terrain. MASUZAWA, T., KIBE, T. and MINAMI, Y.
- P76. Periglacial process and vegetation around Ny-Ålesund, Spitsbergen. SAIGUSA, S., SAWAGUCHI, S., MASUZAWA, T. and KANDA, H.
- P77. Relationship between species composition in *Dryas octopetala* L. community and environmental factors at glacial retreat area. MINAMI, Y., KANDA, H. and MASUZAWA, T.
- P78. Structure of *Eriophorum* tussock tundra in northern Yukon Territory, Canada. KOJIMA, S.
- P79. Water relations of *Pinus pumila* in the snow melting season at the alpine region of Mt. Tateyama. MARUTA, E., NAKANO, T., ISHIDA, A., IIDA, H. and MASUZAWA, T.
- P80. A botany based bioclimatology map of the Truelove area, Devon Island, arctic Canada. ELVEBAKK, A.
- P81. Mutants selected from natural population of *Chymomyza costata* in eastern Siberia. SHIMADA, K. and WATABE, H.