Program of the 16th Symposium on Polar Biology held at the National Institute of Polar Research, Tokyo, December 1–3, 1993

—— Contributed Papers ——

Theme I: SARES (Saroma-Resolute Study) Program in the Arctic Sea Ice Areas within the Framework of Japan-Canada Complementarity Study

S 1. Activities of Japan-Canada SARES program in 1991–1993. M. FUKUCHI, M. TAKAHASHI and L. LEGENDRE.

S 2. Comparative study of atmospheric and oceanographic characteristics above/under first-year ice at low and high latitudes in the Arctic. K. SHIRASAWA and R. G. INGRAM.

S 3. Primary production and the microbial food web: comparative study under first-year ice at low and high latitudes in the Arctic. S. DEMERS and L. FORTIER.

S 4. Zooplankton and larval fish community development: comparative study under first-year sea ice at low and high latitudes in the Arctic. L. FORTIER and S. DEMERS.

S 5. Characteristics of sea ice algal community and production in Saroma Ko lagoon and Resolute Passage. S. KUDOH.

S 6. Characteristics of photosynthesis and growth of ice algae collected in Saroma Ko lagoon and Resolute Passage. Y. SUZUKI, M. TAKAHASHI and S. KUDOH.

S 7. Effect of low salinity on survival of ice algae in Saroma Ko lagoon, Japan. S. TAGUCHI, R. SMITH and K. SHIRASAWA.

S 8. Effects of nitrogen enrichment under different concentrations of silicate on the end products of photosynthesis by Ice algae from Resolute Passage, Canadian Arctic. S. TAGUCHI and R. SMITH.

S 9. Vertical distribution of photosynthetic pigments characterized by HPLC under the ice of Lake Saroma. H. SAKOH, O. MATSUDA, N. RAJENDRAN and T. YAMAMOTO.

S10. Diel changes in vertical distribution and feeding activity of copepods in ice-covered Resolute Passage, Canadian Arctic. H. HATTORI and H. SAITO.

S11. Diel vertical migration and feeding rhythm of copepods under sea ice at Saroma Ko lagoon. H. SAITOH and H. HATTORI.

Summary of SARES Program-its achivement and future prospect. M. TAKAHASHI.

S12. Species diversity, abundance and community structure of benthic macroalgae in Maxwell Bay, King George Island, Antarctica. H. CHUNG and Y. S. OH.

Theme II: SIEFS (Sea Ice Ecology and Flux Study) Program in the Antarctic Areas

S13. JARE-SIEFS activities started from 1991. M. FUKUCHI, Y. NAITO and M. TAKAHASHI.

S14. Hydrocarbons in the suspended and sinking particles collected from Lützow-Holm Bay, Antarctica. N. HANDA and N. HARADA.

S15. Organic material record of marine sediment in Lützow-Holm Bay, Antarctica. N. HARADA, N. HANDA and M. FUKUCHI.

S16. Understanding the paleoceanographic change of the Antarctic sea ice zone based on the foraminiferal assemblages. A. IGARASHI, H. NUMANAMI, Y. TSUCHIYA, M. FUKUCHI and T. SAITOH.

S17. Respiration rate and ammonia excretion rate of *Neobuccinum eatoni* SMITH (Gastropoda: Buccinidae). H. NUMANAMI, S. SEGAWA, M. FUKUCHI, Y. TUCHIYA and A. IGARASHI.

S18. Benthic mollusks collected by the 33rd and 34th JARE from Syowa Station and pack ice zone in the Lützow-Holm Bay, Antarctica. H. NUMANAMI, T. OKUTANI, T. IWAMI, M. FUKUCHI, Y. TSUCHIYA and A. IGARASHI.

S19. A record of a large female specimen of *Priapulus tuberculatospinosus* BAIRD, 1968 (Priapul-

ıda) from the shallow water depth of the Lützow-Holm Bay, Antarctica. T. IWAMI, H. NUMANAMI, Y. TSUCHIYA and A. TANIMURA.

S20. Contributions to the bottom fish fauna of Lützow-Holm Bay, Casey Bay and Prytz Bay, East Antarctica. T. IWAMI and Y. NAITO.

Theme III: Antarctic Terrestrial Invertebrates under the Program of Yukidori Valley (SSSI) Study

S21. Introduction to the terrestrial invertebrates around Syowa Station. Y. OHYAMA.

S22. Studies on the terrestrial nematodes in the vicinity of Syowa Station, Antarctıca. K. KITO, Y. OHYAMA, Y. SHISHIDA and H. FUKUDA.

S23. Terrestrial Tardigrade in Syowa Station of Antarctica. K. UTSUGI and Y. OHYAMA.

S24. Ecophysiology of the free-living mites around Syowa Station in East Antarctica. H. SUGAWARA, H. FUKUDA and Y. OHYAMA.

S25. Terrestrial invertebrates in the Asuka Station area. S. HIRUTA and Y. OHYAMA.

Poster Session I: General marine biology based on SARES theme

A: Sea Ice Ecology in Saroma Ko and Resolute Passage

P 1. Dissolved organic carbon in sea ice and seawater of Saroma Ko and Resolute Passage. R. E. H. SMITH, M. GOSSELIN, B. ROBINEAU and S. TAGUCHI.

P 2. Bacterial and viral dynamics in Arctic sea ice during the spring bloom near Resolute, N. W. T. R. MARANGER, D. F. BIRD and S. K. JUNIPER.

P 3. Why do heterotrophic flagellates proliferate under bacterıa-limiting conditions in sea ice-communities? T. SIME-NGANDO, S. K. JUNIPER and R. E. H. SMITH.

P 4. The microbial food web associated with the ice algae community: Biomass and bacterial grazing activity of nanoprotozoans ın Resolute Passage (high Canadıan Arctic). I. LAURION, S. DEMERS and A. VÉZINA.

P 5. Spatial heterogeneity of microalgal biomass in first year sea-ice of Saroma Ko lagoon and an ırradiance index for the measure of ın-situ pigment concentration. B. ROBINEAU, M. KISHINO and L. LEGENDRE.

P 6. Species composition of ice algal assembleges ın Saroma Ko lagoon and Resolute Passage, 1992. K. KIKUCHI-KAWANOBE and S. KUDOH.

P 7. Comparison of mıcrobial community structure in surface sediments of Lake Saroma wıth Seto Inland Sea. N. RAJENDRAN, O. MATSUDA and H. SAKOH.

P 8. Effect of UV-radiatıon on the photosynthetic activity of micro-algal assemblages in and lagoon Saroma Ko, Hokkaido, Japan, and Kongs-fjord, Svalbard, Norway. T. MIYAHARA, S. KUDOH, K. WATANABE and H. SATOH.

Presentation of P9 was withdrawn.

P10. Tidal transport and recruitment of marine fish larvae to ice-covered Saroma Ko lagoon. M. FORTIER and L. FORTIER.

P11. Structural features of macrobenthic communities in lagoon lakes of Northeastern Hokkaido with comparison of freezing and warm seasons. R. KUWABARA.

Poster Session II: General marine biology including presentaitons based on SIEFS theme

B: Physical/Chemical Environments/Primary Production

P12. Characteristics of oceanographic structure along 60°W in the Southern Ocean. M. NAGANOBU, M. HISANAGA and Y. SHIMADZU.

P13. Physical and chemical properties of the Southern Ocean-Analyses wıth the surface water monitoring system. T. ODATE, and M. FUKUCHI.

P14. Vertical transport of fatty acids and hydrocarbons in Breid Bay, Antarctica. N. HANDA, K. HAYAKAWA and N. IKUTA.

P15. Distribution of picophytoplankton in the Southen Ocean. T. ODATE and M. FUKUCHI.

P16. Ecological studies of marine bacterioplankton in the high arctic Kongs-Fjord, Ny Ålesund (Norway)—Changes in abundance and growth rate just after melting of sea ice in early

summer—. M. YASUDA, S. KUDOH and M. FUKUCHI.

P17. Changes in lipid composition with the life cycle of prymnesiophyte strain B, a cold stenothemic alga from Antarctic water. H. OKUYAMA, N. MORITA and K. KOGAME.

P18. Seasonal changes of primary production and environments in lake Abashiri, eastern Hokkaido, Japan. H. ASAMI, K. IMADA, R. YASUTOMI, T. IZAWA, S. SAKAZAKI and T. KAWAJIRI.

P19. Size composition of chlorophyll *a* at the surface water in the northern North Pacific and the Bering Sea in winter. A. SHIOMOTO, K. MITO, K. NAGASAWA, Y. UENO and M. NANBA.

P20. Distribution and composition of phytoplankton in the waters north of the South Shetland Islands. K. KATAYAMA, T. ICHII, M. NAGANOBU and H. ISHII.

P21. Distributions of free amino acids from ice biota in sea and lake ice cores in Antarctica. H. YANG.

P22. Matter in the Admiralty Bay area (King George Island, Maritime Antarctic). S. RAKUSA-SUSZCZEWSKI.

P23. Estimation of phytoplankton pigment concentration in the Antarctic ocean derived from satellite image (Nimbus-7/CZCS). N. KIMURA, Y. OKADA, T. ICHII, S. MATSUMURA and Y. SUGIMORI.

C: Zooplankton/Krill/Fish

P24. Investigations of under-ice zooplankton collected on Russia-USA ice-drift station in the western Weddell Sea (February–May 1992). I. MELNIKOV and L. MENSHENINA.

P25. Winter gut contents of Antarctic krill *Euphausia superba* DANA collected in the South Georgia area. Y. NISHINO and A. KAWAMURA.

P26. Distributional ecology of Antarctic krill in the Atlantic sector of the Southern Ocean in the austral summer of 1987/88. Y. ENDO and T. ODA.

P27. On the species and its characteristic distribution of copepods from squid fishing ground off Argentina. N. SAITO and T. KUBOTA.

P28. Three species of isopod crustaceans collected from Breid Bay and Lützow Holm Bays, Antarctica, during the JARE-26 cruise (1). N. NUNOMURA.

P29. Distribution of salps near the South Shetland Islands; Their segregated distribution patterns to Antarctic krill. J. NISIKAWA, M. NAGANOBU, T. ICHII, H. ISHII, M. TERAZAKI and K. KAWAGUCHI.

P30. Benthic populations of the shallow hard bottoms off Terra Nova Bay (Ross Sea, Antarctica): Quatitative and functional studies in relation to environmental conditions. M. C. GAMBI, L. MAZZELLA, M. C. BUIA, M. LORENTI, G. F. RUSSO and M. B. SCIPIONE.

P31. Physico-chemical comparison between the antarctic icefish and the litoral migration fish near Japan: I: Studies on the absence of porphyrin respiratory pigments in the blood of the Antarctic icefish *Chaenocephalus aceratus* with reference to the accumulation of trace elements. M. ISHIKAWA and K. NAKAMURA.

P32. Seasonal difference on the plasma osmolalities of some teleosts in high-latitude cold-water. M. OGAWA, Y. WADA, Y. MATSUURA and M. FUKUCHI.

P33. Occurrence of scorpaeniform larval in a glaciated fyord of the gulf of Alaska during spring period. M. MUNEHARA, J. M. PAUL and A. J. PAUL.

P34. Branchial structure of Antarctic Notothenidae fish (Nototheniops nudifrons, *Notothenia gibberifrons* and *Trematomus newnesi*) stressed by salinity change. E. FANTA, M. F. LUVIZOTTO and A. A. MEYER.

D: Marine Mammals/Seabirds

P35. Functional morphology of the diving seabirds. Y. OSA and M. MURANO.

P36. Annual change of food and breeding behavior of Japanese cormorant. A. KATO, Y. WATANUKI, Y. NAITO and M. MURANO.

P37. Bioenergetics of Sooty Shearwaters during nonbreeding season. K. SHIOMI, H. OGI and H. MINAMI.

P38. Isolation and antibiotic sensitivity of Enterobacteriaceae from faces of wild Antarctic Weddell Seal (*Leptonychotes weddelli*). Y. HANAFUSA and F. KONDO.
P39. Deployment and recovery experiment of data tag on harbor porpoise. Y. NAITO, A. KAWAMURA, S. NISHIWAKI and M. KAWASAKI.
P40. Segregation of the pygmy blue whale from the ordinary blue whale in the Southern Hemisphere. H. KATO, S. B. REILLY and H. SHIMADA.
P41. Oceanographical analysis on the southern minke whale distribution based on the data during Japanese research take in 1992/93. M. NAGANOBU, H. KANO and Y. FUJISE.
P42. Occurrences and abundances of odontocetes in the Antarctic. F. KASAMATSU.

Poster Session III: General terrestrial biology

E: Bacteria/Algae/Lichens/Mosses

P43. The isolation of bacteria form the McMurd Dry Valleys regions, Antarctica. J. NISHIKAWA and H. IIZUKA.
P44. Development of detection system of soil microorganisms. Y. KAWASAKI, T. TSUJI, M. MORIMOTO, I. TAKAHASHI, J. KOIKE and Y. OSHIMA.
P45. Biogeochemical features of hydrocarbons and fatty acids in cultured cyanobacteria and microalgae from Antarctica. G. I. MATSUMOTO, P. BROADY, J. YAMAGISHI, S. OHTANI, H. NAGASHIMA, N. TAKAMATSU and M. IMAHASHI.
P46. Adaptation of an Antarctic green alga *Chlorella* to the temperature and the lipid composition. H. NAGASHIMA, S. KOSUGE, G. I. MATSUMOTO and H. MOMOSE.
P47. Morphological and Biochemical changes in Antarctic *Dunaliella* sp. exposed to hyper or hypotonic salt stresses. T. WATANUKI, S. NAKAMURA, K. MATSUSHITA, M. NISHINA, E. HORI and K. KATO.
P48. Diatoms in the past lacustrine of Lake South-Yukidori, Langhovde, Antarctica. T. MATSUSAKA, S. OHTANI and M. HAYASHI.
P49. Diatoms from the Yukidori Valley, Langhovde, Antarctica. S. OHTANI, T. MATSUSAKA and M. OHNO.
P50. Temperature characteristics of photobionts isolated from alpine lichenes. T. IIDA and T. NAKANO.
P51. The stages of lichen succession and weathering of rocks in Mt. Hotakadake, Northern Japan Alps. M. IWAFUNE.
P52. Distribuion of mosses and lichens in West Ongul—For a long-term monitoring. M. INOUE and H. KANDA.
P53. Production of sexual organs on mosses in Antarctica. S. IMURA, T. KIBE, M. HIGUCHI, H. KANDA and Z. IWATSUKI.
P54. Moss vegetation in Spitzbergen Island. K. KANDA, S. IMURA and T. KIBE.

F: Higher Plants/Invertebrates

P55. Ecological and physiological studies of Leguminosae plants on alpine and polar regions. T. MASUZAWA, H. FUJII and T. KIBE.
P56. Study of possible adaptation mechanism on alpine zone by comparing gene structure of *Polygonum cuspidatum* chloroplast DNA. Y. YODA, K. YOSHINAGA and T. MASUZAWA.
P57. Seed germination and seedling growth of *Carex doenitzii* growing on Mt. Fuji. T. KIBE, S. IMURA, H. KANDA and T. MASUZAWA.
P58. Gas exchange characteristics of center and marge leaves in a dwarf patch of *Rhododendron aureum*. T. NAKANO, S. SEKIKAWA and A. ISHIDA.
P59. High vacuum tolerance of tardigrades. K. UTSUGI and K. NODA.
P60. Habitat temperature and locomotor activity of the continental antarctic mite, *Maudeimia*. D. MARSHALL, I. P. NEWTON and J. E. CRAFFORD.
P61. Distribution and cold-hardiness of *Chymomyza costata*. K. SHIMADA.