


PICES

North Pacific Marine Science Organization (PICES)

Third Annual Meeting

program

 October 15-24, 1994

Nemuro, Hokkaido, Japan

Day / Time	Events				
15th 08:30 - 12:30 13:30 - 17:30 19:00 - 21:00	PICES-GLOBEC Workshop				
	PICES-GLOBEC Workshop				
	PICES/GLOBEC Reception ¹				
16th 13:30 - 17:30	Nemuro Program (Public Lecture and Panel Discussion with citizens of Nemuro)				
17th 08:30 - 12:30 13:30 - 17:30	PICES-GLOBEC Workshop				
	PICES-GLOBEC Workshop				
18th 08:30 - 11:00 11:00 - 12:30 13:30 - 17:30 19:00 - 21:00	Opening Session		Children's Program (10:00 - 12:00)		
	Gov. Council Meeting *				
	BIO Topic Session	MEQ Papers	F & A Meeting *		
	Reception ²				
19th 08:30 - 12:30 13:30 - 14:30 14:30 - 17:30	FIS Topic Session		POC Papers		
	Science Board Meeting *		F & A Meeting * (to 17:30)		
	BIO Business Meeting	FIS Business Meeting	MEQ Business Meeting	POC Business Meeting	
	Science Board Symposium				
20th 08:30 - 12:30 13:30 - 17:30 19:00 - 21:00	Gov. Council Meeting *	BIO Business Meeting	FIS Business Meeting	MEQ Business Meeting	POC Business Meeting
	Reception ³				
	Summary Session				
21st 08:30 - 12:30 13:30 - 17:30 17:30 - 18:30 19:00 - 21:00	POC Topic Session		FIS Papers		
	MEQ Topic Session		BIO Papers		
	Farewell Party ⁴				
	Summary Session				
22nd 08:30 - 12:30 13:30 - 17:30 19:00 - 21:00	PICES-STA Monitoring Workshop (08:45 - 12:00)		Science Board Meeting *		
	PICES-STA Monitoring Workshop (13:00 - 18:00)		Science Board Meeting *		
	Reception ³ Chairman's Party				
	Summary Session				
23rd 09:00 - 12:00 13:00 - 17:30	PICES-STA Monitoring Workshop		Science Board Meeting * (17:30 - 18:30)		
	PICES-STA Monitoring Workshop		Science Board Meeting * (17:30 - 18:30)		
24th 08:30 - 12:30	Gov. Council Meeting *				

* Closed Session

¹ hosted by the Japan Fisheries Agency

² hosted by the Government of Japan

³ hosted by Hokkaido Prefecture

⁴ hosted by the Nemuro Supporting Committee

Celebration End Of Meeting

15th Oct., 94 (Saturday)

PICES-GLOBEC Workshop:

Registration (08:00 -)

Opening Session (08:30 - 17:30)

Welcome / Opening Address by Dr. N. Brent Hargreaves

Message from host agency by Mr. Takahiro Ishikawa, Deputy Director, Japan Fisheries Agency

Keynote lecture by Dr. Warren S. Wooster (PICES). Ecosystem forcing and response

Keynote lecture by Prof. Brian J. Rothschild (GLOBEC)

Presentation of PICES-GLOBEC Science Plan by Steering Committee

Working lunch - invited paper presentations

Open discussion of PICES-GLOBEC Science Plan

PICES-GLOBEC Reception¹ (19:00 - 21:00)

16th Oct., 94 (Sunday)

PICES-GLOBEC Workshop (08:30 - 13:30):

Open discussion of Science Plan (cont'd)

Poster session

Working lunch - invited paper presentations

Nemuro Program (Public lecture and panel discussion with citizens of Nemuro) (13:30 - 17:30)

17th Oct., 94 (Monday)

PICES-GLOBEC Workshop (10:00 - 17:30):

- Distribution of revised Science Plan
- Summary and open discussion of revisions
- Open discussion of revisions (cont'd)
- How to implement Science Plan? (preliminary discussion)
- Closing remarks

18th Oct., 94 (Tuesday)

Registration (08:00 -)

Opening Session (08:30 - 11:00)

Address of welcome. (to be determined by Japanese Government)

Remarks by Chairman

Remarks by representatives of contracting parties

Announcements

Keynote lecture by Prof. Yutaka Nagata: Subarctic North Pacific Ocean in global climate system

Children's Program (10:00 - 12:00)

Governing Council* (11:00 - 12:30)

Finance & Administration Committee* (13:30 - 17:30)

Reception² (19:00 - 21:00)

STRUCTURE AND ECOSYSTEM DYNAMICS OF THE SUBARCTIC TRANSITION ZONE NORTH PACIFIC - IS THE EAST LIKE THE WEST? (13:30 - 17:30)

(Biological Oceanography Committee: Topic 3)

Conveners: Prof. Akira Taniguchi (Japan) & Dr. Richard D. Brodeur (U.S.A.)

G.I. Roden. Subarctic-subtropical transition zone in the western, central and eastern Pacific: physical processes and biological implications

I. Yasuda. Hydrographic structure of the subarctic transition zone in the northwestern Pacific

J. Polovina. Impact of 1977-88 climate event on mixed layer depth and links to ecosystem productivity in the central and north Pacific

A. Tomosada & K. Odate. Long-term variability of zooplankton biomass

PAPERS FOR THE MARINE ENVIRONMENTAL QUALITY COMMITTEE (13:30 - 17:30)

S.A. Sokolova, V.B. Gorjunova & I.A. Nemerovskaya. Distribution of the pollutants in the western part of Bering Sea

T. Yoshida. Temporal and spatial distribution of pollutants in the Tokyo Bay and its adjacent sea area

H. Yamada. New monitoring method of marine pollution with toxic chemicals accumulated in squid liver (Squid Watch)

H. Minami, M. Minagawa & H. Ogi. Changes in stable carbon and nitrogen isotope ratios in sooty (*Puffinus griseus*) and short-tailed (*P. tenuirostris*) shearwaters during their northward migration in the North Pacific

T.A. Belan & A.V. Tkalin. Responses of coastal marine ecosystems to

- and environment
- S. Ignell. Small and large-scale distribution of zooplankton within the subarctic frontal zone
- T. Wada & M. Kashiwai. Environmental changes in the western subarctic region and population fluctuations of pelagic fishes
- S. McKinnell & A. Yatsu. Trans-Pacific diversity in the North Pacific transition zone: the driftnet ecosystem
- P. Gould & P. Ostrom. Marine bird communities in the temperate North Pacific

- anthropogenic stressors
- I. Yuasa & Y. Fujioka. Limitation of COD as an indicator for the better assessment of the pollutant impact on structure of the marine ecosystem
- M.A. Vaschenko & P.M. Zhadan. Disturbance of gametogenesis of marine invertebrates as a mechanism of bottom community transformation under environmental stress
- M.J. Zhou, T. Yan, J. Li & Z.Y. Li. Impacts of organo-tin pollution on maricultured clam (*Venerupis philippinarum*)
- T. Horiguchi, H. Shiraishi, M. Shimizu & M. Morita. Imposex in Japanese gastropods and its development by tributyltin and triphenyltin from antifouling paints

19th Oct., 94 (Wednesday)

RECRUITMENT VARIABILITY OF CLUPEOID FISHES AND MACKERELS (08:30 - 12:45)

(Fishery Science Committee: Topic 4)

Conveners: Dr. Anne B. Hollowed & Dr. Tokio Wada (Japan)

- A. Bakun. "Sub-El Nino frequency" climate variability and simultaneous "Regime-scale" clupeoid fish population shifts in distant parts of the world ocean
- A.D. MacCall. Recruitment patterns of sardines, anchovies and mackerel off California and comparison with Japanese stocks
- T. Baumgartner, V. Ferreira & A. Soutar. A 1700-year perspective on recruitment variability of sardine and anchovies in the California Current
- L. Jacobson & A.D. MacCall. Stock-recruitment models for Pacific sardine
- Y. Watanabe. Mortality in egg and early larval stages of sardine *sardinops melanostictus* in the Northwestern Pacific
- K. Kuroda. On the main cause of the collapse of the Japanese sardine
- D.E. Hay & P.B. McCarter. Anatomy

PAPERS FOR THE PHYSICAL OCEANOGRAPHY AND CLIMATE COMMITTEE (08:30 - 12:30)

- W.B. Guan & Y.C. Yuan. Three dimensional numerical studies of the circulation in the northeast of the East China Sea and the area south of Japan
- C.M. Dong & Q.H. Zhang. On multiple equilibria to a low-spectrum model of oceanic current driven by the boundary force - The bimodality of Kuroshio south of Japan
- J. Garrett, H. Freeland & F. Whitney. Repeated hydrography along Line P and long term sampling at Station P
- X.J. Yuan & L.D. Talley. Characteristics and frontogenesis of the subarctic front in the North Pacific
- H. Onishi, M. Shonai, H. Miyake & M. Onishi. Interannual variations of physical properties in the western North Pacific
- A.S. Krovnin. Progression of the sea surface temperature anomalies in the North Pacific
- T. Yoshida. Variations of Oyashio cold water distribution

of a strong year class: analyses of the 1977 year class of Pacific herring in British Columbia

T. Kobayashi. Long-term fluctuation of herring populations distributed around Northern Japan and the discussion on the relationship to marine environment

D.M. Ware. Recruitment of B.C. herring: the search for limiting factors

V.G. Wespestad & N.I. Naumenko. Evidence of species replacement in the Bering Sea pelagic fish community

Q.S. Tang. Recruitment variability of pelagic stocks in the Yellow Sea, especially herring in relation to environment

Y. Sekine. A numerical experiment on the anomalous southward intrusion of the Oyashio and subarctic circulation in the North Pacific

H. Ishii & T. Takizawa. Oceanic structure around the Aleutian Islands

V. Lobanov. Statistical study of the Kuril eddies and their role in regional hydrography

Y. Kawasaki & T. Kono. On the change in water mass structure and characteristics around the Kuril Islands and the Kuril Basin from August to November, 1993

K. Uehara & H. Miyake. Current measurements of the First Branch of the Oyashio in the southeast off Cape Erimo, Hokkaido

T. Kono & Y. Kawasaki. Seasonal and inter-annual variation of the Oyashio Current velocity observed by moored current-meters

A.S. Vasiliev & F.F. Khrapchenkov. Theoretical analyses of seasonal variability of main physical fields in the Okhotsk Sea

Science Board* (13:30 - 14:30)

Finance & Administration* (13:30 - 17:30)

Scientific Committees (14:30 - 17:30)

Physical Oceanography and Climate Committee

Biological Oceanography Committee

Marine Environmental Quality Committee

Fishery Science Committee

20th Oct., 94 (Thursday)

STRUCTURE, TROPHIC LINKAGES AND ECOSYSTEM DYNAMICS OF THE SUBARCTIC PACIFIC. (08:30 - 12:30)

(Science Board: Topic 1)

Conveners: Dr. Kazuya Nagasawa (Japan) & Dr. William G. Percy (U.S.A.)

B.W. Frost. Processes regulating plankton production and its interannual variability in the open subarctic Pacific Ocean

S.R. Hare. Interdecadal climate-driven variability in salmon production: a discussion of mechanisms

W.G. Percy & J.P. Fisher. Assemblages of epipelagic fishes from the subarctic Pacific Ocean

K. Shimazaki, H. Ogi & Y. Sakurai. Distribution and food habitats of pelagic fishes in the subarctic North Pacific

A. Taniguchi. Plankton community in the subarctic Pacific unsorted pasture of the sea

- D.W. Welch, Y. Ishida, V. Bugaev, S. McKinnell & K. Myers. Growth variation and population dynamics of salmonoids in the North Pacific
- J. Murphy. Patterns in the spatial distribution of salmon (*Oncorhynchus* spp.) captured in the Pacific driftnet fishery for flying squid (*Ommastrephes Bartram*)
- P.H. LeBlond, M.C. Healey, C.J. Walters, K.A. Thomson & J. Scandol. Modelling the biophysical controls of Pacific salmon migration and production

Governing Council* (13:30 - 17:30)
 Scientific Committees (13:30 - 17:30)
 Physical Oceanography and Climate Committee
 Biological Oceanography Committee
 Marine Environmental Quality Committee
 Fishery Science Committee
 Reception³ (19:00 - 21:00)

21st Oct., 94 (Friday)

PHYSICAL PROCESSES AND MODELLING OF THE SUBARCTIC NORTH PACIFIC AND ITS MARGINAL SEAS (08:30 - 12:30)

(Physical Oceanography and Climate Committee: Topic 2)

Conveners: Prof. Yutaka Nagata (Japan) & Prof. David L. Musgrave (U.S.A.)

- J.H. Lee. An effect of freshwater input at the sea surface
- J.Y. Yun & L.D. Talley. What process sets the density of the North Pacific Intermediate Water at 26.7 - 26.8 sigma-theta
- L.D. Talley. Rate of North Pacific Intermediate Water formation
- S.C. Riser & N. Shikama. The flow-field in the intermediate layer of the Northwest Pacific as revealed from acoustically-tracked floats
- G. Yamanaka, Y. Kitamura & M. Endoh. Simulation of the North Pacific Intermediate Water formation
- Roland A. de Szoeke. Buoyancy forcing of the pycnocline in a wind-driven ocean circulation model
- V.I. Kuzin. North Pacific circulation modeling with telescoping
- M.J. Kishi. Ecosystem model for Northern Pacific
- K.L. Denman. Simulations of the subarctic Pacific planktonic foodweb with a simple one-dimensional

PAPERS FOR THE FISHERY SCIENCE COMMITTEE (08:30 - 12:30)

- T. Suzuki, K. Nagasawa & M. Kaeriyama. Feeding strategy of juvenile chum salmon (*Oncorhynchus keta*) in the Japan Sea off northern Honshu, Japan
- K. Tadokoro, Y. Ishida, N.D. Davis & S. Ueyanagi. Shift in chum salmon (*Oncorhynchus keta*) food habits due to changes in pink salmon (*O. gorbuscha*) abundance in the central North Pacific Ocean and Bering Sea
- J. Kittaka. Current research problems with the king crabs in Nemuro waters
- B.N. Kotenev. The influence of regional climate changes on marine fishery in the far east seas
- S. Kim & S. Jung. The effect of seasonal anomaly of sea water temperature and salinity on the fluctuation in bimonthly yields of yellow crocker
- D. Lluch-Belda. On the sources of recruitment variability in small pelagics
- Y. Hiyama, H. Nishida & T. Goto. Year-class strength and growth of sardine in the Sea of Japan and adjacent waters
- A.N. Ivanov. Calculation processes in the Northwestern Pacific Ocean and

- coupled physical-biological model
- Y. Yamanaka. Study of oceanic carbon cycle using ocean biogeochemical general circulation model: vertical distribution of particulate organic carbon flux in oceanic carbon cycle
- K. Rogachev, A. Bychkov, P. Tishchenko, E. Carmack, P.H. LeBlond & C.S. Wong. On the influence of tidal mixing on summer carbon dioxide partial pressure in the Oyashio area
- M.Y. Zhou. Long-range transport of aerosol black carbon from China to western Pacific
- long period fluctuations of Pacific mackerel population
- H. Miyake. Body size and distribution of 0-age walleye pollock along the Pacific coastal area of south-eastern Hokkaido in autumn, 1987-1993
- K. Mito, A. Nishimura & T. Yanagimoto. Estimation of consumption of walleye pollock by flatfish in the eastern Bering Sea during 1970 to 1985
- J. Napp, D. Siefert, L. Incze, L. Britt, P. Stabeno & S. Syrjala. Trophic linkages and interannual variability in the Alaska coastal current: larval pollock (*Theragra chalcogramma*) and the zooplankton that affect their survival
- O. Yamamura. Food web structure of demersal fish assemblages: trophic pathways and anthropogenic influence
- B.L. Norcross, F. Mütter & B. Holladay. Habitat models for juvenile pleuronectids around Kodiak Island, Alaska, U.S.A.
- V. Dulepov & M. Ermolitskaya. Mathematical modeling of processes in mariculture with regard for natural reproduction and catch

**INTERDISCIPLINARY
METHODOLOGY TO BETTER
ASSESS AND PREDICT THE
IMPACT OF POLLUTANTS ON
STRUCTURE AND FUNCTION OF
MARINE ECOSYSTEMS (13:30 -
17:30)**

(Marine Environmental Quality
Committee: Topic 5)
Conveners: Prof. Makoto Shimizu
(Japan)

- J.S. Gray. The role of biological effects monitoring in marine environmental protection
- L. Harding, R.C.H. Wilson & S. Wetmore. A marine ecosystem monitoring network for Canada
- J.X. Jiang. The changes of marine benthic communities in the bays of developing area along SE coast of China

**PAPERS FOR THE BIOLOGICAL
OCEANOGRAPHY COMMITTEE
(13:30 - 17:30)**

- T. Sugimoto, K. Tadokoro & N. Koizumi. East-west comparison of year-to-year and decadal scale variations in plankton biomass and its physical environment in the North Pacific
- A.I. Agatova, N.M. Lapina & N.I. Torgunova. Organic matter: biochemical composition and rates of transformation at the Kuril Archipelago
- N.V. Arzhanova, V.L. Zubarevitch & V.V. Sapozhnikov. Estimation of primary production in the ecosystem of western Bering Sea
- A. Shiimoto, Y. Ishida, K. Nagasawa & K. Tadokoro. Variation in phytoplankton productivity in waters

- J.E. Stein, L. Johnson, A. Olson, J.E. West, C. Prescott & U. Varanasi. Cumulative effects of anthropogenic stressors: research in a near-coastal ecosystem
- R.F. Addison. Role of biochemical indicators in assessing the impact of marine pollution
- M. Shimizu. Approaches to marine ecosystem monitoring: a case study at Tokyo Bay
- around the subarctic boundary
- S. Yoo. Primary productivity of the Yellow Sea & the East China Sea
- K. Yokouchi, A. Tomosada, Y. Matsuo & H. Sugisaki. Nutrient-chlorophyll interrelationships in the Oyashio/Kuroshio inter-frontal zone during phytoplankton bloom
- K.P. Chiang & A. Taniguchi. Distribution of diatom assemblages in a warm core ring in the western North Pacific frontal zone off Hokkaido
- N. Shiga, K. Numata & K. Fujiya. Some aspects of zooplankton community in the subarctic Pacific Ocean in summer
- Y.I. Zuenko, L.N. Bokhan & V.V. Nadtochy. Seasonal dynamics of zooplankton composition and biomass in two subarctic areas of the Pacific Ocean
- H. Saito, H. Kasai & S. Taguchi. Seasonal change in zooplankton biomass in the western subarctic Pacific off Hokkaido, Japan
- M. Kotori. Seasonal variations in the abundance and composition of Chaetognatha in the epipelagic layer off eastern Hokkaido, April 1992 to February 1993
- V.V. Navrotsky & T.A. Zadonskaya. Interrelations of eddies, fine structure and zooplankton in the Subarctic Front Zone
- A. Kawamura & S. Goto. Microscale vertical distribution of *Neocalanus plumchrus* s.l. and *N. Cristatus* in the northwestern North Pacific
- J. Seki & I. Shimizu. Food environment for some small-sized fishes in the Pacific coastal waters of Hokkaido in spring
- J.R. Bower. Spawning grounds of the squid *Ommastrephes bartramii* near the Hawaiian Archipelago
- V. Tunnicliffe. Comparison of Pacific hydrothermal vent assemblages

Summary Session (17:30 - 18:30)
Farewell Party⁴ (19:00 - 21:00)

22nd Oct., 94 (Saturday)

PICES-STA Monitoring Workshop (09:00 - 17:00):

Registration (08:00 -)

Introduction

Opening remarks: Warren S. Wooster & Yukihide Hayashi

Keynote addresses: Yasuhiro Sugimori & Melbourne G. Briscoe

K. Hanawa. Interannual to decadal scale variations in the North Pacific

L.D. Talley. Summary of variability of physical conditions in the subarctic North Pacific

V. Plotnikov. Ice-covered marginal seas. (tentative)

S.C. Riser. Space and time scales of variability in the subarctic North Pacific: implications to monitoring the system

N.B. Hargreaves. Subarctic large-scale variability: Pices-Globec perspective

S. Taguchi. Monitoring of lower trophic level variability and response to long-term forcing in the subarctic Pacific Ocean

A.B. Hollowed. GLOBEC Study: higher trophic levels. (tentative)

Science Board* (08:30 - 12:30)

(13:30 - 17:30)

23rd Oct., 94 (Sunday)

PICES-STA Monitoring Workshop (09:00 - 17:00):

Working Groups for climate variability, ecosystem response

Working Groups report in Plenary

Steering Committee et al. draft and agree to Recommendations

Provide preliminary report, recommendations to PICES

Science Board* (17:30 - 18:30)

24th Oct., 94 (Monday)

Governing Council* (08:30 - 12:30)

Poster Session (throughout the duration of meeting)

Science Board:

1. R.I. Perry, G.A. McFarlane, P. Thompson & M. Foreman. Interactions Between Continental Shelf and High Seas Ecosystems in the NE Subarctic Pacific

Physical Oceanography and Climate Committee:

1. M.A. Bogdanov. A Comparison of Sea Surface Temperature Fields in the Bering Sea During Spring-Summer Seasons of 1992-1993
2. V.B. Darnitsky, E.I. Meeshuneena & A.D. Nelezeen. Annual Variability Vertical Vortex Speeds in the Kuroshio Region in Summer (August)
3. S.V. Gladyshev. Fronts Observed Near the Kuril Islands
4. S.V. Gladyshev. Role of the Warm-Core Kuroshio Eddies in Formation of the North Pacific Intermediate Water (NPIW)

5. S.A. Gorbarenko. Paleooceanographical Features of the Northwestern Pacific, Bering Okhotsk, Japan Seas During Last 25.000 years
6. E.E. Herbeck, A.I. Alexanin. I.A. Gontcharenko, J.G. Proshjants, J.V. Naumkin & V.G. Federjakov. Regional Environmental Satellite Monitoring for Okhotsk and Japanese Seas Investigations
7. Y. Kawasaki & T. Kono. On the Seasonal and Inter-Annual Change in Dynamic Structure of the Oyashio Along the Hydrographic Line Southeast of Hokkaido
8. T. Kilmatov. The Minimum of General Entropy Production to Study the Ocean Structures
9. A. Martynov. Numerical Modeling of the Annual Circulation Variability in the Okhotsk Sea: Part 1. Barotropic Experiment
10. L.F. Muratov & I.A. Zhabin. An Estimate of Stratification Background Conditions of Sea-Water Stability in the North Pacific
11. D.L. Musgrave, V.V. Plotnikov & N.S. Vanin. Temporal and spatial variability of the temperature and salinity characteristics along 50°N
12. Y. Nagata, S. Takasugi, K. Ishida & M. Mizutani. Seasonal Variation on the Tsugaru Current and Formation of Dense Water Along the Sanriku Coast
13. L.V. Nechvolodov. Interannual Dynamics of Meridional Heat Transportation in Ocean: Investigative Techniques and Tentative Estimates
14. G.G. Panteleev. Variational Analysis of Moorings Data in the North Western Pacific
15. I.D. Rostov. Conditions for Transformation of Intermediate Waters by Diapycnal Process in the Northern Pacific
16. E.V. Samko & Yury V. Novikov. Water Structure of Active Layer in Southern Kuril Islands Region
17. S.V. Simonenko. About Noncritical Control at the Sill Crest
18. H.I. Ustinova. Variability of Wind Conditions Over the Western North Pacific in Winter Monsoon Period
19. A.S. Vasiliev. On the Complex Study of the North Pacific and Marginal Seas
20. L.P. Yakunen. A New Data About the Ice Boundary in Bering Sea
21. I.A. Zhabin, V.P. Tapinov & G.I. Yurasov. Double-Diffusive Mixing in the Slope Waters off the East Coast of the Kamchatka Peninsula and the Northern Kuril Islands
22. I.A. Zhabin & G.I. Yurasov. Some Features of the Thermohaline Structure in the Gulf of Alaska Recirculation Area
23. I.A. Zhigalov & A.L. Figurkin. Interannual Variability of Water Dynamics in Okhotsk Sea

Biological Oceanography Committee:

1. M.G. Biryulina. Peculiarities of the Coccolithophore Distribution and Quantity in the Kuroshio Influence Area and Adjacent Water Mass
2. K. Iida, T. Mukai, D.J. Hwang, T. Hayakawa & Y. Matsuyama. Visualization and Quantification of Marine Organisms and Water Front Using Hydro-Acoustics
3. H. Kasai, K. Saito & S. Taguchi. Variability in Timing and Magnitude of Spring Bloom in the Western Subarctic Pacific off Hokkaido, Japan
4. R. Kuwabara, T. Kinoshita & O. Ichihasi. Distribution pattern of macrobenthos in circalittoral zone and the bordering area of Kitami-Yamato-Tai bank, northeastern Hokkaido
5. R. Kuwabara, T. Kinoshita, O. Ichihasi & T. Mitsuzuka. Distribution of Buccinum Whelks (Gastropoda: Buccinidae) in Kitami-Yamatyo-Tai Bank and Adjacent Waters, Northeastern Hokkaido
6. V.V. Lapko. Trophic Relations in Epipelagic Ichthyocen of Okhotsk Sea
7. V.V. Lapko. Interannual and Seasonal Dynamics of Epipelagic Ichthyocen of Okhotsk Sea

8. K. Mori & Y. Nakamura. Distribution of Juveniles of the Japanese Common Squid *Todarodes Pacificus* in the Northwest Pacific off Japan
9. Y. Nakamura. Daily Vertical Movement of Neon Flying Squid *Ommostrephes Bartramii* in the Central North Pacific
10. A. Nishimura, T. Yoshimura & K. Mito. Composition and Distribution of Micronecton Collected by the Mid-Water Trawl Net During Summer in the Bering Sea
11. V.I. Radchenko. Dynamics of Nekton Trophic Linkages in Relation with the Reformation of Communities in the Bering Sea Epipelagial
12. V.V. Sapozhnikov. New Data on Biohydrochemistry of the Bering Sea
13. I. Shimizu & J. Seki. Characteristics of Water Mass and Productivity in the Pacific Coastal Waters of Hokkaido in Spring
14. V.P. Shuntov & E.P. Dulepova. New Data About Communities of Plankton and Nekton of the Far Eastern Seas in Connection with Climate - Oceanological Reorganization
15. M. Terazaki, H. Saito, H. Kasai, T. Kono, Y. Kawasaki & S. Taguchi. Horizontal Distribution and Seasonal Change of Epipelagic Chaetognath *Sagitta Elegans* in Relation to Hydrography Around the Kurile and Hokkaido Islands in the Western Subarctic Pacific Ocean
16. K. Watanabe, K. Otsuka, K. Kihara & H. Yamazaki. Hydrographic Monitoring in Conjunction with Catches from a Set-Net
17. A. Yatsu, S. Midorikawa & Y. Uozumi. Aging of Neon Flying Squid, *Ommastrephes Bartramii*, in the North Pacific
18. I. Yosho. Fecundity and Sperm Storage of *Chionoectes Japonicus* (*Brachyura*; *Majidae*) in the Sea of Japan

Fishery Science Committee:

1. A.I. Agatova & A.V. Verkhunov. The Evidence of Biological Origin of the Subarctic Waters Dissolved Oxygen Minimum in the Northwestern North Pacific
2. H. Asami & H. Hayano. Feeding Ecology of Juvenile Masu Salmon, *Oncorhynchus Masu*, in the Coastal Marine Environments of Hokkaido with Special Reference to Stomach Contents
3. R.D. Brodeur, M.S. Bushy & M.T. Wilson. Summer Distribution and Associations of Early Life Stages of the Dominant Marine Fishes in the Western Gulf of Alaska
4. S.V. Davydova. Anchovy and Sardine in the Great Peter Bay (Japan Sea)
5. E.P. Karedin. Pacific Saury Migration in Different Thermal Year Type
6. E.P. Karedin & B.N. Gagach. Changing of Species Composition Meso-Pelagic Fishes of North Pacific to "West-East" direction
7. N.C.H. Lo, P.E. Smith & J.L. Butler. Variation of Life Stage Duration and Survival Parameters as Related to Recruitment Variability of Coastal Pelagic Fishes
8. T.R. Loughlin, G.A. Antonelis, B.W. Robson & M. Kiyota. Winter migration and foraging ecology of adult male northern fur seals in the subarctic Pacific Ocean and Bering Sea
9. M.P. Metreveli & N.V. Mordasova. Estimation of Bioproductivity in the Western Bering Sea Based the Seasonal Investigations of Phytopigments
10. H. Miyake. Body Size and Distribution of 0-Age Walleye Pollock Along the Pacific Coastal Area of South-Eastern Hokkaido in Autumn 1987-1993
11. A.M. Orlov. Composition and Structure of Fish communities on the Pacific Slope of the North Kurils
12. O.S. Temnykh. Spatial Pink Salmon Differentiation During Anadromous Migration in Connection with Climatic-Oceanological Reorganizations in the Far Eastern Seas
13. A.M. Tokranov & V.V. Maximenkov. Trophic Structure of Fish Community From the Bolshaya River Estuary (Western Kamchatka)

14. K. Watanabe, K. Yabuki, T. Hamatsu & O. Yamamura. Abundance and Distribution of Demersal Fishes Along the Coast of Southeastern Hokkaido

Marine Environmental Quality Committee:

1. G.S. Borisenko. Content of Artificial Radioactive Isotopes in Hydrobionts of Japan Sea
2. G.V. Moiseychenko. Anthropogenic influence on ecosystems of Sakhalin Shelf while development of gas and oil-field deposits

PICES-GLOBEC Workshop:

1. S. Crockford. Using Prehistoric Skeletal Remains of Fishes and Marine Mammals to Investigate the Biological History of Extant Populations
2. S. Honda, M. Kashiwai & Y. Koya. Distribution of Walleye Pollock on the Shelf off Southeastern Hokkaido by Acoustic Survey

PICES-STA Monitoring Workshop:

1. A. Harashima, R. Tsuda, Y. Tanaka, T. Kimoto, H. Tatsuta & T. Hagiwara. Ferry-Based Biogeochemical Monitoring From the Marginal Seas to the Subtropical Gyre
2. Y. Senga & Y. Sugimori. Modularized Realtime Surface Water Monitoring System
3. J. Suwa, M. Kubota & Y. Sugimori. Monitoring of Subarctic Surface Fronts in 1988
4. T. Uji & T. Yoshida. Oceanographical Monitoring by the Japan Meteorological Agency