

INFORMATION

Bibliography of Salmonids published in Japan (12): 1997

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This current salmonid bibliography, distributed yearly since 1988, covers scientific publications in Japan. The former eleven issues were published in Technical Reports of Hokkaido Salmon Hatchery (Fish and Eggs), No. 157-163, Scientific Reports of Hokkaido Salmon Hatchery, No. 49-50, and Bulletin of National Salmon Resources Center, No. 1. Titles are given in English for all articles. A reprint of article may be available from the author. An author's address is shown in square brackets following the citation. This 12th issue has covered literature published in 1997. The bibliography is divided into the following sections:

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Ecology-General

97-001 White-spotted charr predation on juvenile chum salmon in coastal waters in northern Japan. Takami, T., and T. Aoyama. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 57-61. [Hokkaido Fish Hatchery, Mashike Branch, Mashike, Hokkaido 077-0216, Japan]

97-002 High water temperature influences on foraging responses and thermal deaths of Dolly Varden *Salvelinus malma* and white-spotted charr *S. leucomaenis* in a laboratory. Takami, T., F. Kitano, and S. Nakano. 1997. Fish. Sci., 63: 6-8. [Hokkaido Fish Hatchery, Mashike Branch, Mashike, Hokkaido 077-0216, Japan]

Distribution and Migrations

97-003 Long distance movements of anadromous white-spotted charr (*Salvelinus leucomaenis*) in southern Hokkaido, Japan. Aoyama, T. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 63-65. In Japanese with English summary. [Hokkaido Fish Hatchery, Kitakashiwagi 3, Eniwa, Hokkaido 061-1433, Japan]

97-004 Diurnal variation of fish numbers collected with rotary-screw traps in the Masuhiro River, northern Hokkaido, Japan. Hayano, H., M. Fujiwara, K. Sugiwaka, and J. R. Irvine. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 17-22. In Japanese with English summary. [Hokkaido Fish Hatchery, Kitakashiwagi 3, Eniwa, Hokkaido 061-1433, Japan]

97-005 Distribution of Pacific salmon (*Oncorhynchus* spp.) in the North Pacific Ocean and its adjacent seas, 1956-1966. Ishida, Y., K. Nagasawa,

- D. W. Welch, and J. P. Everson. 1997. Salmon Report Series, 42: 124-133. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-006** Salmon tagging experiments and recovery of salmon lacking adipose fin collected by Japanese salmon research vessels in the North Pacific Ocean, 1996. Ito, S., and Y. Ishida. 1997. Salmon Report Series, 42: 30-37. In Japanese/ English. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-007** The geographical distribution of fish and other aquatic organisms in Saitama Prefecture. Kanazawa, H., S. Tanaka, and K. Yamaguchi. 1997. Bull. Saitama Pref. Fish. Exp. Stat., 55: 62-106. In Japanese. [Saitama Prefectural Fisheries Experiment Station, Kitakohama 1060, Kazo, Saitama 347-0011, Japan]
- 97-008** Seasonal changes of fish fauna along the Pacific coast of Aomori Prefecture, Japan. Kawabata, A. 1997. Bull. Tohoku Natl. Fish. Res. Inst., 59: 83-94. In Japanese with English summary. [Tohoku National Fisheries Research Institute, Hachinohe Branch, 25-259 Shimomekurakubo, Same, Hachinohe, Aomori 031-0841, Japan]
- 97-009** Underwater radio-telemetry of electroencephalographic activity from the hime salmon, landlocked sockeye salmon *Oncorhynchus nerka*. Kudo, Y., M. Satou, S. Kitamura, M. Iwata, and Y. Takeuchi. 1997. Fish. Sci., 63: 687-691. [Holy Spirit Senior High School, Akita 010, Japan]
- 97-010** Fishes and cephalopods caught in the North Pacific Ocean during wintering salmon research aboard the R/V *Kaiyo maru* in January 1996. Nagasawa, K., J. Mori, Y. Ishida, and Y. Ueno. 1997. Salmon Report Series, 43: 61-65. In Japanese with English summary. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-011** The relationship between river environments and number of landlock salmon (yamame) *Oncorhynchus masou* and Japanese char (Iwana) *Salvelinus leucomaenis* inhabited in Nakatsu River. Ootomo, Y. 1997. Bull. Saitama Pref. Fish. Exp. Stat., 55: 50-61. In Japanese. [Saitama Prefectural Fisheries Experiment Station, Kitakohama 1060, Kazo, Saitama 347-0011, Japan]
- 97-012** Vertical distribution of salmon determined by an acoustic survey in the North Pacific Ocean in the winter of 1996. Sakai, J., Y. Ueno, Y. Ishida, and K. Nakayama. 1997. Salmon Report Series, 42: 60-76. In Japanese/English. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-013** The migration and growth of the marked juvenile chum salmon (*Oncorhynchus keta*) in the Pacific coastal waters off the central of Hokkaido, Japan. Seki, J., I. Shimizu, and T. Suzuki. 1997. Bull. Japan. Soc. Fish. Oceanogr., 61: 1-9. In Japanese with English summary. [National Salmon Resources Center, 2-2 Nakanoshima, Toyohira-ku, Sapporo 062-0922, Japan]
- 97-014** Oceanographic conditions and distribution of pelagic nekton in the northwestern North Pacific Ocean during the summer and fall in 1995 and 1996. Takagi, S., Y. Sakurai, Y. Kamei, T. Miyoi, K. Sakaoka, and N. Shiga. 1997. Bull. Fac. Fish. Hokkaido Univ., 48: 13-28. In Japanese with English summary. [Faculty of Fisheries, Hokkaido University, 3-1-1 Minato, Hakodate, Hokkaido 041-0821, Japan]
- 97-015** Physiology and ecology of fish migration. Proceedings of the International Symposium on Fish Migration, Lake Toya, Hokkaido, Japan, May 31-June 2, 1996. Ueda, H., and H. A. Bern. 1997. Mem. Fac. Fish. Hokkaido Univ., 44: 1-59. [Toya Lake Station, Faculty of Fisheries, Hokkaido University, Abuta, Hokkaido 049-5723, Japan]
- 97-016** Winter distribution of Pacific salmon. Ueno, Y., Y. Ishida, K. Nagasawa, and T. Watanabe. 1997. Salmon Report Series, 43: 41-60. In Japanese with English summary. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-017** Summary of wintering salmon research aboard the research vessel *Kaiyo-maru* in January 1996. Ueno, Y., Y. Ishida, A. Shiomoto, S. Urawa, K. W. Myers, J. Morris, and M. V. Koval. 1997. Salmon Report Series, 42: 38-59. In Japanese/ English. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]
- 97-018** Genetic stock identification of chum salmon

(*Oncorhynchus keta*) in the North Pacific Ocean in the winter of 1996. Urawa, S., and Y. Ueno. 1997. Salmon Report Series, 43: 97-102. [Research Division, National Salmon Resources Center, Fisheries Agency of Japan, 2-2 Nakanoshima, Toyohira-ku, Sapporo 062-0922, Japan]

97-019 Mid-winter thermal limits of Pacific salmon. Welch, D. W., J. F. Morris, and J. P. Everson. 1997. Salmon Report Series, 43: 113-114. [Pacific Biological Station, Nanaimo, B.C. V9R 5K6, Canada]

97-020 Fish fauna of the rivers in the Kumano region, Mie Prefecture, central Japan. Yamashita, T., T. Yodo, M. Okada, M. Hirose, and S. Kimura. 1997. Japan J. Ichthyol., 44: 107-111. In Japanese with English summary. [Seishi Kimura, Fisheries Research Laboratory, Mie University, P. O. Box 11, Wagu, Shima, Mie 517-0703, Japan]

Breeding and Reproduction

97-021 Status and population size of wild chum salmon juveniles in the Ohkita River. Komatsu, N., A. Oomori, and Y. Konuma. 1997. Bull. Ibaraki Pref. Freshwater Fish. Exp. Stat., 33: 33-42. In Japanese. [Ibaraki Prefectural Freshwater Fisheries Experimental Station, Tamatsukuri-machi, Ibaraki 311-3512, Japan]

Feeding, Diets, and Growth

97-022 The effect of dietary carnitine supplementation on growth of rainbow trout fingerlings. Chatzifotis, S., T. Takeuchi, T. Watanabe, and S. Satoh. 1997. Fish. Sci., 63: 321-322. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-023 Abundance of micro-animals (especially, harpacticoid copepods) during the release of juvenile chum salmon, *Oncorhynchus keta* and adult return rate into the coastal area off Mashike, Japan Sea, northern Hokkaido. Hayano, H., H. Asami, and K. Hirano. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 11-16. In Japanese with English summary. [Hokkaido Fish Hatchery, Kitakashiwagi 3, Eniwa, Hokkaido 061-1433, Japan]

97-024 Estimation of pink and chum salmon digestion coefficients based on data collected from ship-boarded experiments. Hiramatsu, K., Y. Ishida, and N. D. Davis. 1997. Salmon Report Series, 42: 110-

123. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-025 Seasonal changes in stomach contents of Pacific salmon (*Oncorhynchus* spp.). Ishida, Y., Y. Ueno, K. Nagasawa, N. D. Davis, and K. W. Myers. 1997. Salmon Report Series, 43: 85-96. In Japanese with English summary. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-026 Individual growth of released masu salmon, *Oncorhynchus masou*, in sea water. Kasugai, K., K. Naito, N. Misaka, S. Kudo, and T. Aoyama. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 53-56. [Hokkaido Fish Hatchery, Kitakashiwagi 3, Eniwa, Hokkaido 061-1433, Japan]

97-027 Is there abundant prey for salmonids in the subarctic Pacific Ocean in winter, with a special reference to survival strategy of overwintering salmonids? Nagasawa, K. 1997. Salmon Report Series, 43: 66-73. In Japanese with English summary. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-028 Additional fish predators of juvenile chum salmon (*Oncorhynchus keta*) in coastal waters of Japan, with a note on the importance as predators of juvenile masu salmon (*O. masou*). Nagasawa, K., and H. Mayama. 1997. Tech Rep. Hokkaido Salmon Hatchery, 166: 29-33. In Japanese with English summary. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-029 Feeding of rainbow trout with non-fish meal diets. Watanabe, T., V. Verakunpiriya, K. Watanabe, V. Kiron, and S. Satoh. 1997. Fish. Sci., 63: 258-266. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-030 The effect of birth date on growth of juvenile white-spotted charr *Salvelinus leucomaenis*. Yamamoto, S., H. Shinomi, and A. Goto. 1997. Fish. Sci., 63: 931-933. [Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 041-0821, Japan]

Population and Management

97-031 Optimum fishing policy by linear programming on discrete fishing equations. Akamine, T. 1997. *Fish. Sci.*, 63: 155-156. [National Research Institute of Fisheries Science, Fukuura, Kanazawa, Yokohama 236-0004, Japan]

97-032 Salmon stock assessment aboard the Japanese salmon research vessels in the North Pacific Ocean, 1996. Ishida, Y., S. Ito, G. Anma, T. Meguro, S. Takagi, Y. Kamei, N. D. Davis, and K. W. Myers. 1997. *Salmon Report Series*, 42: 1-23. In Japanese/English. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

Morphology, Taxonomy and Phylogeny

97-033 Study on development of age analyzer based on scale patterns using CCD image sensor camera. Endo, Y., O. Watarai, and M. Igarashi. 1997. *J. School Marine Sci. Tech. Tokai Univ.*, 44: 1-10. In Japanese with English summary. [School of Marine Science and Technology Tokai University, 3-20-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-034 Functional morphology of the caudal skeleton in teleostean fishes. Gosline, W. A. 1997. *Ichthyol. Res.*, 44: 137-141. [Museum of Zoology, University of Michigan, Ann Arbor, MI 48109, USA]

97-035 An attempt to identify long term reared masu salmon based on the difference in scale characteristics. Ohkuma, K. 1997. *Tech Rep. Hokkaido Salmon Hatchery*, 166: 35-43. In Japanese with English summary. [Research Division, National Salmon Resources Center, Fisheries Agency of Japan, 2-2 Nakanoshima, Toyohira-ku, Sapporo 062-0922, Japan]

97-036 Regeneration of excised ventral or dorsal fin of masu salmon juveniles and adults as a marker of mass release. Tago, Y. 1997. *Suisanzoshoku*, 45: 479-483. In Japanese with English summary. [Toyama Prefectural Fisheries Research Institute, 364 Takatuka, Namerikawa, Toyama 936-0011, Japan]

Physiology and Endocrinology

97-037 Incomplete development of the brain-pituitary-gonadal axis may under the delay in the initia-

tion of precocious maturation in male sockeye salmon. Amano, M., N. Okumoto, and K. Aida. 1997. *Fish. Sci.*, 63: 873-876. [Nikko Branch, National Research Institute of Aquaculture, Nikko, Tochigi 321-1661, Japan]

97-038 Expression of neurohypophysial hormone genes in returning chum salmon, *Oncorhynchus keta*. Ando, H., S. Hiraoka, S. Hyodo, K. Kubokawa, and A. Urano. 1997. *Otsuchi Mar. Res. Cent. Rep.*, 22: 14-23. In Japanese. [Graduate School of Science, Hokkaido University, Sapporo 060, Japan]

97-039 Colocalization of gonadotropin-releasing hormone (GnRH)-, neuropeptide Y (NPY)-, and molluscan cardioexcitatory tetrapeptide (FMRFamide)-like immunoreactivities in the ganglion cells of the terminal nerve of the masu salmon. Chiba, A. 1997. *Fish. Sci.*, 63: 153-154. [Department of Biology, Nippon Dental University, School of Dentistry, Niigata 951, Japan]

97-040 Endogenous expression of fibroblast growth factor 2 in fish cultured cell lines. Hata, J., J. Takeo, and S. Yamashita. 1997. *Fish. Sci.*, 63: 1050-1061. [Central Research Laboratory, Nippon Suisan Kaisha Ltd., Kitanomachi, Hachioji, Tokyo 192-0906, Japan]

97-041 Specific proteolysis of vitellogenin to egg yolk proteins in white spotted-charr *Salvelinus leucomaenis*. Hiramatsu, N., and A. Hara. 1997. *Nippon Suisan Gakkaishi*, 63: 701-708. In Japanese with English summary. [Faculty of Fisheries, Hokkaido University, Minato, Hakodate, Hokkaido 041-0821, Japan]

97-042 Circadian rhythms of locomotor activity in the rainbow trout *Oncorhynchus mykiss*. Iigo, M., and M. Tabata. 1997. *Fish. Sci.*, 63: 77-80. [Department of Anatomy, St. Marianna University School of Medicine, Miyamae, Kawasaki 216, Japan]

97-043 Heart rate change of rainbow trout under long period illumination and sound stimuli. Kojima, T., and H. Soeda, 1997. *Nippon Suisan Gakkaishi*, 63: 905-911. In Japanese with English summary. [College of Bioresource Sciences, Nihon University, Fujisawa, Kanagawa 252, Japan]

97-044 Hematological parameters in rainbow trout exposed to hypoxia for long term. Maita, M., T. Yoshiyasu, N. Okamoto, and Y. Ikeda. 1997.

Nippon Suisan Gakkaishi, 63: 992-993. In Japanese. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-045 Report on blood plasma levels of insulin-like growth factor-I in Pacific salmon caught during the January 1996 *Kaiyo maru* cruise. Myers, K. W., and S. Urawa. 1997. Salmon Report Series, 43: 115-116. [University of Washington, Fisheries Research Institute, Box 357980, Seattle, WA 98195, USA]

97-046 Water and caloric contents of wild and hatchery masu salmon, *Oncorhynchus masou* during smolting in a Hokkaido stream. Nagata, M. 1997. Sci. Rep. Hokkaido Fish Hatchery, 51: 1-9. In Japanese with English summary. [Hokkaido Fish Hatchery, Kitakashiwagi 3, Eniwa, Hokkaido 061-1433, Japan]

97-047 Serum steroid hormone profiles of 5 species of Pacific salmon during overwintering in the North Pacific Ocean. Sato, A., M. Fukaya, K. Orito, Y. Ishida, M. Kaeriyama, S. Urawa, K. W. Myers, and H. Ueda. 1997. Salmon Report Series, 43: 105-112. [Toya Lake Station for Environmental Biology, Faculty of Fisheries, Hokkaido University, Abuta, Hokkaido 049-5723, Japan]

97-048 Sexual differences in homing profiles and shortening of homing duration by gonadotropin-releasing hormone analog implantation in lacustrine sockeye salmon (*Oncorhynchus nerka*) in Lake Shikotsu. Sato, A., H. Ueda, M. Fukaya, M. Kaeriyama, Y. Zohar, A. Urano, and K. Yamauchi. 1997. Zool. Sci., 14: 1009-1014. [Toya Lake Station for Environmental Biology, Faculty of Fisheries, Hokkaido University, Abuta, Hokkaido 049-5723, Japan]

97-049 Prolactin antagonizes the seawater-adaptive effect of cortisol and growth hormone in anadromous brown trout (*Salmo truttae*). Seidelin, M., and S. S. Madsen. 1997. Zool. Sci., 14: 249-256. [Institute of Biology, Odense University, Campusveji 55, DK-5230 Odense M, Denmark]

97-050 Does light-induced relief of cytochrome *c* oxidase from CO-induced inhibition result in photo-reactivation of CO-inhibited respiration in sperm of sea urchin, oyster and fish? Tazawa, E., A. Fujiwara, Y. Kamata, K. Konishi, H. Ohta, H. Shimma, and I. Yasumasu. 1997. Zool. Sci., 14: 629-636. [Biological Institute, Faculty of Science, Yokohama City

University, Kanazawa-ku, Yokohama 236, Japan]

97-051 Auditory characteristics of rainbow trout *Oncorhynchus mykiss*. Yamakawa, M. 1997. Nippon Suisan Gakkaishi, 63: 108-109. In Japanese. [Okutama Branch, The Tokyo Metropolitan Fisheries Experiment Station, Kotaba 720, Okutama, Nishitama, Tokyo 198-0105, Japan]

97-052 Effect of different electric currents on injuries of fishes. Yoneyama, Y., M. Hoshino, K. Watanabe, and N. Azuma. 1997. Rep. Niigata Pref. Inland Water Fish. Exp. Stat., 22: 19-23. In Japanese. [Niigata Prefectural Inland Water Fisheries Experiment Station, 2650 Ookawara-cho, Nagaoka, Niigata 940-1137, Japan]

97-053 Experimental study on galvanotaxic response of fishes to pulsating direct current. Yoneyama, Y., K. Watanabe, and N. Azuma. 1997. Rep. Niigata Pref. Inland Water Fish. Exp. Stat., 22: 13-18. In Japanese. [Niigata Prefectural Inland Water Fisheries Experiment Station, 2650 Ookawara-cho, Nagaoka, Niigata 940-1137, Japan]

Biochemistry

97-054 Comparison of essential amino acid requirements with A/E ratio among fish species. Akiyama, T., I. Oohara, and T. Yamamoto. 1997. Fish. Sci., 63: 963-970. [Fish Nutrition Division, National Research Institute of Aquaculture, Tamaki, Mie 519-0423, Japan]

97-055 Gel-forming characteristics of meat paste from fresh water fish as raw material for fish jelly products. Chang, J. Z., H. Ichikawa, N. Noda, S. Goto, and Y. Nozaki. 1997. Bull. Fac. Fish. Nagasaki Univ., 78: 23-27. In Japanese with English summary. [Faculty of Fisheries, Nagasaki University, 1-14 Bunkyo-cho, Nagasaki, Nagasaki 852-8131, Japan]

97-056 Changes of the flesh extractive components of allotriploids by rearing under seawater. Hattori, K., T. Shirai, F. Kanda, T. Suzuki, and T. Hirano. 1997. Bull. Aichi Fish. Res. Inst., 4: 57-63. In Japanese with English summary. [Marine Resources Research Center, Aichi Fisheries Research Institute, Minamichita, Aichi 470-3412, Japan]

97-057 Comparison of reactivity of several fish myofibrils with peroxidized lipid. Oozumi, T., and K. Kawasaki. 1997. Fish. Sci., 63: 615-618.

[Department of Marine Bioscience, Fukui Prefectural University, Gakuencho 1-1, Obama, Fukui 917-0003, Japan]

97-058 Changes of the proximate composition and some minor constituents of the muscular tissue from cultured diploid and triploid amago during growth. Saito, M., T. Kuwada, M. Arai, Y. Yamashita, T. Aoki, and N. Kunisaki. 1997. *Fish. Sci.*, 63: 639-643. [Kagawa Nutrition College, Komagome, Toshima, Tokyo 170-0003, Japan]

97-059 Effect of substitution of white fish meal with extruded soybean meal in diets on zinc and manganese availability to rainbow trout. Satoh, S., N. Porn-Ngam, A. Akimoto, T. Takeuchi, and T. Watanabe. 1997. *Suisanzoshoku*, 45: 275-284. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-060 Effect of deboning of white fish meal on the zinc availability to rainbow trout. Satoh, S., N. Porn-Ngam, T. Sasaki, R. Ishida, T. Takeuchi, and T. Watanabe. 1997. *Suisanzoshoku*, 45: 267-273. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-061 Availability of phosphorus in various phosphates to carp and rainbow trout determined by a simple fractionation method. Satoh, S., V. Viyakarn, T. Takeuchi, and T. Watanabe. 1997. *Fish. Sci.*, 63: 297-300. [Laboratory of Fish Nutrition, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

97-062 Effect of heating on quality of pressure-texturized gels from chum salmon mince. Ueda, T., R. Kusaba, S. Kamimura, E. Okazaki, Y. Fukuda, and K. Arai. 1997. *Nippon Suisan Gakkaishi*, 63: 600-607. In Japanese with English summary. [Iwate Prefectural Fisheries Technology Center, Heita, Kamaishi, Iwate 026-0001, Japan]

97-063 Apparent availabilities of amino acids and minerals from several protein sources for fingerling rainbow trout. Yamamoto, T., K. Ikeda, T. Unuma, and T. Akiyama. 1997. *Fish. Sci.*, 63: 995-1001. [Nutrition Section, Inland Station, National Research Institute of Aquaculture, Tamaki, Mie 519-0423, Japan]

97-064 Metabolites of L-[³⁵S]cysteine injected into

the peritoneal cavity of rainbow trout. Yokoyama, M., M. Kaneniwa, and M. Sakaguchi. 1997. *Fish. Sci.*, 63: 799-801. [National Research Institute of Fisheries Science, Fukuura, Kanazawa, Yokohama 236-0004, Japan]

Genetics

97-065 Studies on the breeding of amago salmon, *Oncorhynchus masou ishikawae*-V. Characteristics of the local strains of amago salmon for produced fluviatile form. Gotoh, K. 1997. *Rep. Gifu Pref. Fish. Exp. Stat.*, 42: 11-16. In Japanese. [Gifu Prefectural Fisheries Experimental Station, 2605 Hane, Hagiwara-cho, Masuda, Gifu 509-2506, Japan]

97-066 Induction of sex-reversed male Japanese char for all-female allotriploid production. Hattori, K., F. Nakamura, and M. Ochiai. 1997. *Bull. Aichi Fish. Res. Inst.*, 4: 65-71. In Japanese with English summary. [Marine Resources Research Center, Aichi Fisheries Research Institute, Minamichita, Aichi 470-3412, Japan]

97-067 Genetic variability and differentiation within and among populations of Japanese char: a comparison between isozyme and RAPD polymorphism. Kikuchi, M., M. Ikeda, and Y. Fujio. 1997. *Fish Genetics and Breeding Sci.*, 25: 27-36. In Japanese with English summary. [Faculty of Agriculture, Tohoku University, 1-1 Amamiya-cho, Tsutsumidori, Sendai 981-0914, Japan]

97-068 Survival and cytological observations on early development of normal, hybrid, and gynogenetic embryos of amago salmon. Kobayashi, T. 1997. *Fish. Sci.*, 63: 33-36. [Shiga Prefectural Samegai Trout Farm, Kaminyu, Maibara, Shiga 521-0033, Japan]

97-069 The competition for food between triploids and diploids and its effect on the growth of triploids in rainbow trout. Kobayashi, T., and S. Fushiki. 1997. *Suisanzoshoku*, 45: 87-96. [Shiga Prefectural Fisheries Experimental Station, Hassaka, Hikone, Shiga 522-0057, Japan]

97-070 Detection of single strand conformation polymorphisms (SSCPs) on mitochondrial DNA fragments between two domesticated strains of rainbow trout *Oncorhynchus mykiss*. Oohara, I. 1997. *Fish. Sci.*, 63: 151-152. [National Research Institute of Aquaculture, Nakatsu, Nansei, Watarai, Mie 516-

0108, Japan]

97-071 Growth of triploid females of rainbow trout and masu salmon. Oomori, A., M. Kayane, Y. Yamaguchi, and Y. Satou. 1997. Bull. Ibaraki Pref. Freshwater Fish. Exp. Stat., 33: 43-52. In Japanese. [Ibaraki Prefectural Freshwater Fisheries Experimental Station, Tamatsukuri-machi, Ibaraki 311-3512, Japan]

97-072 Induction of tetraploid amago salmon by hydrostatic pressure and heat shocks and its verification by the maximum number of nucleoli and DNA contents. Yamaki, M., M. Satou, H. Satou, Y. Kon, Q. Zhang, and Y. Uchimura. 1997. Fish Genetics and Breeding Sci., 25: 37-48. In Japanese with English summary. [Ehime Prefectural Fisheries High School, 1-39 Meirin-cho, Uwajima, Ehime 798-0068, Japan]

97-073 One-way gene flow by stocking and its effects on a fish population. Yokota, M., and S. Watanabe. 1997. Fish. Sci., 63: 539-542. [Department of Aquatic Biosciences, Tokyo University of Fisheries, Konan, Minato, Tokyo 108-0075, Japan]

Diseases and Parasites

97-074 Clinical, haematological and pathological investigations of *Escherichia vulneris* in rainbow trout (*Oncorhynchus mykiss*). Aydin, S., S. Celebi, and I. Akyurt. 1997. Fish Pathol., 32: 29-34. [Atatrk University, Department of Fishery Sciences, Erzurum, Turkey]

97-075 Studies on the prevention methods for bacterial kidney disease (BKD)-II. Transfer erythromycin to egg contents by broodstock injection. Hyodo, N. 1997. Rep. Niigata Pref. Inland Water Fish. Exp. Stat., 22: 1-4. In Japanese. [Niigata Prefectural Inland Water Fisheries Experiment Station, 2650 Ookawara-cho, Nagaoka, Niigata 940-1137, Japan]

97-076 Studies on the prevention methods for bacterial kidney disease (BKD)-III. Effect of povidone-iodine on disinfection of *Renibacterium salmoninarum* on the surface of egg. Hyodo, N., and M. Yoshimizu. 1997. Rep. Niigata Pref. Inland Water Fish. Exp. Stat., 22: 5-8. In Japanese. [Niigata Prefectural Inland Water Fisheries Experiment Station, 2650 Ookawara-cho, Nagaoka, Niigata 940-1137, Japan]

97-077 Disinfectant effects of low level of total residual oxidants in artificial seawater on fish pathogenic microorganisms. Itoh, S., M. Yoshimizu, and Y. Ezura. 1997. Nippon Suisan Gakkaishi, 63: 97-102. In Japanese with English summary. [Faculty of Fisheries, Hokkaido University, Minato, Hakodate, Hokkaido 041-0821, Japan]

97-078 Use of PCR to detect *Cytophaga psychrophila* from apparently healthy juvenile ayu and coho salmon eggs. Izumi, S., and H. Wakabayashi. 1997. Fish Pathol., 32: 169-173. [Department of Aquatic Bioscience, Graduate School of Agricultural and Life Science, University of Tokyo, Yayoi 1-1-1, Bunkyo-ku, Tokyo 113-0032, Japan]

97-079 Suppression of stress reactions of rainbow trout, *Oncorhynchus mykiss*, reared at high density by oral administration of bovine lactoferrin. Kakuta, I. 1997. Suisanzoshoku, 45: 345-350. [Department of Biotechnology, Senshu University of Ishinomaki, Ishinomaki 986-08, Japan]

97-080 The fungistatic effect of NaCl on rainbow trout egg saprolegniasis. Kitancharoen, N., A. Ono, A. Yamamoto, and K. Hatai. 1997. Fish Pathol., 32: 159-162. [Division of Fish Diseases, Nippon Veterinary and Animal Science University, 1-7-1 Kyonan-cho, Musashino, Tokyo 180-0023, Japan]

97-081 Characteristics of *Flavobacterium branchiophilum* isolated from rainbow trout in Korea. Ko, Y.-M., and G. -J. Heo. 1997. Fish Pathol., 32: 97-102. [College of Veterinary Medicine, Chungbuk National University Cheongju 360-763, Korea]

97-082 Imported eggs responsible for the outbreaks of cold-water disease among cultured coho salmon in Japan. Kumagai, A., and K. Takahashi. 1997. Fish Pathol., 32: 231-232. [Fisheries Development Division, Miyagi Prefectural Government, Honcho 3, Aoba-ku, Sendai, Miyagi 980-0014, Japan]

97-083 Infection source of herpesvirus disease in coho salmon culture and its control. Kumagai, A., K. Takahashi, and H. Fukuda. 1997. Fish Pathol., 32: 103-108. [Fisheries Development Division, Miyagi Prefectural Government, Honcho 3, Aoba-ku, Sendai, Miyagi 980-0014, Japan]

97-084 RAPD analysis of atypical *Aeromonas salmonicida* isolated in Japan. Kwon, M. G., J. -Y. Lee, S. Park, T. Iida, I. Hirono, and T. Aoki. 1997. Fish Pathol., 32: 109-115. [Department of Aquatic

Biosciences, Tokyo University of Fisheries, Konan 4-5-7, Minato-ku, Tokyo 108-0075, Japan]

97-085 Distribution of *Salmincola carpionis* (Copepoda: Lernaeopodidae) in the buccal cavity of salmonids. Nagasawa, K., K. Ikuta, and S. Kitamura. 1997. Bull. Natl. Res. Inst. Aquaculture, 26: 35-39. [National Research Institute of Far Seas Fisheries, Fisheries Agency of Japan, 5-7-1 Orido, Shimizu, Shizuoka 424-0902, Japan]

97-086 Phenotypic, serological and molecular characterization of Portuguese isolates of *Aeromonas salmonicida* subsp. *salmonicida*. Sousa, J. A. P., J. L. Romalde, J. C. Eiras, and A. E. Toranzo. 1997. Fish Pathol., 32: 177-178. [Department of Zoology and Anthropology, Faculty of Sciences, University of Porto, 4050, Porto, Portugal]

97-087 Outbreak of cold-water disease in cultured salmonids in Saitama Prefecture. Suzuki, K., S. Suzuki, Y. Ootomo. 1997. Bull. Saitama Pref. Fish. Exp. Stat., 55: 14-25. In Japanese. [Saitama Prefectural Fisheries Experiment Station, Kitakohama 1060, Kazo, Saitama 347-0011, Japan]

97-088 Effects of temperature on growth and protease production of *Cytophaga psychrophila*. Uddin, M. N., and H. Wakabayashi. 1997. Fish Pathol., 32: 225-226. [Department of Aquatic Bioscience, Graduate School of Agricultural and Life Sciences, the University of Tokyo, Yayoi 1-1-1, Bunkyo-ku, Tokyo 113-0032, Japan]

97-089 Pharmacokinetics of oxytetracycline in rainbow trout *Oncorhynchus mykiss* following bolus intravenous administration. Uno, K., T. Aoki, R. Ueno, and I. Maeda. 1997. Fish. Sci., 63: 90-93. [Department of Food Science, Konan Women's College, Konan, Aichi 483, Japan]

97-090 Infection of whitespotted charr, *Salvelinus leucomaenis*, reared in Toyama Prefecture by *Salmincola carpionis* (Copepoda: Lernaeopodidae). Wakabayashi, S. 1997. Bull. Toyama Pref. Fish. Res. Inst., 9: 35-40. In Japanese with English summary. [Toyama Prefectural Fisheries Research Institute, Namerikawa, Toyama 936-0011, Japan]

97-091 Virus susceptibility of fish cell lines. Yoshimizu, M. 1997. Nippon Suisan Gakkaishi, 63: 245-246. In Japanese. [Faculty of Fisheries,

Hokkaido University, Hakodate 041-0821, Japan]

97-092 Selection of suitable cell line for isolation of the infectious hematopoietic necrosis virus (IHNV) from ovarian fluid of salmonid fish. Yoshinaka, T., M. Yoshimizu, and Y. Ezura. 1997. Fish Pathol., 32: 75-80. In Japanese with English summary. [Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 041-0821, Japan]

97-093 Detection and identification of infectious hematopoietic necrosis virus (IHNV) by reverse transcription (RT)-polymerase chain reaction (PCR). Yoshinaka, T., M. Yoshimizu, T. Sawabe, and Y. Ezura. 1997. Fish. Sci., 63: 592-595. [Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido 041-0821, Japan]

Water Quality and Environment

97-094 Sulfide concentration in bottom sediments of Onagawa Bay, Miyagi. Sasaki, K., and N. Arai. 1997. Bull. Japan. Soc. Fish. Oceanogr., 61: 162-167. In Japanese with English summary. [Marine Fisheries Laboratory, Faculty of Agriculture, Tohoku University, 15 Konorihama, Onagawa, Miyagi 986-2242, Japan]

97-095 Distribution of zooplankton communities during spring and early summer in the Pacific coastal waters near Hiroo, Hokkaido. Seki, J., and I. Shimizu. 1997. Bull. Plankton Soc. Japan, 44: 21-30. In Japanese with English summary. [National Salmon Resources Center, 2-2 Nakanoshima, Toyohira-ku, Sapporo 062-0922, Japan]

Toxicology

97-096 Toxicity of agricultural chemicals to fish-XX. Kuge, T., H. Arai, K. Nobusawa, and K. Satsumi. 1997. Rep. Gunma Fish. Exp. Stat., 3: 1-2. In Japanese. [Gunma Fisheries Experiment Station, 13 Shikishima-cho, Maebashi, Gunma 371-0036, Japan]

97-097 Bioaccumulation of polychlorinated dibenzodioxins (PCDDs) and dibenzofurans (PCDFs) in aquatic organisms. Yamada, H. 1997. Bull. Natl. Res. Inst. Fish. Sci., 9: 139-161. In Japanese with English summary. [National Research Institute of Fisheries Science, Nagai 6-31-1, Yokosuka 238-0316, Japan]

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