

Technical Report No. 4 Table of Contents

I. Opening Remarks..... ix

II. Abstracts of Presented Papers

Oral Presentations

Status of salmon stocks and fisheries (Convenors: Yukimasa Ishida and David Meerburg)

Status of salmon stocks and fisheries in the Baltic Sea
Walter RANKE..... 1

Overview of the report of the Working Group on North Atlantic Salmon
Niall Ó MAOILÉIDIGH..... 3

Status of salmon stocks and fisheries in the North Pacific Ocean
Harold J. GEIGER, Ted PERRY, Masa-aki FUKUWAKA, and Vladimir RADCHENKO..... 6

Possible factors associated with increased marine mortality

a. Climate and Oceanographic factors (Convenors: Kevin Friedland and Skip M^cKinnell)

Possible effects of ocean currents on survival of Japanese chum salmon during their first winter
in the North Pacific Ocean
Tomonori AZUMAYA, Yukimasa ISHIDA, and Hiroshi MAYAMA..... 8

A climate related explanation for the natural control of Pacific salmon abundance in the first marine year
Richard J. BEAMISH, Rusty M. SWEETING, Chrys E. NEVILLE, and Korey POIER..... 9

Atlantic salmon and climate variation in the North Atlantic
Kevin D. FRIEDLAND..... 12

Temporal and spatial migration and distribution of Atlantic salmon, *Salmo salar* L.,
in the Northeast Atlantic Ocean
Lars P. HANSEN, Kevin D. FRIEDLAND, Marianne HOLM, Jens C. HOLST,
and Jan A. JACOBSEN..... 15

Recent changes in Atlantic (*Salmo salar*) and Pacific (*Oncorhynchus*) salmon stocks in the
context of climatic variations in the Northern Hemisphere
Andrei S. KROVNIN..... 18

Tracking environmental bottlenecks in the coastal zone for understanding and predicting Oregon
coho (*Oncorhynchus kisutch*) marine survival
Elisabeth A. LOGERWELL, Nathan MANTUA, Peter LAWSON, Robert C. FRANCIS,
and Vera AGOSTINI..... 21

Opposite effects of sea-surface temperature on survival rates of Pacific salmon from northern
and southern areas

Franz J. MUETER, Brian J. PYPER, Randall M. PETERMAN, Chris C. WOOD, and David J. BLACKBOURN.....	22
Some aspects of the life history and ecology of Atlantic salmon (<i>Salmo salar</i> L.) in the Northwest Atlantic Dave G. REDDIN.....	24
Marine survival of Atlantic salmon in the Baltic Sea Matti SALMINEN.....	27

b. Human induced factors (Convenors: Hal Geiger and Malcolm Windsor)

Effects of freshwater contaminants on marine survival in Atlantic salmon Wayne L. FAIRCHILD, Scott B. BROWN, and Andy MOORE.....	30
Mortality of seaward-migrating post-smolts of Atlantic salmon due to salmon lice infection in western Norwegian salmon stocks Jens Christian HOLST, Per JAKOBSEN, Frank NILSEN, Marianne HOLM, Lars ASPLIN, and Jan AURE.....	33
Impacts of fishery, disease, and contaminants on Baltic salmon (<i>Salmo salar</i> L.) in the sea Lars KARLSSON, Rickard BJERSELIUS, Marie AUNE, Per Ola DARNERUD, Anders GLYNN, Mats TYSKLIND, and Ulf-Peter WICHARDT.....	34
Factors affecting survival of hatchery-reared chum salmon in Japan Toshihiko SAITO.....	37
Life history diversity, marine survival, and viability of Pacific salmon Robin S. WAPLES.....	39

c. Ecological factors (Convenors: Oleg Gritsenko and Walter Ranke)

Interactions and potential causes to the M74 syndrome affecting sea-run Baltic salmon (<i>Salmo salar</i>) populations Patric AMCOFF, Hans BÖRJESON, and Leif NORRGREN.....	42
Self-regulation of Japan chum salmon abundance Oleg F. GRITSENKO and Natalia V. KLOVATCH.....	45
Episodic predation on post-smolt Atlantic salmon (<i>Salmo salar</i>) by northern gannets (<i>Morus bassanus</i>) William A. MONTEVECCHI and David K. CAIRNS.....	
Impact of predation by salmon sharks (<i>Lamna ditropis</i>) and daggertooth (<i>Anotocheilus nikparini</i>) on Pacific salmon (<i>Oncorhynchus</i> spp.) stocks in the North Pacific Ocean Kazuya NAGASAWA, Tomonori AZUMAYA, and Yukimasa ISHIDA.....	51

Poster Presentations

a. Climate and Oceanographic factors

Paleoclimate variability in ocean conditions and the production of North American Atlantic salmon Alan CONDRON, Robert DECONTO, and Kevin FRIEDLAND.....	53
Long-term trends in annual Bristol Bay sockeye salmon scale growth at sea in relation to sockeye abundance and environmental trends, 1955-2000 Gregory RUGGERONE, Jennifer NIELSEN, Ed FARLEY, Steve IGNELL, Peter HAGEN, Bev AGLER, Don ROGERS, and Joe BUMGARNER.....	56
Bioenergetic response of coho salmon to climate change	

Marc TRUDEL, Strahan TUCKER, Jen E. ZAMON, John F.T. MORRIS, David A. HIGGS,
and David W. WELCH..... 59

Potential interrelationships between patterns of migration and marine survival in Pacific salmon
David WELCH, Marc TRUDEL, Jen ZAMON, John MORRIS, and Mary THIESS..... 62

b. Human induced factors

Rearing origin and distribution of Atlantic salmon post-smolts in Penobscot Bay and the near-shore
waters of the Gulf of Maine, USA
Russel W. BROWN, Ruth HASS-CASTRO, Craig A. TINUS, and Erin LIVENSPARGER..... 65

c. Ecological factors

Injuries of salmon in the Amur River and its estuary as an index of the adult fish mortality in the
period of sea migrations
Sergei F. ZOLOTUKHIN and Nina F. KAPLANOVA..... 67

On peculiarities of the Palana River sockeye (*Oncorhynchus nerka*) abundance (North-West Kamchatka)
Victor F. BUGAYEV..... 70

Extreme *Salmo*: the risk-prone life history of marine-phase Atlantic salmon and its implications
for natural mortality
David K. CAIRNS..... 73

Viral Diseases as a possible cause of salmon mortality in the North Pacific Ocean
Evi EMMENEGGER, Ryan TROYER, Kyle GARVER, Eric ANDERSON, and Gael KURATH..... 76

Effect of ocean mortality and growth on ocean life history of Pacific salmon
Masa-aki FUKUWAKA..... 79

Predation by lamprey smolts *Lampetra japonica* as a main cause of Amur chum salmon and pink salmon
mortality in the early sea period of life
German V. NOVOMODNYI and Vladimir A. BELYAIEV..... 81

Marine survival of hatchery released pink salmon (*Oncorhynchus gorbuscha*) estimated by coded-wire
tagging or thermal otolith marking
Renate R. RIFFE and Ole A. MATHISEN..... 83

Comments on the predation of salmon by seals in the coastal waters of Newfoundland and Labrador
Becky SJARE and Dave REDDIN..... 86

Euphausiid availability explains marine survival variation for Barkley Sound coho salmon (*Oncorhynchus
kisutch*) and sockeye salmon (*O. nerka*)
Ron W. TANASICHUK and Wilfred LUEDKE..... 88

Atlantic salmon autumn pre-smolts in New Brunswick, Canada Rivers
Fred WHORISKEY..... 89

Ichthyophonus hoferi as one of possible causes of increased marine mortality in post-smolts of
Atlantic salmon
Alexander V. ZUBCHENKO and Tatjana A. KARASEVA..... 90

III. Synthesis and Discussion (Convenors: Peter Hutchinson and David Welch in cooperation with Ken Whelan and George Boehlert)

A Synthesis of the Joint Meeting: Causes of marine mortality of salmon in the North Pacific and
North Atlantic Oceans and in the Baltic Sea

Peter HUTCHINSON, David WELCH, George BOEHLERT, and Ken WHELAN..... 93

APPENDIX 1 – List of Participants..... 97