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BULLETIN NUMBER 6

Pacific Salmon and Steelhead Production in a Changing Climate: Past, Present, and Future

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Preface

This Bulletin is a compilation of 37 papers presented at an International Symposium on Pacific Salmon and Steelhead Production in a Changing Climate: Past, Present, and Future held in Kobe, Japan, May 17–19, 2015, under the auspices of the North Pacific Anadromous Fish Commission. In addition, this Bulletin includes one paper submitted after the symposium that reviews the NPAFC 2011–2015 Science Plan. The NPAFC Science Plan was developed with the goal to explain and improve forecasting of the annual variation in Pacific salmon production under a changing climate and provided the impetus for convening the 2015 Symposium. All articles in this Bulletin have been peer-reviewed, and the list of reviewers is provided at the end of this volume.

The Symposium was hosted by the NPAFC and was co-sponsored by the Fisheries Research Agency (Japan), Gordon and Betty Moore Foundation, Hokkaido Salmon Propagation Association, Hokkaido Stationary Net Fisheries Association, North Pacific Research Board, Pacific Salmon Foundation, Pacific Seafood Processors Association, and North Pacific Marine Science Organization (PICES). Members of the Symposium Organizing Committee included Shigehiko Urawa (Chairperson), James Irvine, Ju Kyoung Kim, Alexander Zavolokin, Edward Farley, and Nancy Davis.

Understanding how climate change and variability impacts the marine ecology of Pacific salmon and steelhead is important to their future sustainability. Over the past several decades there have been significant variations in marine production of Asian and North American salmonid populations linked to climate change. Better information on the migration and survival mechanisms of salmonids during critical periods of their marine life history, specifically their initial period of marine life and possibly the winter period, is needed to better explain annual variation of salmon production. There is a strong need for improved information on the ecological mechanisms regulating production of anadromous populations and for estimating climate impacts on salmon in the North Pacific. Anadromous populations may function as an ecological indicator of marine ecosystems; and long-term monitoring of salmon populations and environments can yield the information required for retrospective studies that are fundamental to gauging long-term changes in salmon ocean habitats. Stock identification, marking, and tagging methods yield critical information on where salmonids go in their ocean habitats and contribute significantly to models incorporating ecosystem and environmental conditions by which to explore possible salmonid production scenarios. Accurate forecasting of returning salmon abundances offers opportunities to improve fisheries management and hatchery techniques by anticipating future variations in salmon production.

In 2017 the NPAFC will observe its 25th Anniversary. It is hoped that the research presented in this volume will act as a springboard toward future improved scientific understanding of factors influencing salmon survival and production in the North Pacific Ocean.

The NPAFC Secretariat
December 2016

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