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Doug Grob
Montana

Mike Milburn
Montana

November 9, 2021

MEMORANDUM

TO: **Council Members**

FROM: **Erik Merrill, Independent Science Manager, and Leslie Bach, Senior Program Manager and ISAB Ex Officio**

SUBJECT: **American Shad Report by the Independent Scientific Advisory Board**

BACKGROUND:

Presenters: ISAB members Stan Gregory (Chair), John Epifanio, and Tom Quinn. Tom Wainwright and Peter Moyle will be available to answer questions.

Summary: American shad were introduced to West Coast rivers in the late 1800s and rapidly expanded. Shad colonized upriver reaches of the Columbia River Basin as the hydropower system developed, using passage facilities provided for native salmonid species. Shad abundance in the Columbia River has increased markedly since the 1960s, with almost 8 million adults counted at Bonneville Dam in recent years. The non-native shad is now the predominant anadromous fish species in the Columbia River Basin. The opposing general trends for shad (increasing) and salmonids (decreasing) point to an ongoing, and perhaps accelerating, disruption of ecosystem health in the basin. Furthermore, the growth of shad populations risks straining the management and operational infrastructure aimed at stabilizing or recovering anadromous salmonid communities. To explore these risks and uncertainties, the ISAB's report examines what is known about shad's role and impact in the ecosystem, about the areas needing additional investigation, and about how fisheries co-managers and hydrosystem operators might consider shad within the context of their activities.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Bill Edmonds
Executive Director

503-222-5161
800-452-5161

The ISAB's presentation will highlight the report's key findings, conclusions, and recommendations, including:

- The future of shad looks bright in the Columbia River Basin, which should continue to provide near-optimal habitat for shad spawning and rearing in the chain of flow-through reservoirs. A warmer climate will likely favor shad but not salmonids, although much depends on the continued productivity of the river and reservoirs, the estuary, and, above all, the ocean. Since 1960, shad have increased at an average rate of about 5% per year with no evidence to suggest this increase is slowing or leveling off. This positive trend for shad in the Columbia is in direct opposition to shad's decline in their native range on the East Coast.

- There are plausible scenarios where shad effects on salmon in the Columbia are positive, negative, or neutral. The very large numbers of non-native shad suggest long-term negative effects, but the nature of those effects, if indeed they are present, remains to be determined.

- Shad have limited potential for commercial fisheries as a means to manage or suppress the populations, and there seems to be little interest or demand for Tribal shad fisheries, despite shad's abundance. As a non-native species, shad do not have an apparent cultural role among the Tribes within the basin.

- Risks and uncertainties about possible shad effects on declining native species and to cultural practices warrant increased attention by resource managers in the Columbia River Basin. At a minimum, counts of shad at major dams should continue. Models could be developed to initially assess which effects and interactions might be ecologically and economically important. If interactions are shown to be detrimental, use of subsurface passage in fish ladders could be explored to reduce upstream shad migration.

Workplan: Independent scientific review is an integral and ongoing component of the Fish and Wildlife Program and the Division's workplan.

Background: In December 2020, the ISAB's Administrative Oversight Panel – consisting of the Council's Chair, CRITFC's Executive Director, and NOAA Northwest Fisheries Science Center's Science Director – approved the ISAB's proposal to produce a report about American shad in the Columbia Basin.

More Info: The ISAB's full report is available online (ISAB 2021-4).