Sea Duck Joint Venture FY19 Continuing Project Proposals

1. **Finalizing Digital Image Processing and Data Analyses to account for Sea Duck Winter Detectability in Puget Sound (extension of SDJV Project # 136 2011-2012)**

Project Lead: Kyle A. Spragens, Waterfowl Section Manager, Washington Department of Fish and Wildlife, Olympia, WA 98504

Project Team:
Dr. Sarah Converse, Unit Leader, USGS, Washington Cooperative Fish and Wildlife Research Unit, University of Washington, Seattle, WA

Joe Evenson, WDFW, Bellingham, WA

Dr. Emily Silverman, Statistician, USFWS-Division of Migratory Bird Management, Laurel, MD

2. **Project Summary**: In the form of a half-page abstract, briefly summarize the purpose, objectives, location, methods and expected results/outcomes of the project.

3. **Project Narrative**

   a. **Statement of Need**: The Washington Department of Fish and Wildlife (WDFW) has been conducting aerial surveys for sea ducks within the Puget Sound and periodically portions of the Strait of Georgia, collectively call the Salish Sea, since 1992. This landscape-level winter survey, referred to as the Puget Sound Ambient Monitoring Program (PSAMP) has produced status and trends for dozens of wintering marine bird populations that make use of the Salish Sea including North American Pacific populations of surf scoter, white-winged scoter, black scoter, harlequin duck, long-tailed duck, Barrow's goldeneye, common goldeneye, bufflehead, common merganser, red-breasted merganser, hooded merganser. The long-term monitoring has allowed estimated trends in relative abundance, but estimating actual abundance or density is not possible without addressing issues of detectability.

   b. **Project Goals and Objectives**: To address these issues, WDFW sea duck and aerial survey specialist, Joe Evenson, developed a novel method for addressing detectability that will have broad applicability, and will enhance confidence in distribution, abundance, and trend data of the sea ducks for the greater Salish Sea region with high likelihood for applicability in other Pacific Coast surveys (e.g. San Francisco Bay). Recently, the Sea Duck Joint Venture (SDJV) has identified the Salish Sea as a Key Site and the PSAMP survey was identified as a Tier 1 recommended survey by the SDJV Continental Technical Team and Management Board. WDFW continues to prioritize this survey as an operational component of their annual monitoring efforts as status and trends of the scoters directly influences sea duck harvest strategy adopted in 2013.

c. Project Activities, Methods and Timetable: See SDJV Project No. 136 for details of Methods.

Time Period	Activities
Year 1	Identify Post-doctoral position
Year 1	Meet with Project Team to understand current status of imagery files
Year 1	Complete imagery analyses and development of detectability estimates.

d. Stakeholder Coordination/Involvement: The Washington Department of Fish and Wildlife, along with CWS, have compiled data from long-term aerial and boat surveys to assess the status and trends of wintering sea ducks in the Salish Sea region. This effort is being integrated with the trans-boundary Puget Sound Ambient Monitoring Program. This project is intended to analyze sea duck detection rates for surveys in Puget Sound. This work will help standardize survey protocols that can be applied in the U.S. and Canada and substantially expand monitoring of major sea duck wintering areas in the Pacific Northwest. The data collection efforts were funded in-part through a collaborative effort by Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service and funding support by the Sea Duck Joint Venture (Project No. 136). Annually, operations of this survey cost WDFW approximately $150,000. Unfortunately, efforts to finalize the immense effort and financial investment to estimate detectability rates of sea ducks have been limited by the lack of a dedicated identified person.

e. Project Monitoring and Evaluation: Application of detectability estimates to long-term PSAMP dataset updating the status and trends of wintering sea duck populations in the Salish Sea. Increasing the application of this long-term monitoring dataset to the Salish Sea region and marine migratory birds.

f. Description of Entities Undertaking the Project:

Project Lead: Kyle A. Spragens, Waterfowl Section Manager, Washington Department of Fish and Wildlife, Olympia, WA; project oversight and coordination between the project team members, WDFW, and Sea Duck Joint Venture.

Project Team:

Dr. Sarah Converse, Unit Leader, USGS, Washington Cooperative Fish and Wildlife Research Unit, University of Washington, Seattle, WA; will oversee the post-doctoral position and advise on direct of analyses.

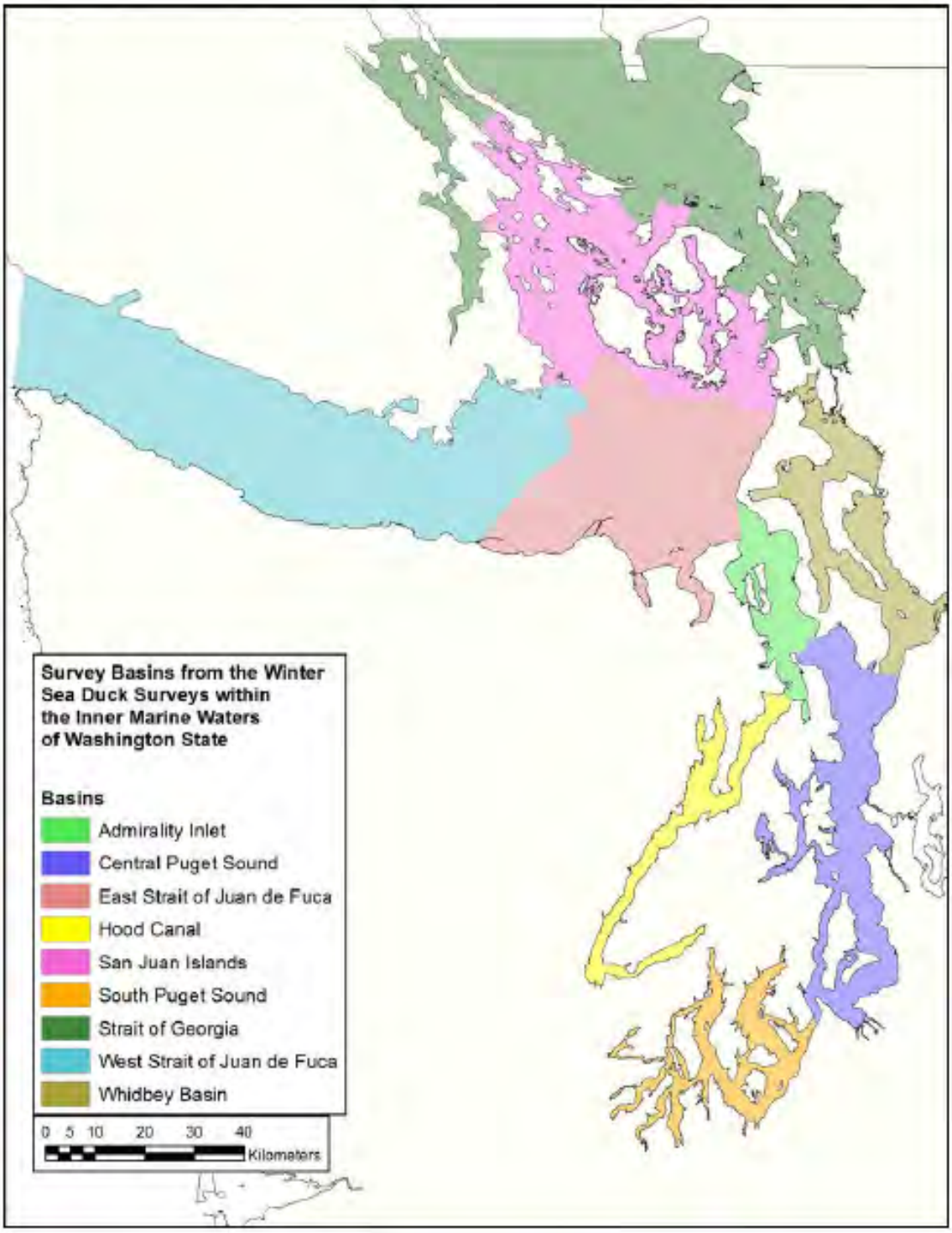
Joe Evenson, WDFW, Bellingham, WA; to provide technical expertise and advising on project history, results and analyses. Based locally in relationship to post-doc and can serve as a reference and consultant to analytical direction.

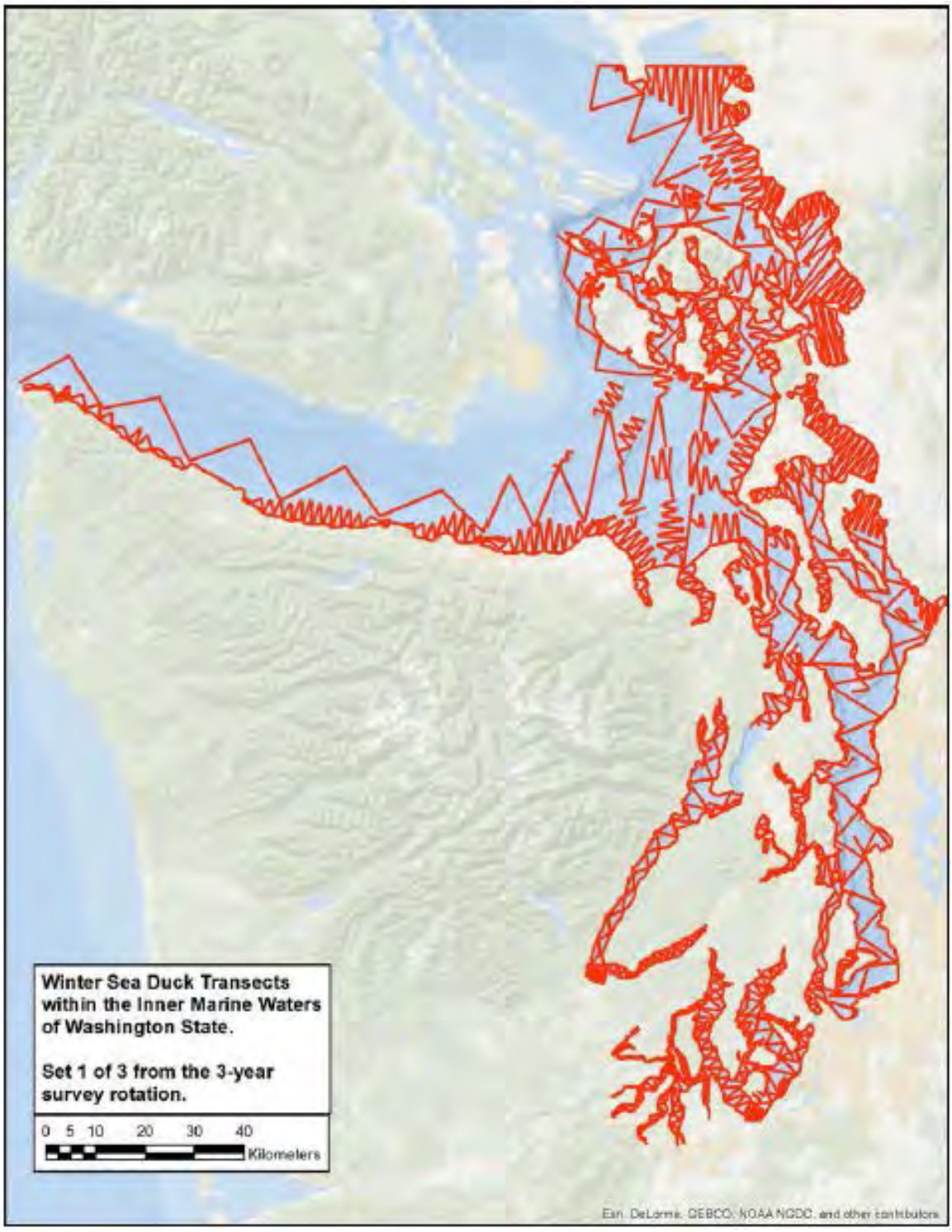
Dr. Emily Silverman, Statistician, USFWS-Division of Migratory Bird Management, Laurel, MD; to provide technical expertise and advising on project history, results and analyses.

g. Sustainability: WDFW continues to prioritize this survey as an operational component of their annual monitoring efforts as status and trends of the scoters directly influences sea duck harvest strategy adopted in 2013. Annually, operations of this survey cost WDFW approximately $150,000.

h. Literature Cited: Not Applicable.

i. Maps of Project Area:




Winter Sea Duck Transects within the Inner Marine Waters of Washington State.
Set 1 of 3 from the 3-year survey rotation.
0 5 10 20 30 40
Kilometers
Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors