**­­­­­WESPAK-SE Technical Review – SEAKFHP Proposal**

**Purpose**

The Southeast Alaska Fish Habitat Partnership (SEAKFHP) proposes to convene a technical review team to examine the Wetland Ecosystem Services Protocol for Southeast Alaska (WESPAK-SE). The purpose of this review is to examine each of the WESPAK-SE output variables, to recommend a level of confidence for each of the output variables, and to provide recommendations for summarization of the output variables to produce a combined score for each wetland assessment area.

The Southeast Alaska Land Trust (SEAL Trust), the City and Borough of Juneau (CBJ), and other participating organizations are to be commended for their involvement in bringing this wetlands assessment tool to the region. A regionally-specific, consistent and science-based method to evaluate the ecological functions and values of wetland sites in Southeast Alaska is of value to many entities across the region. As WESPAK-SE may affect many different groups, agencies, and interests in Southeast Alaska, all of these groups will benefit from a detailed technical review and evaluation. However, such an evaluation is likely beyond the ability of any single entity to achieve. SEAKFHP is in a unique position to provide the necessary coordination for such a technical review because of the wide range of technical expertise available to SEAKFHP though its partner organizations.

**Background**

In 2010, SEAL Trust, with funding from the U.S. Fish and Wildlife Service (USFWS), hired an independent consulting firm (CH2M Hill) to conduct a study to evaluate wetland assessment methods and credit-debit systems potentially applicable to Southeast Alaska (a final report can be found [here](http://southeastalaskalandtrust.org/wp-content/uploads45yI789N/2011/01/CH2MHILL_SEALTrust_WetlandReport_FINAL_10-27-2010.pdf)). The Wetland Ecosystem Services Protocol-US (WESPUS) was selected to be adapted to Southeast Alaska. In 2011, with support from the USFWS, the WESPAK-SE protocol was initially calibrated with 32 Southeast Alaska wetland sites. SEAL Trust hosted the first classroom training and field-based trials of the WESPAK-SE protocol in April, 2012. This protocol was updated in 2013 with funding provided by the USFWS Coastal Impact Assistance Program grant, and in coordination with the City and Borough of Juneau (CBJ) as part of their efforts to prepare a wetlands plan for the Juneau area. During 2013 and 2014 statistically selected tidal wetlands (55 sites) and non-tidal wetlands (119 sites) were assessed to refine the protocol and provide a relative context for interpreting the WESPAK-SE scores. SEAL Trust collaborated with the Southeast Alaska GIS Library at the University of Alaska Southeast (UAS) to develop an online WESPAK-SE GIS module to provide public access to wetland and land cover information (<http://seakgis.alaska.edu/flex/wetlands/>). Further, in 2013 the CBJ contracted the WESPAK-SE developer for further assessment tool development including peer review workshops where input from local subject matter experts was solicited specific to variables used in the assessment methodology. In 2014 and 2015 the CBJ assessed 360 assessment areas with the updated protocol.

In general, WESPAK-SE is intended to provide agencies, non-governmental organizations and the development community a consistent tool for evaluating the functions and values of wetland sites for landscape assessment, impact analysis, mitigation planning, and conservation actions. WESPAK‐SE is intended to help address the national policy goal of “no net loss” of wetlands, as that goal pertains not only to wetland acreage but also to the ecosystem services that wetlands provide naturally. Currently SEAL Trust, the CBJ and the Southeast Alaska Watershed Coalition (SAWC) are looking to utilize WESPAK-SE in their conservation work across Southeast Alaska; additional Southeast Alaska land managers as well as regulators are also likely end users for this tool. Due to different geographic areas of interest and separate contracting processes two versions of WESPAK-SE are currently being used in the region, version 1.4 by the CBJ and version 2.0 by SEAL Trust.

Currently, both versions of WESPAK-SE produce a profile of 7 variables called “function” scores and 7 variables called “value” scores for tidal wetlands and 18 function scores and 19 value scores for non-tidal wetlands (see Tables 1 and 2). These output variables relate to various ecological, hydrographic, and chemical processes involved in wetland functions and services. The assessment method also captures additional wetland attribute information (wetland sensitivity, ecological condition and stressors). The output variables were produced with regional and localized input and review. Some users have questioned the reliability of individual function and values scores, and concerns have been expressed about how those scores are subsequently combined into averages by some users to create a single score for individual parcels. This review is intended to address these concerns and provide recommendations on how best to use the scores provided by the tool. **For purposes of this review the function and value variables addressed for non-tidal wetlands will be the priority.**

Table 1 - Tidal Wetland Functions and Values Assessed by WESPAK-SE[[1]](#footnote-1)

|  |  |  |
| --- | --- | --- |
| WESPAK-SE Tidal Wetland Functions and Values | Function Score | Value Score |
| Carbon Sequestration (CS) Anadromous Fish Habitat (FA) Organic Nutrient Export (OE) Native Plant Habitat (PH) Songbird, Raptor & Mammal Habitat (SBM) Sediment Retention & Stabilization (SR) Waterbird Feeding Habitat (WBF) Public Use (PU) Subsistence & Provisioning Services (Subsis) | Yes Yes Yes Yes Yes Yes Yes **No No** | **No** Yes **No** Yes Yes Yes Yes Yes Yes |

Table 2 - Non-Tidal Wetland Functions and Values Assessed by WESPAK-SE

|  |  |  |  |
| --- | --- | --- | --- |
| WESPAK-SE Non-Tidal Wetland Grouped Functions and Values | WESPAK-SE Non-Tidal Wetland Individual Functions and Values | Function Score | Value Score |
| Hydrologic | Surface Water Storage (WS) | Yes | Yes |
| Water Quality | Carbon Sequestration (CS) Nitrate Removal & Retention (NR) Phosphorus Retention (PR) Sediment & Toxicant Retention & Stabilization (SR) | Yes Yes Yes Yes | **No** Yes Yes Yes |
| Aquatic Support | Aquatic Invertebrate Habitat (INV) Organic Nutrient Export (OE) Stream Flow Support (SFS) Streamwater Cooling (WC) Streamwater Warming (WW) | Yes Yes Yes Yes Yes | Yes Yes Yes Yes Yes |
| Fish | Anadromous Fish Habitat (FA) Resident Fish Habitat (FR) | Yes Yes | Yes Yes |
| Aquatic Habitat | Amphibian Habitat (AM) Waterbird Feeding Habitat (WBF) Waterbird Nesting Habitat (WBN) | Yes Yes Yes | Yes Yes Yes |
| Terrestrial Habitat | Native Plant Habitat (PH) Pollinator Habitat (POL) Songbird, Raptor & Mammal Habitat (SBM) | Yes Yes Yes | Yes Yes Yes |
| Social | Public Use (PU) Subsistence (Subsis) | **No No** | Yes Yes |

**Technical Review Process**

Planning Team: The SEAKFHP will convene a planning team to oversee the technical review. The planning team will invite subject matter experts to a technical review team, and the planning team will organize the meeting by establishing an agenda, selecting the date and time for the review, and it will provide oversight and guidance to the review process. The planning team will be responsible for compiling a final summary of the review process and any associated review comments and recommendations.

Technical Review Team: Further, the planning team will invite a technical review team of subject matter experts (possibly including biologists, ecologists, physical scientists, social scientists and statisticians) organized into three subject areas: biological variables; physical variables; and overall summarization of biological, physical and value variables. Each subject area team will be led by a chair, selected by the planning team, and that chair will be responsible to the planning committee for producing a draft written report for that subject area.

Opportunities before the review meeting: The creator for WESPAK-SE will be providing an overview of the assessment for the CBJ Wetlands Review Board in March and April of 2016. These meetings will provide an opportunity for technical review team members to familiarize themselves with the assessment protocol (the first WESPAK-SE overview meeting will occur Saturday, March 12, 2016; additional overview meetings are planned to occur on the evenings of Thursday, March 25th, April 7th, and April 21st).

The technical review meeting: In conjunction with the timing of the WESPAK-SE overview meetings held by CBJ, the planning team will organize, at a minimum, a one-day technical review meeting open to the public and to various invited stakeholders. **The tentative date for this meeting is Thursday, April 28, 2016.** During this meeting the technical review team will convene to hear brief presentations on the history of WESPAK-SE’s development and intended uses in the region, and background for the review. Further, each subject area team will hear brief presentations necessary for their work as well as have time for facilitated discussion pertinent to their review. Additional sub-team meetings may be scheduled as needed.

**Terms of Reference for Each of the Technical Evaluation Teams**

WESPAK-SE represents a regionally-specific, consistent, and science-based method to rapidly assess wetlands in Southeast Alaska. However, this tool is relatively new to the region, and we only now have field data in hand that will allow for a careful technical review of how the assessment tool appears to perform. WESPAK-SE works by taking a limited number of rapidly available measurements and observations and processing them into 7 variables called “function scores and 7 variables called “value” scores for tidal wetlands and 18 function scores and 19 value scores for non-tidal wetlands. In addition, 3 scores are available for other wetland attributes (wetland sensitivity, ecological condition and stressors). There are many uses for these data that will require them to be combined in some fashion into a summary statistic so that wetland assessment areas can be compared. These summary statistics might be used to help determine the impact from development, to make decisions about mitigation, or for other reasons. At other times the individual variable scores might be of use outside of a larger summary. The technical teams will evaluate the utility of each individual variable as well as provide general principles on the most credible ways to develop summary statistics. **For purposes of this review the function and value variables for the non-tidal wetlands will be the priority.**

**Terms of reference for the Biological Variables Evaluation Team:** The priority goal for this team is to evaluate the WESPAK-SE “function” variables related to biological features[[2]](#footnote-2) for their suitability to be included in a final summary statistic for a specific wetland. This team is to carefully consider whether or not each variable adequately and reliably captures and numerically represents a score for the named biological feature. It is not the task of this team to offer an alternative way to calculate the variable. Rather, at the conclusion of the team’s work the team will make a recommendation to classify each variable as 1) technically sound and appropriate to be included in a summary statistic for a wetland area, 2) technical soundness undetermined and recommended to be down-weighted or excluded from a summary statistic for a wetland area, or 3) technical reservations and recommended to be excluded from a final summary statistic for a wetland area. Focused and specific suggestions for improvement will be valuable in the future when WESPAK-SE is updated. A secondary goal for the team is to review the associated value variables and ensure that these variables are logically correct and consistent with accepted economic principals. This team is to specifically examine whether or not each value variable adequately and reliably captures and numerically represents broad societal consensus for the named value. As such, the team will make a recommendation to classify each value variable as 1) technically sound and appropriate to be included in a summary statistic for a wetland area, 2) technical soundness undetermined and recommended to be down-weighted or excluded from a summary statistic for a wetland area, or 3) technical reservations and recommended to be excluded from a final summary statistic for a wetland area.

**Terms of reference for the Physical Variables Evaluation Team:** The priority goal for this team is to evaluate the WESPAK-SE “function” variables related to physical features (those “function” variables not specifically named as biological variables) for their suitability to be included in a final summary statistic for a specific wetland. This team is to carefully consider whether or not each variable adequately and reliably captures and numerically represents a score for the named physical feature. It is not the task of this team to offer an alternative way to calculate the variable. Rather, at the conclusion of the team’s work the team will make a recommendation to classify each variable as 1) technically sound and appropriate to be included in a summary statistic for a wetland area, 2) technical soundness undetermined and recommended to be down-weighted or excluded from a summary statistic for a wetland area, or 3) technical reservations and recommended to be excluded from a final summary statistic for a wetland area. Focused and specific suggestions for improvement will be valuable in the future when WESPAK-SE is updated. A secondary goal for the team is to review the associated value variables and ensure that these variables are logically correct and consistent with accepted economic principals. This team is to specifically examine whether or not each value variable adequately and reliably captures and numerically represents broad societal consensus for the named value. The team will make a recommendation to classify each value variable as 1) technically sound and appropriate to be included in a summary statistic for a wetland area, 2) technical soundness undetermined and recommended to be down-weighted or excluded from a summary statistic for a wetland area, or 3) technical reservations and recommended to be excluded from a final summary statistic for a wetland area.

Terms of reference for the “Summarization” Variables Evaluation Team:The goal for this team is quite different than the goals of the other teams, in that there is not already an accepted method for summarization of the WESPAK-SE variables into a single score of a wetland assessment area. This team is to specifically examine alternative ways to summarize WESPAK-SE variables and to offer both general and specific advice about summarization. Similarly, advice as to the summary methods that are to be avoided is also welcome. The team should discus methods that involve averaging, order statistics, logic based algorithms (e.g., choose a wetland unit summary classification based on a set of yes-no criteria), and other methods that are used for summarization in biological and social science applications.

**Intended Outcomes**

The technical review meeting has three intended outcomes: 1) a general scientific review of the WESPAK-SE process, 2) a specific review of each WESPAK-SE output variable with classification as to whether or not it should be included into a summary score for each wetland area, 3) general guidance as to how the individual function and value scores should be appropriately combined into a single overall score for a wetland assessment area.

**The Planning Team:**

Steve Brockmann- USFWS

Hal Geiger, St. Hubert Research Group

Dave D’Amore – USDA Forest Service, Pacific Northwest Research Station

Frank Rue – Former commissioner of the Alaska Department of Fish and Game

**Coordination Support:** Debbie Hart-SEAKFHP Coordinator

**Sponsor:** Coordination, venue, and limited travel support have been secured through the USFWS Coastal Program award to the Southeast Alaska Fish Habitat Partnership.

**Technical Review Team (to be filled in by sub-team chairs)**

Biological Variables sub-team

Chair: Steve Brockmann

Recorder: TBD

Session presenters (experts who have familiarity with the biological variables used in WESPAK-SE)

* TBD

Subject matter experts (possible fields/key experts)

* TBD

Physical Variables sub-Team

Chair: Dave D’Amore

Recorder: TBD

Session presenters (experts who have familiarity with the physical variables used in WESPAK-SE)

* TBD

Subject matter experts (possible fields/key experts)

* TBD

Summarization sub-Team

Chair: Hal Geiger

Recorder: TBD

Session presenters (experts who have familiarity with statistics and the physical and biological variables used in WESPAK-SE)

* TBD

Subject matter experts (possible fields/key experts)

* TBD

Potential audience technical review attendee affiliations:

SEAL Trust

CBJ/Wetlands Review Board

SAWC

TNC

UAS

USFS, Region 10 and Tongass National Forest Fish Wildlife and Watershed and Engineering staff

US EPA

US Army Corps of Engineers

USFWS-Habitat Restoration Program, Conservation Planning Assistance Program

National Marine Fisheries Service, Habitat Conservation Division

Natural Resources Conservation Service

Federal Highway Administration

Alaska Department of Transportation, Hydraulics, Environmental, and Regional staff

Alaska Department of Fish and Game, Fish Passage Assessment Program

Alaska Department of Fish and Game, Habitat Division

Alaska Department of Environmental Conservation

Sealaska

CM2Hill

WESPAK-SE developer

Others as identified

**WESPAK-SE Technical Review Meeting**

**(Tentatively scheduled for Thursday, April 28, 2016)**

**Venue – TBD**

**DRAFT AGENDA**

**8:00 am Coffee**

**8:30 – 9:00am Welcoming Comments and Introductions—**Deborah Hart, SEAKFHP

**9:00 – 10:30am WESPAK-SE Protocol Overview— Moderator TBD**

This session is intended to provide an overview of the WESPAK-SE protocol, its development in Southeast Alaska by various stakeholders (SEAL Trust, CBJ, SAWC) and intended future use by land use regulators (ACOE, ADFG, USFWS, NOAA, etc….). An additional presentation will set the stage for the need for a technical review, including recommendations for variable evaluation, calculation review, scoring suggestions, etc.

9:00 – 9:20 History of wetland assessment work in Southeast Alaska – Neil Stichert, USFWS

9:20 – 9:40 WESPAK-SE Protocol Overview – Presenter TBD

9:40 – 10:00 Using WESPAK-SE in Southeast Alaska for wetland mitigation – Presenter TBD (SEAL Trust/CBJ/SAWC)

10:00 – 10:20 WESPAK-SE Initial look at the CBJ WESPAK data (title needed) – Hal Geiger, Chief Scientist, St. Hubert Research Group

10:20 – 10:30 Questions/Answer Opportunity (use time as is available)

**BREAK 10:30am (recommend shortening morning session to allow for more time for session review)**

**11:00 – 5:30pm (as needed) Technical Review Sessions – Moderators as noted**

**11:00 – 12:30 SESSION 1 – WESPAK-SE Biological Variables Review and Recommendations — Moderator TBD**

11:00 – 11:40 WESPAK-SE Biological variables overview presentations – Presenter TBD

11:40 – 12:20 Discussion among review team members, presenters, and the public

12:20 – 12:30 Summary statements from chair and recorder

**LUNCH – 12:00 – 1:00pm – Working Luncheon (continue sessions needed)**

**12:30 – 2:00pm SESSION 2 – WESPAK-SE Physical Variables and Recommendations — Moderator TBD**

12:30 – 13:10 WESPAK-SE Physical Function variables presentations – Presenter TBD

13:10 – 13:50 Discussion among review team members, presenters, and the public

13:50 – 14:00 Summary statements from chair and recorder

**2:00 – 3:30pm SESSION 3 – WESPAK-SE Values Variables Review and Recommendations— Moderator TBD**

2:00 – 2:20 WESPAK-SE overview – Presenter TBD

14:00 – 14:40 WESPAK-SE Values variables presentations – Presenter TBD

14:40 – 15:20 Discussion among review team members, presenters, and the public

15:20 – 15:30 Summary statements from chair and recorder

**BREAK 3:30pm**

**4:00 – 5:30pm** **SESSION 4 WESPAK-SE Summarization Review and Recommendations— Moderator TBD**

16:00 – 16:30 WESPAK-SE Summarization presentations – Presenter TBD

16:30 – 17:00 Discussion among review team members, presenters, and the public

17:00 – 17:10 Summary statements from chair and recorder

**5:10pm (or as time allows) Recap Days Discussions and Summary Actions**

1. Table 1 and 2 information provided from SEAL Trust document: Credit-Debit Method for In-Lieu Fee Mitigation of Aquatic Resources in Southeast Alaska. [↑](#footnote-ref-1)
2. Amphibian Habitat (AM), Anadromous Fish Habitat (FA), Resident and Other Fish Habitat (FR), Aquatic Invertebrate Habitat (INV), Native Plant Habitat (PH), Pollinator Habitat (PH), Songbird, Raptor, and Mammal Habitat (SBM), Waterbird Feeding Habitat (WBF), and Waterbird Nesting Habitat (WBN) [↑](#footnote-ref-2)