Floodplains Reimagined - Habitat Metrics Ad Hoc Group Meeting

May 5, 2022, 1 pm – 3 pm

Virtual Meeting, Zoom platform

Meeting Objectives:

- Shared understanding of metric linkages to priorities and objectives.
- Prioritize habitat metrics for modeling purposes.
- Identify sources or individuals with knowledge of appropriate habitat suitability criteria.
- Identify sources of data or other input datasets.

Action Items

- Bjarni Serup (Serup) CDFW - Will act as the Habitat Metrics Ad Hoc representative for the Advisory Committee meeting.
- Curt McCasland, USFWS and Virginia Getz, Ducks Unlimited – Will work with the Floodplains Reimagined Team to develop functional flood depths for recreational lands/properties.
- Serup - To share papers on giant garter snake (GGS) inundation survivability and productivity versus landcover.
- Mark Petrie, Ducks Unlimited - To share studies related to optimizing for multiple species with the Habitat Model Ad Hoc Group.
- Kearns & West – to add bird population versus habitat discussion topic to Bird Ad Hoc group agenda.

Welcome and Introductions

Kayla Kelly-Slatten (Kelly-Slatten), Kearns & West, welcomed all attendees, reviewed the meeting agenda, and objectives.

Overview of Connection Between Priorities, Objectives, and Metrics

The San Francisco Estuary Institute (SFEI), reviewed the priorities, objectives, and metrics spreadsheet with the Habitat Metrics Ad Hoc Group to build a shared framework for discussing topics.

The priorities and metrics spreadsheet breaks topics down by the following hierarchy: 1) Priorities, 2) Objectives, and 3) Performance Metrics (measurable).

Group members provided comments related to the proposed priorities, objectives, and metrics and Program Team responses where appropriate:

Objectives

- Recommendation to reconsider the objective: “Increase the availability of functional habitat for pacific flyway bird populations” such that it focuses on habitat for migratory birds and not population wide metrics.
    - Response: This topic should be discussed in greater detail during the bird ad hoc meeting.

- Recommendation to add protection of historic to the objective: "Do no harm to existing property and water rights".
- Recommendation to incorporate contiguous or connected riparian habitat in the objectives for "Ecosystem health" and "Increasing the extent of native habitat types".
- Recommendation to include hunting in "Maintain or improve public and private access for wildlife viewing and hiking" due to its large role in public recreation. Furthermore, language on maintaining or improving recreational hunting and habitat management opportunities for duck and goose clubs should be added.
- Clarification of meaning of the objective: "Improve the configuration of habitat types, managed wetlands, and wildlife friendly agriculture"
    - Response: The objective refers to the benefits that come from well managed and connected habitat.

Metrics

- Observation that the method of measurements ("last day or cumulative days impacted" and "number of voluntary accessible acres") is not immediately clear for outside audiences.
    - Response: Clarification that the metrics are still in the process of being defined and standardized in terms of what needs to be measured to accurately address how land is impacted.
- Observation that the model currently lacks the capacity to compare scenarios using water temperature and that water temperature performance metrics are not included.
- Clarification that the Tech Team will not model the performance of the actions against the economics objectives. Therefore, there are no proposed economics performance metrics during this Phase. The Tech Team may be able to do economics modeling in the next phase.

Proposed Additional Metrics:

- Habitat quality as it relates to recreation/hunting
- Water depth
- Fish passage
    - Hazard areas for fish passage
        - Consider life stage of fish when evaluating hazard areas
    - Travel distance for fish passage
    - Fish habitat connectivity
- Habitat Suitability Criteria
    - Recommendation to use other approaches other than Weighted Useability Area (WUA). The use of a WUA may produce inaccurately high suitability results.

Landscape Metric Evaluation

SFEI provided the Habitat Metrics Ad Hoc Group with an overview of the Landscape Metric Evaluation covering the modeling approach, inputs, and potential metrics.

Group members provided the following comments:

- Observation that there are ongoing conversations regarding methods to integrate the landscape metric evaluation process and hydrodynamic models. This would include inundation regimes, frequency, and other variables.
- Recommendation to model for optimizing habitat for multiple species.
    - Identification of target sweet spot for multiple species
        - How can the landscape metric evaluation target the sweet spot?
        - There may not be a sweet spot for all biota in a habitat, which will require tradeoffs for different species when optimizing habitat.
        - Identification of neutral and negative habitats for different species
        - Recommendation to discuss different habitat types separately.
    - Ducks Unlimited can share studies related to optimizing for multiple species with the Habitat Model Ad Hoc Group.
- Recommendation to further identify the problem statements and identify the best metrics.

Habitat Suitability Evaluation

SFEI provided the Habitat Metrics Ad Hoc Group with an overview of the Habitat Suitability Evaluation covering the approach and potential metrics.

Group members provided the following comments:

- Observation that modeling floodplain connectivity for fish is difficult.
    - Model outputs on aquatic connectivity and fish's sense of habitat can be two very different things.
    - Creating suitable habitat does not guarantee an adequate fish population nor their ability to properly navigate the bypass to access the habitat.
    - Response: The Tech Team has been contemplating multiple issues when dealing with a highly modified system, and despite the best efforts there will be access challenges for the fish.
        - Response: Recommendation for integrating entrainment rates into the salmon benefits model. Check that the entrainment assumptions can be supported by science. Model outputs will then be compared with those of the habitat suitability criteria.

- Clarification of application of HSC.
    - Tech Team Response: Weighting is applied to rasters that correspond to differing criteria. Then the outputs are summed to produce a single suitability index.
    - Observation that application of HSC derived from literature documenting perennial streams to a novel habitat will not result in accurate model outputs. This is a common problem with the HSC approach.

Adjourn

Kelly-Slatten thanked attendees for their attendance and participation and adjourned the meeting.

Meeting Attendees

The following people were in attendance:

Name	Affiliation
Alison Whipple*	SFEI
Andy Duffey	RD70
Baker Holden III	USFWS
Bjarni Serup	CDFW
Bronwen Stanford*	SFEI
Carson Jeffres	UC Davis
Chris Campbell*	CBEC
Curt McCasland	USFWS
Ellen McBride	NMFS
Eric Holmes*	Kearns & West
Erin Conlisk	Point Blue
Jenna Duffin*	CBEC
Jesus Esparza	DWR
John Stofleth*	CBEC
Kayla Kelly-Slatten*	Kearns & West
Keith Marine*	Aquatic Resources Consulting Scientists
Kristy Dybala*	Point Blue
Mark Petrie	Ducks Unlimited
Mark Tompkins	FlowWest
Roger Swanson	Wild Goose Club
Steve Zeug*	Cramer Fish Sciences

*Denotes Program and/or Technical Team