

Tidal Wetlands Conceptual Model Sub team Meeting Notes
August 8, 2014

Participants: Bruce Herbold, Alice Low, Larry Brown, Jenny Bigman, Rosemary Hartman, Jim Hobbs, Stacy Sherman, Pascale Goertler, Adam Ballard, Anitra Pawley, Joe Kirsch, Dave Zezulak, and Dave Contreras

The focus of the meeting was to finalize the conceptual models and assign writing (with an expected timeline) for each model. A brief discussion was held on how to use these conceptual models to formulate hypotheses.

Tidal Wetland Conceptual Model

Tidal Wetland Model Notes:

- Any “Tidal Marsh” reference will be changed to “Tidal Wetlands”.

Comments:

- Perhaps the model should look at/include floodplains and compare them to wetlands.
 - Terrestrial gradient feeds into floodplains and there should be a section within the text of the model that addresses them.
- Discussion of use of “regional” in Tier 2 - represents the surrounding sloughs, terrestrial interface, etc. outside the tidal wetland. Tier changed to “Local attributes” to avoid confusion.
- Change “Water Characteristics” to “Water Quality” in Tier 2.

FRP staff will write the text.

Wetland Seasonality Conceptual Model

Comments:

- No comments.

Wetland Evolution Conceptual Model

Comments:

- As a continuum, add “Upland” in Tier 4.
- Delete “Proximity to tides” in Tier 1.
- Delete “Template” in Tier 2.
- Delete the yellow dashed box around aquatic vegetation model and orange dashed box in external drivers.

Ask Hildie Spautz or Chris Enright about text authorship.

Food Web Conceptual Model

Comments:

- No microbial processes are depicted in the model and should be included in the text.

- Change “Water Characteristics” to “Water Quality” in Tier 2.
- Add “Other Predators” box in Predators Tier.

Jim Hobbs will begin to write the text with help from Adam Ballard.

Aquatic Vegetation Conceptual Model

Aquatic Vegetation Model Notes:

- “Species Composition” and “Habitat Structure” were added to connect Aquatic Vegetation to the “Food Web” and “Fish Species” models.

Comments:

- Try to change the overall structure to be similar to the Wetland Evolution model.
- Change the second Tier name to “Site Attributes”.
- Change “Wind Stress” to “Wind/Wave Stress”.
- Try to add an arrow connecting “Wind/Wave Stress” to Erosion.
- Add “Other Fish” box to the upper tier.
- Change “Transport Model” box to “Transport Model and Connectivity”.

Anitra Pawley will work with Louise Conrad on the aquatic veg conceptual model text.

Invasive Clams Conceptual Model

Invasive Clam Model Notes:

- This conceptual model attempts to focus on clam grazing rate and turbidity residence time.

Comments:

- Need a contaminants model.
- Competitors may be removed and addressed in the text.
- Change “Small Zooplankton Biomass” to “Zooplankton Biomass”.
- Change “Tidal Marsh” to “Tidal Wetlands”.
- Change “Habitat attributes” to “Site attributes”.

Ask Jan Thompson to write the text with help from Rosemary Hartman.

Transport Conceptual Model

Comments:

- Change Tier text from “Intervening Conditions” to “Connection”.

Bruce Herbold will begin to write the text.

Salmon Conceptual Model

Comments:

- Salinity is not addressed within the model.
- Include toxicity.

- Change salmon timing to a wider time frame.

Pascale Goertler will write the text.

Delta Smelt Conceptual Model

Comments:

- Change “Clam Crazying” to “Clam Grazing” and “Marsh” to “Wetland”.
- Change “Proximity to Ocean” to “Position Along Ecocline”.

Bruce Herbold, Larry Brown, and Ted Sommer will tweak the Delta Smelt model. Most of the text will come from the MAST report.

Next Steps For All Models

1. All tiers will need to be explicitly defined in the text.
2. All text and arrow colors used should be easy to read.
3. Try to shorten any text.

How do we use the models?

- Models will be used to formulate hypotheses.
- Many of the hypotheses will be based on the project’s goals.
- Using the models, hypotheses can be derived by using the outputs (i.e. fish/food web) and working “backwards” to think about how the outputs may be affected.
- Hypotheses should be narrowly focused on what occurs on the site instead of expanding it spatially (i.e. tidal restoration will increase salmon population is too broad).

The FRP program will develop a set of hypotheses for the next tidal wetland restoration project work team meeting.

Timeline for text and publication

- Eventual peer-reviewed publication (most likely in SFEWS) will focus on how the DRERIP conceptual models were used, updated, applied to develop hypotheses on how tidal restoration may affect at-risk fish and their food web.
 - All the models and their text will be compiled into one comprehensive document.
 - Authorship should be alphabetized.
- Timeline for conceptual model text
 - Completed outline of each conceptual model by mid-September.
 - Final draft of each conceptual model by the beginning of December.
(The text for all the conceptual models will be compiled and submitted for review/publication after December).