

Project Proposal for 2015 Applied Research



Name of Proposed Project: What are the behavioral impacts of the fountain darter under different turbidity levels in relation to feeding success?

Project Description:

The fountain darter is a visual predator that prefers moving prey to static prey. Increases in turbidity may impact the fountain darter's ability to visually detect prey. Since it is known that storm water runoff and recreation affect in-stream turbidity in the San Marcos Springs/River and Comal Springs/River aquatic ecosystems; however, the impact of increasing turbidity on fountain darter behavior has not been determined. This study will evaluate the effects of known turbidity ranges on fountain darter prey consumption.

Rationale and Benefit to the EAHCP Ecological Model, Groundwater Model or Phase II Strategic Adaptive Management Program:

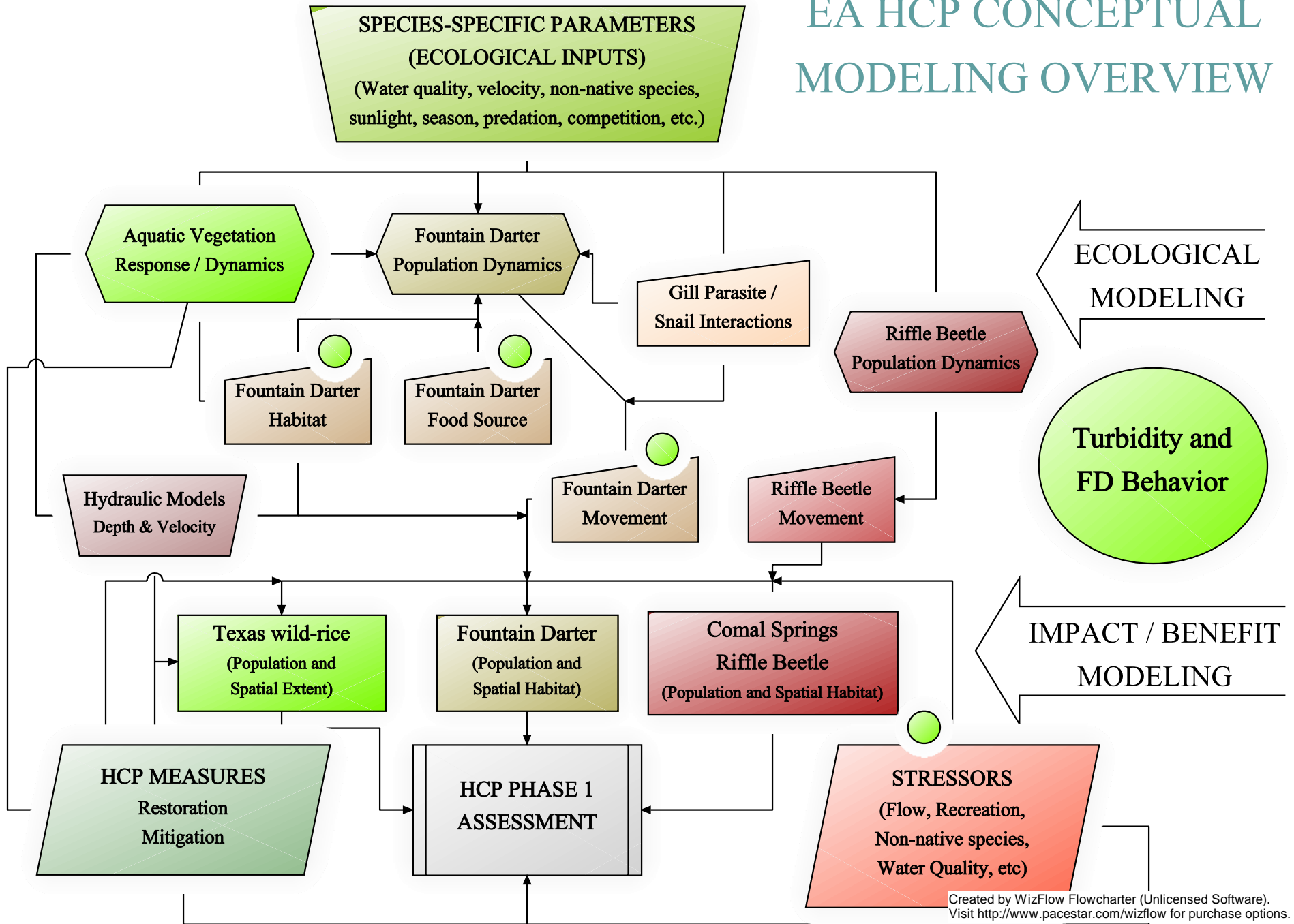
The Eco-Model's has three fountain darter "blocks" for habitat, food source, movement and population dynamics. Data from this study directly impacts the food source block, and possibly to a lesser extent the other three blocks.

Respected Supporting Literature:

1. L. Swanbrow Becker and C.R. Gabor. 2012. Effects of Turbidity and visual versus chemical cues on anti-predator response in the endangered fountain darter (*Etheostoma fonticola*). *Ethology* 118:994-1000.
2. HCP Ecological Modeling Team PowerPoint presentation. 2014. EA HCP Conceptual Modeling Overview slide.

Submitted by: "Tier B" field component of study found in the HCP.

EA HCP CONCEPTUAL MODELING OVERVIEW



Project Proposal for 2015 Applied Research



Name of Proposed Project: When does fountain darter compensatory reproduction get triggered, and if so, when and what causes it?

Project Description:

Low flow conditions in the San Marcos and Comal springs aquatic ecosystems could cause factors that may affect fountain darter reproduction. Compensatory reproduction occurs in some species when reproduction limiting conditions are no longer a factor. The study will determine the effects of diet restriction on fountain darter growth, sexual maturation, egg production, hatch success, larval deformities, and adult survival relative to continuously fed fish.

Rationale and Benefit to the EAHCP Ecological Model, Groundwater Model or Phase II Strategic Adaptive Management Program:

Knowledge of compensatory fountain darter reproduction could be beneficial to one of the fountain darter “blocks” in the Ecological Model. It may also have an impact on Phase II decisions concerning recovery in the wild or breeding in a refugia setting.

Respected Supporting Literature:

1. HCP Ecological Modeling Team PowerPoint presentation. 2014. EA HCP Conceptual Modeling Overview slide.

Submitted by: Study found in the HCP.

EA HCP CONCEPTUAL MODELING OVERVIEW

