King County
Scientific Framework for Shoreline Analysis

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Technical Committee:

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2006 Shoreline Analysis

- Ecology grant received to **characterize physical, chemical and biological conditions** of major shorelines.

- Evaluating **1,350 miles of major shorelines** in unincorporated King County.

Washington State Guidelines
WAC 173-26

Goal of analysis: A comprehensive "understanding of current and potential ecological functions" (173.26.186)

Step 1: "Identify and assemble the most current, accurate, and complete scientific information available" (173.26.201)

Step 2: "Prepare a characterization of shoreline ecosystems and their associated ecological functions" (173.26.201)

# 3 types of shorelines evaluated:

Marine (Vashon)

Riverine ≥ 20cfs

Lacustrine ≥ 20 acres

Shorelines of the State *King County, Washington*
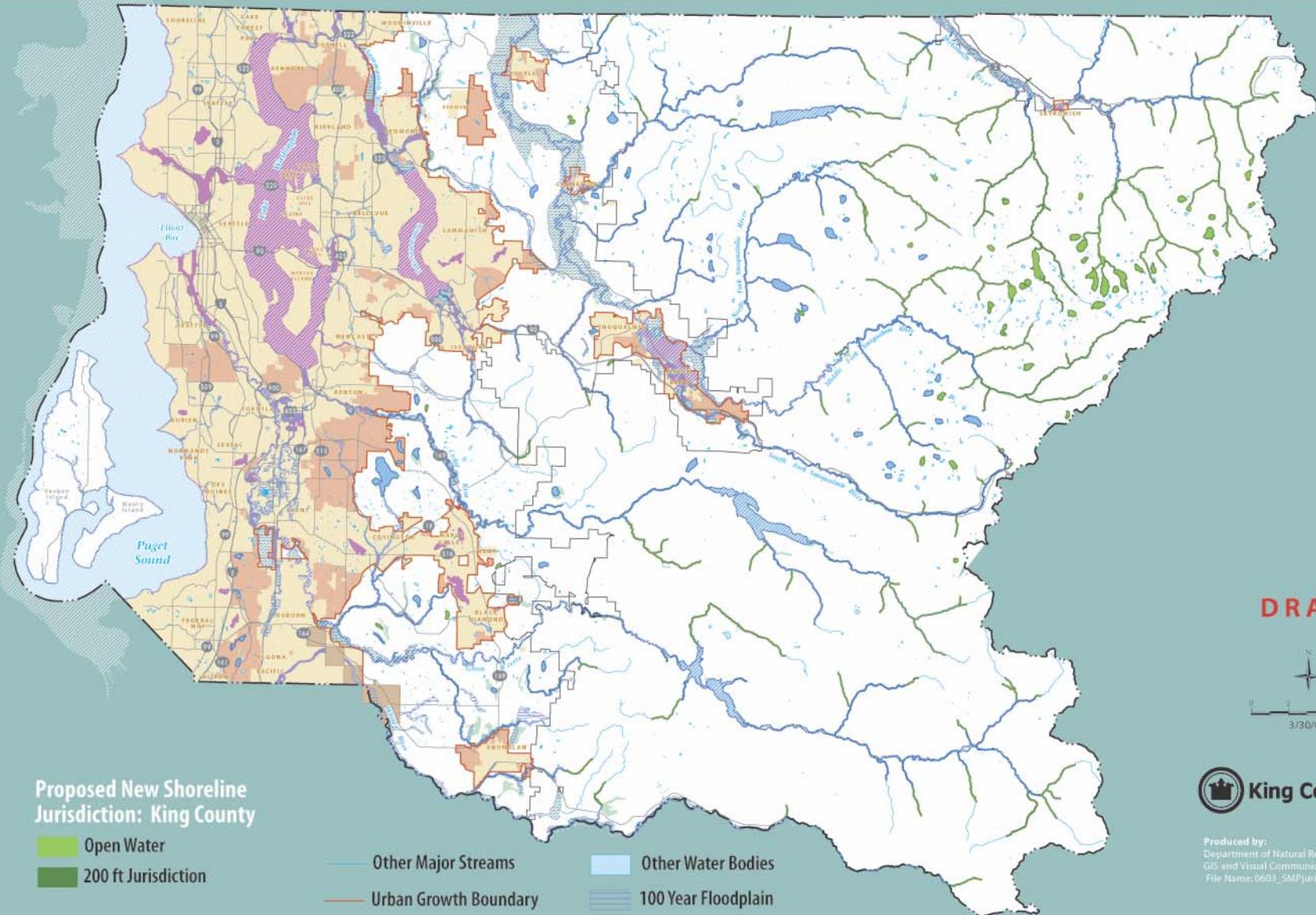
DRAFT

King County

3/30/06

Proposed New Shoreline Jurisdiction: King County
- Open Water
- 200 ft Jurisdiction

Current Shoreline Jurisdiction: King County
- Open Water
- 200 ft Jurisdiction

- Other Major Streams
- Urban Growth Boundary
- Forest Production District
- King County Boundary
- Tribal Lands

- Other Water Bodies
- 100 Year Floodplain
- Current Shoreline Jurisdiction: Incorporated Area
- Associated Floodplains and Wetlands
- Shorelines of Statewide Significance

- Incorporated Areas
- Potential Annexation Areas

Puget Sound
Elliott Bay
Vashon Island

Raster-Based GIS Model
(similar to Greenprint)

•Base scoring on estimating process integrity as a proxy for function;

•Score pixels within jurisdiction boundaries for attributes using specific GIS layers, with the goal of aggregating values;

•Increase weight of some scores relative to others, based on perceived importance to processes and importance to functions.

Processes to be analyzed:

Individual Processes	Process Group
Hydrologic cycle Wave energy Tidal regime	Hydrology
Large woody debris Sediment Light energy	Physical and Geomorphic
Phosphorus/Toxins Nitrogen Pathogens	Water quality
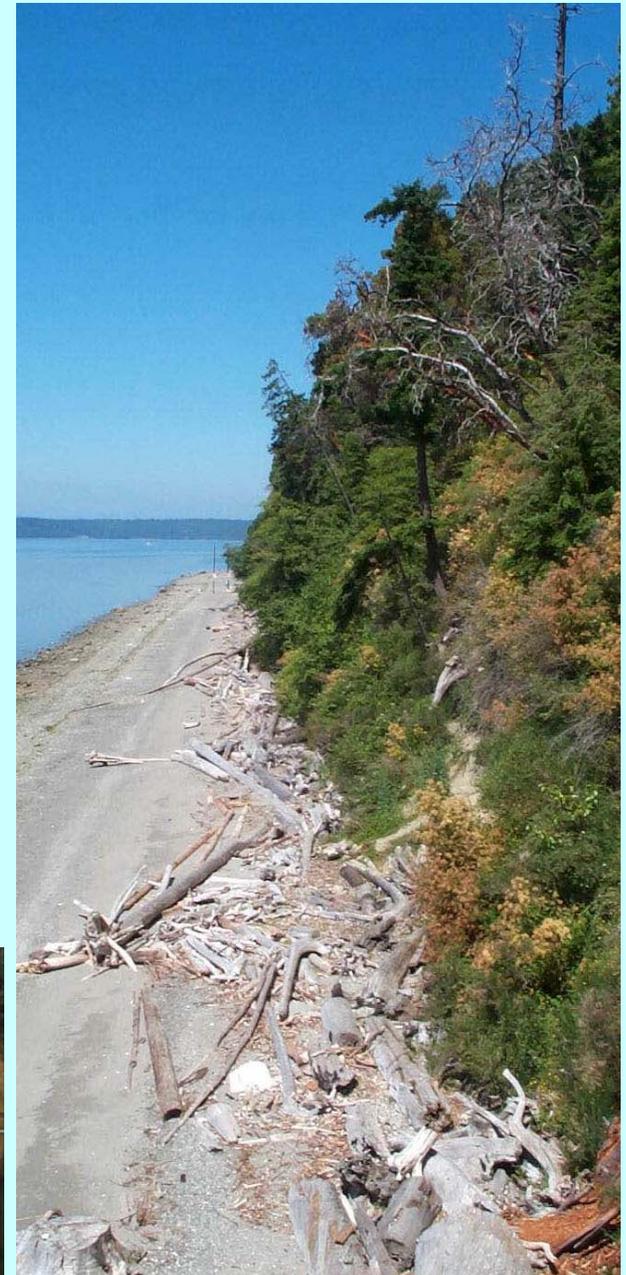
Analytical steps to process evaluation:

Process Components

↓

Major Natural Controls

↓

Key areas of landscape

→ Change to process in key area

↓

Cause of change

↓

Indicators of change

Stanley, Stephen, Brown, Jenny, and Grigsby, Susan. 2005. Protecting Aquatic Ecosystems: a guide for Puget Sound planners to understand watershed processes. Washington Department of Ecology publication # 05-06-027

Evaluation and Scoring

- Available information variable for the different shoreline types;

- ~13 different scores: 1 per process, 1 for each aggregate of similar processes, 1 total score;

- Weight scores at both the process and at the group levels for each shoreline type;

- Generate statistics on results at a landscape scale.
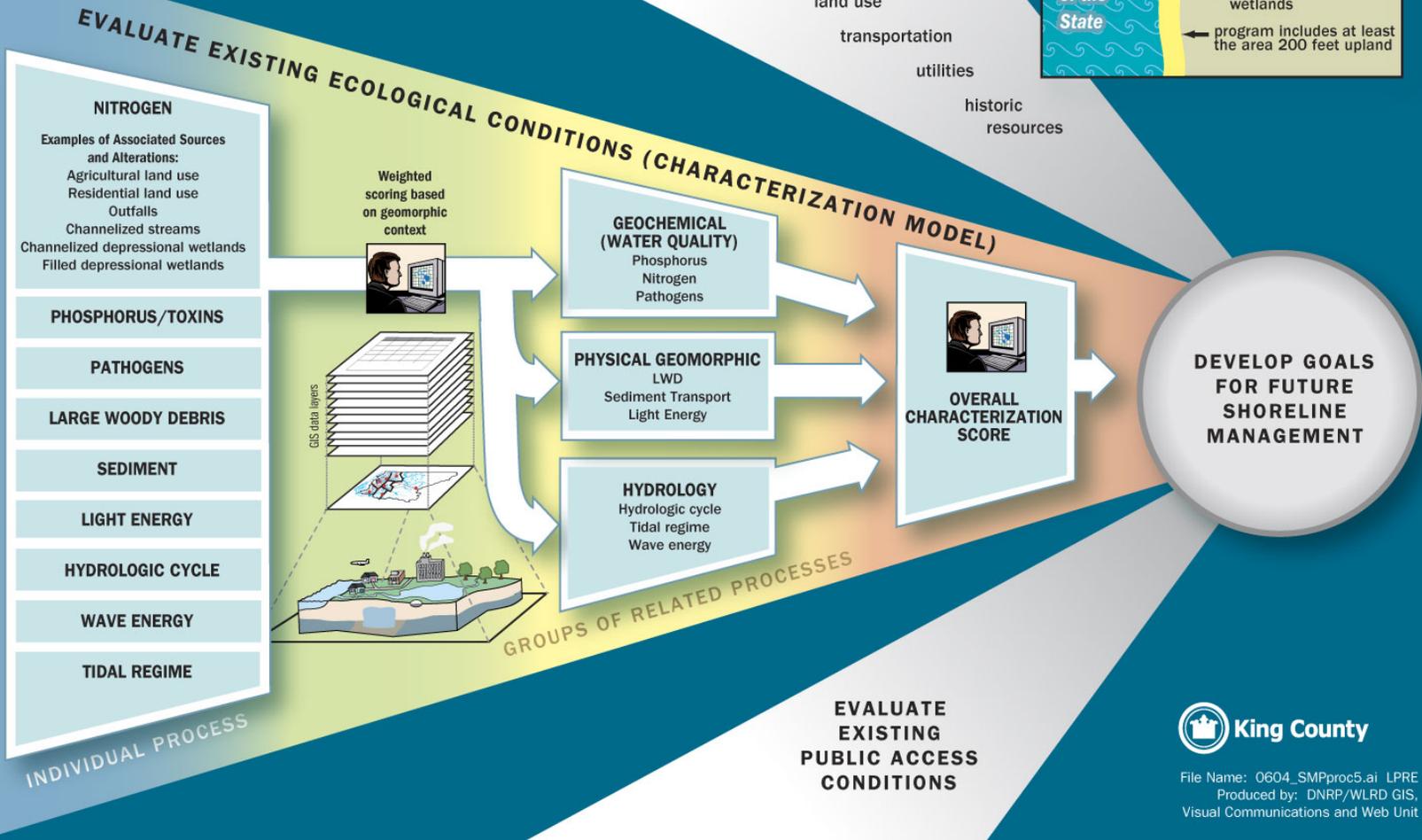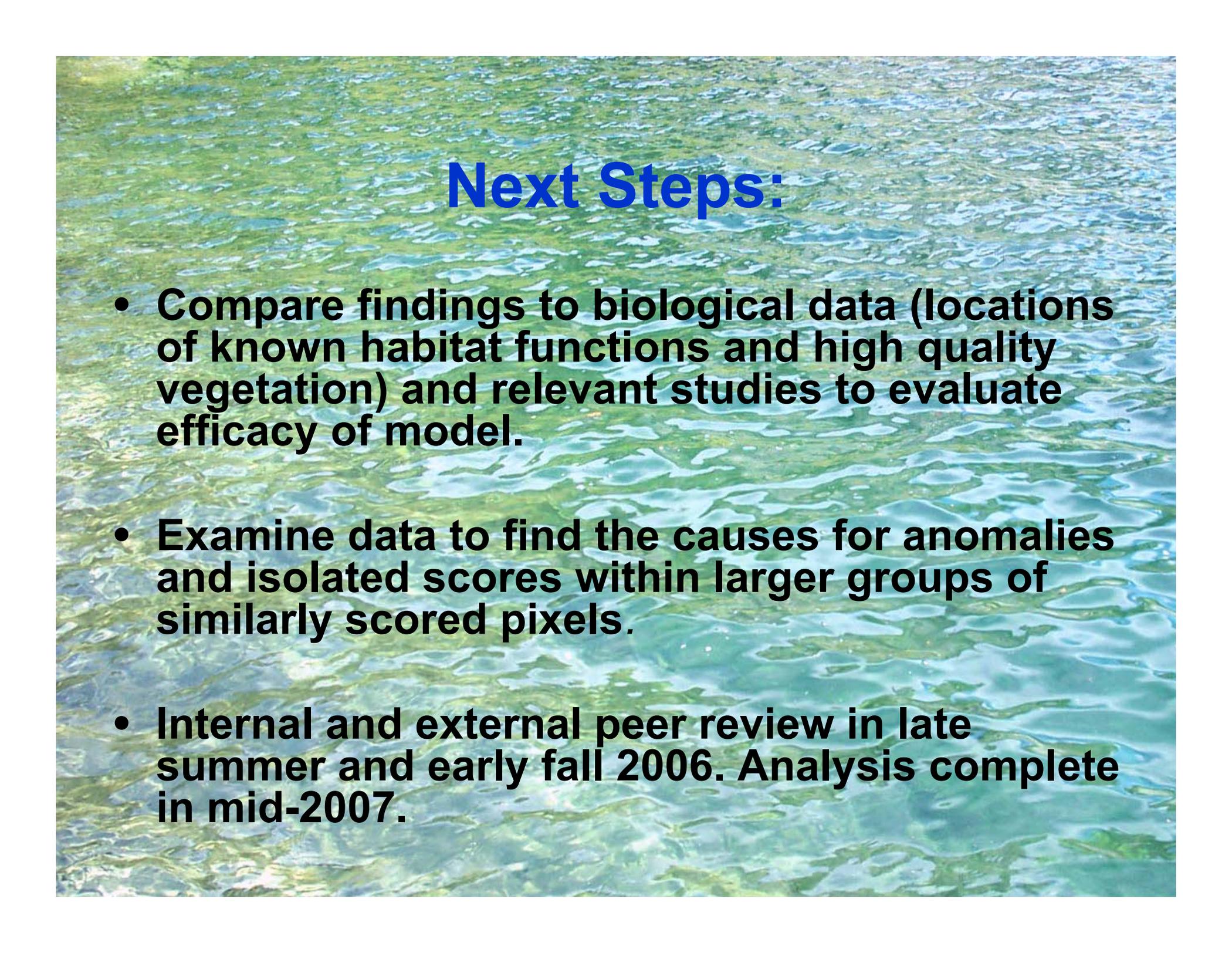
Next Steps:

- **Compare findings to biological data (locations of known habitat functions and high quality vegetation) and relevant studies to evaluate efficacy of model.**

- **Examine data to find the causes for anomalies and isolated scores within larger groups of similarly scored pixels.**

- **Internal and external peer review in late summer and early fall 2006. Analysis complete in mid-2007.**