Assessment of Strategic Restoration Needs for Puget Sound, Washington

Overview

Study Summary

The Study Summary describes the Puget Sound Estuarine Restoration Project (PSERP) as an ecosystem study led by the U.S. Environmental Protection Agency’s (EPA) Puget Sound National Estuarine Research Reserve (PSNERR). The project’s primary objective is to assess the status of Puget Sound’s aquatic ecosystems and the degree to which they have been damaged by human activity.

The PSERP is the foundation for a tool to develop a comprehensive and spatially-explicit geodatabase of current and historic (late 1800s) data of physical conditions throughout the Puget Sound shoreline. This tool is used to assess the degree to which physical stressors have degraded or caused degradation of nearshore processes and was used to identify strategic needs to support recovery of the Puget Sound ecosystem.

Site Location

The Puget Sound Estuarine Restoration Project (PSERP) study area includes the entirety of Puget Sound, the Strait of Juan de Fuca, and the southern portions of the Strait of Georgia. The PSERP General Investigation study area includes large-scale, comprehensive initiatives to protect and restore the natural processes and functions in the nearshore ecosystem.

Methodology

Conceptual Models

The Strategic Needs Assessment framework included the following conceptual models:

- Present a spatial analysis to assess the degree to which physical stressors have degraded or caused degradation of nearshore processes through restoration and protection actions in the PSERP General Investigation. The specific objectives of the Strategic Needs Assessment were to:
  - Conserve relatively intact large river delta habitats
  - Conserve intact or minimally degraded estuaries and shorelines
  - Enhance landscape heterogeneity and associated soil types
  - Conserve relatively intact coastal habitats
  - Conserve relatively intact large river delta habitats
  - Conserve intact or minimally degraded estuaries and shorelines

- The Strategic Needs Assessment Framework was developed to characterize the degree to which nearshore processes and stressors were degraded through restoration and protection actions in the PSERP General Investigation. The framework was designed to identify strategic needs to support recovery of the Puget Sound ecosystem.

Relationship Between Nearshore Processes and Stressors

The Strategic Needs Assessment Framework was developed to characterize the degree to which nearshore processes and stressors were degraded through restoration and protection actions in the PSERP General Investigation. The framework was designed to identify strategic needs to support recovery of the Puget Sound ecosystem.

Process Evaluation Framework

The process evaluation framework was developed to characterize the degree to which nearshore processes and stressors were degraded through restoration and protection actions in the PSERP General Investigation. The framework was designed to identify strategic needs to support recovery of the Puget Sound ecosystem.

Composites of Process Evaluation Framework

The composite of process evaluation framework was developed to characterize the degree to which nearshore processes and stressors were degraded through restoration and protection actions in the PSERP General Investigation. The framework was designed to identify strategic needs to support recovery of the Puget Sound ecosystem.

Results

Composite Results of Process Evaluation Framework

The composite results of process evaluation framework were developed to characterize the degree to which nearshore processes and stressors were degraded through restoration and protection actions in the PSERP General Investigation. The framework was designed to identify strategic needs to support recovery of the Puget Sound ecosystem.

Ecosystem Restoration Project

Simenstad et al. (In Revision) which included the preparation of a comprehensive and spatially-explicit geodatabase of current and historic (late 1800s) data of physical conditions throughout the Puget Sound shoreline.

Large portions of Puget Sound have been altered by multiple types of changes that may cumulatively combine to severely degrade nearshore processes. Two of the six major findings are grouped in the second category of widespread and pervasive changes:

1. Conserve relatively intact large river delta habitats
2. Conserve intact or minimally degraded estuaries and shorelines

Recommendations for Restoration

1. Restore the connectivity and size of large river delta habitats
2. Restore estuarine and upland habitats, tidal wetlands, and native riparian forests
3. Maintain high biodiversity and ecological complexity
4. Restore estuarine and upland habitats

Related Presentation: Identifying Strategic Needs for Puget Sound Region and Evaluating Restoration Benefits

Presenter: Paul Schlenger, Anchor QEA

THURSDAY, NOVEMBER 16
YACHT ROOM
10:30 AM - NOON

Thematic: Restoration

Presenter: Paul Schlenger, Managing Fisheries Biologist, Anchor QEA, pschlenger@anchorqea.com, (206) 287-9130

Co-Author: Andrea MacLennan, Associate Coastal Scientist, Coastal Geologic Services, Inc., andrea@coastalsages.com, (606) 671-6654

Recommended Restoration Benefits

1. Restore estuarine and upland habitats, tidal wetlands, and native riparian forests
2. Maintain high biodiversity and ecological complexity
3. Maintain high biodiversity and ecological complexity
4. Maintain high biodiversity and ecological complexity

Recommendations for Protection

1. Protect relatively intact large river delta habitats
2. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
3. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
4. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests

Thematic: Protection

Presenter: Paul Schlenger, Managing Fisheries Biologist, Anchor QEA, pschlenger@anchorqea.com, (206) 287-9130

Co-Author: Andrea MacLennan, Associate Coastal Scientist, Coastal Geologic Services, Inc., andrea@coastalsages.com, (606) 671-6654

Recommended Protection Benefits

1. Protect relatively intact large river delta habitats
2. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
3. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
4. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests

Thematic: Decision Support

Presenter: Paul Schlenger, Managing Fisheries Biologist, Anchor QEA, pschlenger@anchorqea.com, (206) 287-9130

Co-Author: Andrea MacLennan, Associate Coastal Scientist, Coastal Geologic Services, Inc., andrea@coastalsages.com, (606) 671-6654

Recommended Decision Support Benefits

1. Protect relatively intact large river delta habitats
2. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
3. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
4. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests

Thematic: Science

Presenter: Paul Schlenger, Managing Fisheries Biologist, Anchor QEA, pschlenger@anchorqea.com, (206) 287-9130

Co-Author: Andrea MacLennan, Associate Coastal Scientist, Coastal Geologic Services, Inc., andrea@coastalsages.com, (606) 671-6654

Recommended Science Benefits

1. Protect relatively intact large river delta habitats
2. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
3. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests
4. Conserve estuarine and upland habitats, tidal wetlands, and native riparian forests