RC 1 Land Protection Overview
Draft Version: 2009-10-07

Project Scope: Puget Sound Basin

See Related Chain - MPA chain (not one of the 7 developed)
- A.4(6) Implement components of Aquatic HCP that protect critical habitat
- A.2(4) Develop recommendations to improve MPA effectiveness

Coordinated Land Protection Implementation
- Inter-agency coordination to align multi-scalar & multi-jurisdictional goals
- Build capacity for coordination within PS region

A2 Permanently protect intact areas that still function well

Analysis Strategies
- B1 (5) PSNERP identifies nearshore restoration opportunities
- A1(3) Initiate & Complete Watershed assessments
  - Obj

A1Focus growth away from ecologically important & sensitive areas

Land Acquisition Strategies
- A.2(2) Advocate for wilderness/protected designation
- A.2(9) Support & implement recommendations from CTED TDR
- A.2(3) develop funding mechanism for rapid property acquisition
- A.4(1) Purchase/ transfer development rights or cons. easements

Redirecting Growth Strategies
- A2.2.7 Resolve legislative & other barriers that limit density & development in cities
- A1 (4) Support legislation to direct growth into cities, away from rural

Ecologically Sensitive Development Strategies
- A2(8) Funding & TA to local gov'ts for Critical Area Ordinance updates
- A.2.2.8 Development incentives to increase & improve redevelopment

Shoreline Mgmt Strategies
- A2 (7) Change Shoreline Mgmt Act - require conditional use permits
- A2 (5) Funding & TA to update SMPs in all jurisdictions
- A.2 (6) Provide local govts guidance on how to achieve & measure no net loss of eco function
- A.2(5) technical assistance

See Related Chains RC4 & RC5
- See RC4 River Restoration
- See RC5 Nearshore Restoration

ROADS, TRANSPORTATION & UTILITY INFRASTRUCTURE
- reduced new transportation and utility corridors
  - Obj

See Related Chain RC6
- See RC6 Stormwater

NON-POINT SOURCE LOADING & RUNOFF

NonPoint Source Loading & Runoff
- Reduction in stormwater contaminants
  - Obj
- Reduction in stormwater runoff
  - Obj

RESIDENTIAL, COMMERCIAL, PORT & SHIPYARD DEVELOPMENT

Growth in "Right" Areas
- Less development in ecologically valuable areas
  - Obj
- Growth focused in desired urban growth
  - Obj

"Right" Type of Development
- New and re-development is more ecologically sensitive
  - Obj

SHORELINE ARMORING

Armoring Impacts Minimized
- Existing shoreline armoring retrofitted
  - Obj
- Soft armoring techniques used where new armoring or retrofitting is unavoidable
  - Obj
- Shoreline armoring in critical areas only occurs to protect property rights or critical infrastructure
  - Obj

Ecological Components
- Marine Waters
- Marine Shorelines
- Marine Mammals
- Marine Birds
- Marine Fish
- Marine Invertebrates
- Foodwebs - Marine
- River Deltas & Coastal Embayments
- Freshwater Systems - Streams
- Freshwater Systems - Wetlands
- Freshwater Systems - Lakes
- Foodwebs - Freshwater
- Salmon
- Terrestrial Systems
- Terrestrial Species
- Foodwebs - Terrestrial

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Human Dimensions Components
- Human Health
- Tribal Values & Resources
- Built Environments
- Working Marine Industries
- Working Resource Lands and Industries
- Nature Oriented Recreation
- Scenic Resources & Existence Values

PSP Legislative Goals
- Human Health
- Human Wellbeing
- Habitats
- Species & Food Webs
- Water Quality
- Water Quantity

Legend
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X.1(1) 2008 Action Agenda Near Term Action (strategy or activity), Table 4.1

X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC2 Flow Protection Overview
Draft Version: 2009-09-24

Upgrade municipal and industrial wastewater treatment plants (WWTPs)

See RC4 River Restoration

See River Restoration Chain (fish bypass mechanisms)

Demand/User Conservation Strategies

A3(4) Water conservation

Coordinated PEP

Inter-agency coordination to align multi-scalar goals

Build capacity for coordination within PS region

Supply/ Provision Strategies

A3 Protect & conserve freshwater resources (Stream flow)

A3 (6) Establish local water masters

Federal Energy Reg. Commission dam project

A.3.3.2 Allow & promote rainwater

A.3.3 Promote water reuse and reclamation

Water Banking

Create off channel storage

Aquifer storage & recovery

Regulation, Monitoring, & Enforcement Strategies

Update & set flow rules

A.3.5 Improved groundwater mgmt & monitoring

A3(5) Evaluate & implement solutions to exempt well issues

A3 (6) Enforcement of water laws (e. g., local water masters)

Water Resource Use in Support of Healthy Streamflows

DAMS, LEVEES, & TIDEGATES

dams/dam operations do not negatively impact streamflows

Obj

WASTEWATER TREATMENT PLANT DISCHARGE & CSOs

Reduced loading from Wastewater Treatment Plant Discharge & CSOs

Obj

WATER WITHDRAWALS & DIVERSIONS

Less water use per capita

Obj

Less water diverted or withdrawn

Obj

Less potable water use per captia

Obj

Project Scope: Puget Sound Basin

Ecosystem Components

River Deltas & Coastal Embayments

Freshwater Systems - Streams

Freshwater Systems - Wetlands

Freshwater Systems - Lakes

Foodwebs - Freshwater

Salmon

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Human Dimensions Components

Human Health

Tribal Values & Resources

Built Environments

Working Marine Industries

Working Resource Lands and Industries

PSP Legislative Goals

- Human Health
- Human Wellbeing
- Habitats
- Species & Food Webs
- Water Quality
- Water Quantity

Legend

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X.1(1) 2008 Action Agenda Near Term Action (strategy or activity), Table 4.1

X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC3 Invasives (Terrestrial & Aquatic/Marine) Overview
Draft Version: 2009-09-25

Building Capacity for Collaborative Management

- Inter-agency coordination to align multi-scalar goals (ISC)
- Build capacity for coordination within PS region (ISC)

Policy

- Prevent new introductions (ISC)
- A.5(2) Implement state ballast water requirements
- *A.5(1) Advocate for national or West Coast regional ballast water discharge*

INVASIVES - MARINE, FRESHWATER, TERRESTRIAL
new introductions of invasives prevented
Obj

Research & Monitoring, Outreach and Voluntary Action

- A.5(4) Enhance invasives rapid response capacity (also ISC)
- A.5 (3) Develop invasives baseline and database

INVASIVES - MARINE, FRESHWATER, TERRESTRIAL
new invaders contained or eradicated
Obj

A.5 Prevent & Rapidly respond to introduction of invasive species

Program Implementation

- Contain/Control Spread of established invasives (ISC)

INVASIVES - MARINE, FRESHWATER, TERRESTRIAL
established invasives controlled or eradicated
Obj

Project Scope: Puget Sound Basin

Ecological Components

- Marine Waters
- Marine Shorelines
- River Deltas & Coastal Embayments
- Freshwater Systems - Streams
- Freshwater Systems - Wetlands
- Freshwater Systems - Lakes
- Terrestrial Systems
- Marine Mammals
- Marine Birds
- Marine Fish
- Marine Invertebrates
- Salmon
- Terrestrial Species
- Foodwebs - Marine
- Foodwebs - Freshwater
- Foodwebs - Terrestrial

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Human Dimensions Components

- Human Health
- Tribal Values & Resources
- Working Marine Industries
- Working Resource Lands and Industries
- Nature Oriented Recreation
- Scenic Resources & Existence Values

PSP Legislative Goals

- Human Health
- Human Wellbeing
- Habitats
- Species & Food Webs
- Water Quality
- Water Quantity

Legend

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X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC 4 River & Floodplain Restoration & Enhancement Overview
Draft Version: 2009-09-24

Restoration & Enhancement of Ecosystems, Habitats, & Processes

Coordination of River & Floodplain Restoration
- *Inter-agency coordination to align multi-scalar goals*
- *Enhance coordination to acquire funding for restoration*

Analysis
- *A1(3) Watershed Assessments*
- *Salmon Recovery 3-Year Work Plans*

Incentives & Outreach
- ***B1. Implement & maintain restoration projects in current priority public & private lands***
- *Acquire property rights in support of restoration*
- *B3 (1) Incentive & technical assistance to private landowners*

See RC2 Flow Protection
- *A3 Protect & conserve freshwater resources (Stream flow)*

Floodplain & River Restoration - Ecosystems, Processes, & Functions
- *B1 (4) Remove significant blockages*
- *B1(3) Floodplain and river restoration*
- *B1 (1) Salmon restoration (salmon & estuary restoration)*
- *B1(2) Restoration at river mouths*
- *B2 (1) & B2 (2) Bay & harbor restoration*

See RC6 Stormwater
- *C.2(3) Assist Cities and Counties in Incorporating LID into all stormwater codes*

See RC3 Invasives
- *Contain/ control spread of established invasives (ISC)*

INVASIVES - MARINE, FRESHWATER, TERRESTRIAL
- *Established invasives controlled or eradicated*
  - Obj

DAMS, LEVEES, & TIDEGATES
- *Tidegates & floodgates modified or removed* — Obj
- *Dikes & levees set back, modified, or removed* — Obj
- *Dams better operated, retrofitted, or removed* — Obj

RESIDENTIAL, COMMERCIAL, PORT & SHIPYARD DEVELOPMENT
- *Physical impacts from residential/ commercial/ industrial development decreased* — Obj

AGRICULTURE & LIVESTOCK GRAZING
- *Agricultural management in floodplains consistent with river & floodplain restoration* — Obj

LARGE SCALE TIMBER HARVEST
- *Upland logging practices more sustainable* — Obj

Project Scope: Puget Sound Basin
Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Ecological Components
- *River Deltas & Coastal Embayments*
- *Freshwater Systems - Wetlands*
- *Freshwater Systems - Streams*
- *Freshwater Systems - Lakes*
- *Foodwebs - Freshwater*
- *Salmon*

Human Dimensions Components
- Human Health
- Tribal Values & Resources
- Built Environments
- Working Resource Lands and Industries
- Nature Oriented Recreation
- Scenic Resources & Existence Values

PSP Legislative Goals
- Human Health
- Human Wellbeing
- Habitats
- Species & Food Webs
- Water Quality
- Water Quantity

Legend
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X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC 5 Nearshore Restoration & Enhancement Overview
Draft Version: 2009-09-25

Develop, Support & Coordinate Efforts

Restoration & Enhancement of Ecosystems, Habitats, & Processes

Scientific Assessments

- A1(3) Watershed Assessments
- B1 (5) Complete PSNERP GI to identify nearshore restoration opportunities
- Inter-agency coordination to align multi-scalar goals
- **B1. Implement & maintain restoration projects in current priority public & private lands**
- B3 (1) Incentive & technical assistance to private landowners

Public and private landowners implement nearshore restoration

- B1 (5) Implement PSNERP identified restoration projects
- B1 (2) Complete large-scale restoration projects in mouths of major river systems
- B1 (4) Remove significant blockages
- B1 (1) Implement restoration projects in salmon recovery for 3 year work plans
- Other prioritized restoration projects
- B2 (1) & B2 (2) Pilot programs - bay & harbor restoration

See RC3 Invasives

- Contain/ control spread of established invasives (ISC)

INVASIVES - MARINE, FRESHWATER, TERRESTRIAL

- Invasives removed/ controlled

RECREATIONAL MARINAS

- Recreational marinas impacts reduced (e.g., footprint, over water cover, construction materials)
  - Obj

DAMS, LEVEES, & TIDEGATES

- Dams removed or retrofitted
  - Obj
- Levees & tidegates removed or retrofitted
  - Obj

ROADS, TRANSPORTATION & UTILITY INFRASTRUCTURE

- Remove, retrofit or relocate roads, transportation & utility infrastructure
  - Obj

SHORELINE ARMORING

- Existing shoreline armoring retrofitted or removed
  - Obj

DERELICT GEAR & VESSELS

- Derelict gear removed
  - Obj
- B1 (6) Remove derelict gear

See RC 4 River Restoration

- B1 (1) Salmon restoration
- B1(3) Floodplain and river restoration

See RC1 Land Protection

- A2 (7) Change Shoreline Mgmt Act - Promote shoreline permits

See RC2 Flow Protection

- A3 Protect & conserve freshwater resources (Stream flow)

Project Scope: Puget Sound Basin

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Ecological Components

- River Deltas & Coastal Embayments
- Marine Shorelines
- Marine Waters
- Marine Invertebrates
- Salmon
- Marine Fish
- Marine Mammals
- Foodwebs - Marine

Human Dimensions Components

- Human Health
- Tribal Values & Traditions
- Built Environments
- Working Marine Industries
- Nature Oriented Recreation & Activities
- Scenic Resources & Existence Values

PSP Legislative Goals

- Human Health
- Human Wellbeing
- Habitats
- Species & Food Webs
- Water Quality
- Water Quantity

Legend

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X.1(1) 2008 Action Agenda Near Term Action (strategy or activity), Table 4.1

X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC 6. Reducing Stormwater Loading and Runoff
Overview
Draft Version 2009-09-25

See RC7 Wastewater

- C.2.2.6 Evaluate technical and programmatic solutions for CSOs
- C.1(2) Support Persistent Bioaccumulative Toxic (PBT) Program implementation
- C.1(1) Outreach Campaign to public and businesses re. pollutants identified in Toxics

C.2 (5) Convene a group of regulating agencies, implementers with key funding responsibilities, and other

Strategies to Reduce Municipal, Construction & Industrial Stormwater Loading & Runoff (NPDES)

- C.2(2) Inform & support implementation & adaption of NPDES
- C.2(9) Implement NPDES Industrial permits, WSDOT permits, DOE oversight
- C.2(1) Establish regional coordinated monitoring program for stormwater under NPDES
- C.2(6) Retrofit stormwater systems

Low Impact Development (LID) Strategies

- C.2(4) Develop & implement LID incentives
- C.2(3) Assist Cities and Counties in Incorporating LID into all stormwater codes

Strategies to Reduce Stormwater Runoff and Loading from Agriculture & Forestry

Build capacity for inter-agency collaboration on stormwater management

- C.2(8) Private stewardship & incentives for pollution prevention
- C.2(7) Implement road maintenance and abandonment programs

See RC2 Flow Protection

- A.3.3.2 Allow & promote rainwater harvesting
- A.3(1) Set flow rules in all watersheds

SURFACE WATER LOADING & RUNOFF FROM THE BUILT ENVIRONMENT

Stormwater Loading & Runoff

- Reduction in stormwater runoff — Obj
- Reduction in stormwater contaminants — Obj
- Reduction in contaminants in agricultural and forestry runoff
- Reduction in runoff from agricultural and forestry areas

Project Scope: Puget Sound Basin

Ecological Components

- Marine Shellfish & Marine Inverts
- Marine Fish
- Salmon
- Freshwater Systems - Streams
- Freshwater Systems - Wetlands
- Freshwater Systems - Lakes
- River Deltas & Coastal Embayments
- Marine Shorelines

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Human Dimensions Components

- Tribal Values & Resources
- Working Marine Industries
- Human Health
- Nature Oriented Recreation
- Scenic Resources & Existence Values

PSP Legislative Goals

- Human Health
- Human Wellbeing
- Habitats
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X.1.1 2008 Action Agenda (strategy or activity), Chapter 3

RC 7 Wastewater Treatment Overview
Draft Version: 2009-09-24

Municipal WWTPs
- Upgrade municipal and industrial wastewater treatment plants (WWTPs)

CSO
- C.2.2.6 Evaluate technical and programmatic solutions for CSOs
- C.2 (5) Convene a group of regulating agencies, implementers with key funding responsibilities, and other

Toxics Control
- C.1(2) Support Persistent Bioaccumulative Toxic (PBT) Program implementation
- C.1(1) Outreach Campaign to public and businesses re. pollutants identified in Toxics

- C.3 (1) Use advanced wastewater treatment where needed
- C.3 (2) Pursue stimulus package funding to implement priority upgrades of WWTPs (for Municipal WWTPs only)
- C.3.3 & C.3(3) Encourage / support federal, federally permitted, industrial, (& tribe) facilities to reduce nutrient and pathogen loadings

WASTEWATER TREATMENT PLANT DISCHARGE & CSOs

Reduced loading from Wastewater Treatment Plant Discharge & CSOs
Obj

On-Site Sewage
- C.4.1 Establish, in each Puget Sound county, a coordinated, systematic way to identify, inspect, and repair or replace (as needed) failing or poorly functioning on-site sewage treatment systems
- C.4.4.1 & C.4(1) Develop and implement on-site sewage system mgmt
- C.4 (2) Revise On-site sewage rule by 6/30/11 so standards address new on-site sewage treatment technologies
- C.4(3) Enhance on-site sewage treatment loans & grants

ONSITE SEWAGE SYSTEMS

Reduced contamination from on-site sewage systems
Obj

DO Concentrations
- C.1(9) Implement priority strategies and actions to address low DO in targeted areas*
- C.1 (8) Implement immediate remediation actions to address Hood Canal's low DO concentrations

Incentives
- C.2 (8) Implement private property stewardship, incentive, and technical assistance programs

Shellfish Protection
- C.1 (7) Implement shellfish protection district plans and on-site sewage management plans in marine recovery areas

Related Strategy
- C.4(10) Implement Shellfish Protection District plans and on-site sewage plans

Project Scope: Puget Sound Basin

Ecosystem Components
- Terrestrial Systems
- Terrestrial Species
- Freshwater Systems - Streams
- Freshwater Systems - Wetlands
- Freshwater Systems - Lakes
- Salmon
- River Deltas & Coastal Embayments
- Marine Shorelines
- Marine Waters
- Marine Invertebrates
- Marine Fish
- Marine Mammals
- Marine Birds

Threat reduction results can have varied sets of positive or negative consequences on human dimension components

Human Dimensions Components
- Human Health
- Tribal Values & Traditions
- Built Environments
- Working Marine Industries
- Nature Oriented Recreation
- Scenic Resources & Existence Values

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X.1.1 2008 Action Agenda (strategy or activity), Chapter 3