

# Siuslaw Estuary Partnership

## *An Integrated Multiple Objective Approach To Watershed Protection and Restoration*

### Project Overview and Study Area Maps

September 2010

The Siuslaw Estuary Partnership is a collaborative effort by the City of Florence and its partner agencies to protect and improve water quality and fish and wildlife habitat in the Siuslaw Estuary Watershed. The project is funded by project partners and the West Coast Estuaries Initiative for Coastal Watersheds Program of the U.S. Environmental Protection Agency (EPA) to serve multiple objectives for watershed protection and restoration.



### Phases

Phase I: October 1, 2009-September 30, 2010

Phase II: October 1, 2010-September 30, 2011

Phase III: October 1, 2011-September 30, 2012

### Study Area

The Study Area is shown in the attached Study Area Map. Study Area boundaries include:

- Siuslaw River Estuary
- North Fork Siuslaw River
- North Florence Sole Source Dunal Aquifer boundary, (see attached Aquifer Map).

The land use measures in the project will focus on the portion of the Siuslaw River basin within the Florence city limits and Florence Urban Growth Boundary (UGB) (see attached Study Area Map: Land Use Measures).

## Goal and Objectives

### Goal

The Goal of the project is to protect and improve water quality and fish and wildlife habitat in the lower Siuslaw Watershed.

Guiding Principles, one of the first products from this project, will be the formally recognized vision for environmental protection in these watersheds. They will set

environmental targets and measurable outcomes that will be used in the evaluation of each work element.

## **Objectives**

Multiple objectives of the project and expected outcomes are presented here and described in more detail below. Each of the following objectives are of equal importance, regardless of placement on the list below:

1. Use Collaboration and Scientific Investigation
2. Foster Public Education and Stewardship
3. Protect Water Quality and Quantity
4. Protect and Restore Wetlands and Riparian Areas
5. Protect and Restore Key Estuary Wetlands
6. Plan for Ecological Growth

1. **Use Collaboration and Scientific Investigation:** An Inter-disciplinary Team of 20 local, state and federal agencies has been formed and has been meeting since November, 2009. The role of the Team is to: guide all work elements; shepherd the creation of “Guiding Principles” to tie each task together to meet multiple objectives; provide technical expertise and policy guidance on all products; and consider the latest scientific findings and research on climate change in the development of all plans, standards, policy, code, and monitoring programs.
2. **Foster Public Education and Stewardship:** The project will use public outreach and involvement tools to inform and involve all stakeholders and interested parties in the process in a meaningful way and help promote environmental education currently and in the future. The project includes an outreach/public education program; targeted outreach to interest groups; a Stakeholder Group; and a vision for an Estuary Interpretive Trail system. The Public Involvement Plan was approved by the Florence Planning Commission on January 21, 2010; the Stakeholders List was approved by the Florence City Council on December 21, 2009.
3. **Protect Water Quality and Quantity:** The project will develop and implement a (a) Surface and Ground Water Monitoring Program, (b) Source Water Protection Plan, and (c) Stormwater Design Manual and Demonstration Project, as described below:
  - a. Surface and Ground Water Monitoring Program
    - develop scientifically-based standards;
    - conduct an on-going monitoring program;
    - identify sources of contamination;
    - seek remedial action;
    - quantify water flow within the aquifer, water table fluctuation, and
    - determine and monitor flow patterns (hydrographs) in the surface streams.
  - b. Source Water Protection Plan
    - Report on Protection Areas, Potential Risks, and Alternative Implementation Measures
  - c. Stormwater Design Manual and Demonstration Project
    - develop effective, innovative non-point source pollution controls;

- construct Demonstration Project adjacent to the estuary in Old Town that uses state-of-the-art Best Management Practices (BMPs) tailored to Florence. Current DEQ-approved BMPs, i.e, the Portland Manual, now used by the City, are not always applicable in Florence’s environment and have not completely achieved desired environmental results in on-the-ground installations in Florence. BMPs are needed that work with the area’s specific soil, topography, hydrology, and climate.
- Revise BMPs as indicated

**4. *Protect and Restore Wetlands, Riparian, and Upland Areas:*** A “Wetland and Riparian Area Protection and Restoration Plan” will use the Oregon Rapid Wetland Assessment Protocol (ORWAP). The revised, updated Plan will provide a comprehensive functional assessment. This is especially important in this watershed. For example, the capacity of existing natural wetland systems, and potential future constructed wetlands, to store and slow the velocity of, stormwater prior to discharge to area creeks and the estuary, is not currently established; and it is not known whether the carrying capacity is sufficient for the environment to fully address the anticipated impacts from planned urbanization. The functional assessment of the wetlands within this urban growth area will provide critical information to help guide future urbanization policy and stormwater management policy and capital programs. Components of this Project Element include:

- Update 1996 biological and functional assessment, assess omitted tidal and non-tidal wetlands, include delineations made since 1996, and adopt policies and measures to protect the resources (no comprehensive set of policies are in place) and to improve water quality and storage.
- The City will do preliminary work to assess the potential for restoration of riparian areas and wetlands on City-owned property, in partnership with the Watershed Council, DSL, and other agencies available to assist.

**5. *Protect and Restore Key Estuary Wetlands (Siuslaw Watershed Council):*** The Watershed Council will protect/restore, through easement or acquisition, over 200 acres of wetland in the Siuslaw Estuary. The SWC, McKenzie River Trust, ODFW, and other partners are working with state, federal, and private funding sources to achieve protection and restoration of high priority tidally influenced wetlands. Two sites have been identified. The Waite Ranch Restoration Site Project will include: preliminary site assessment; site characteristic and limited baseline monitoring; and potential hazards assessment and project development. A Management Plan will be prepared for the North Fork Marsh site. Project will include coordination of tasks, partners, and landowners for both sites.

**6. *Plan for Ecological Growth:*** This project will result in updated regulatory policies and measures, including applicable Plans and Codes, to include policies and measures to protect water quality and quantity and ecology; and explore incentive based strategies, such as transfer of development rights. Protection measures may include such tools as:

- Low impact development requirements; revised stormwater management BMPs; planning and regulatory requirements to protect unique wetland features, such as flooded forests and blueberry bogs; incentives; and other tools to address environmental impacts of growth.

- The base line data and monitoring regimes established through this project will set the stage for the City to perform scenario analyses of environmental impacts of UGB build-out.

## Project Need

Florence is the watershed's only major urban center and its entire UGB drains primarily to the estuary or the Pacific Ocean. Rapid infiltration rates into the sand cover, combined with a shallow water table, make the North Florence Sole Source Dunal Aquifer, and the hydrologically-connected wetlands, riparian, and estuarine system, highly susceptible to contamination from surface activity. These conditions, combined with the high habitat value of the area, and projected growth, make this "Integrated, Multiple Objective Approach to Watershed Protection and Restoration Project" a high priority project for the watershed.

Historically, the Siuslaw Basin was one of the most abundant anadromous fish producers in the Pacific Northwest. Once the Oregon Coast's largest Coho-producing system next to the Columbia, the Siuslaw River is estimated to be at 1% of historic salmon production levels. The lower Siuslaw River watershed health is degraded and a significant amount of restoration action is needed to improve watershed conditions (Oregon Watershed Enhancement Board, 2007). The watershed is limited by all factors in aquatic/instream areas, tideland, riparian, freshwater wetlands, and upland areas. The Siuslaw River is classified as Water Quality Limited under the Clean Water Act and is included on the state's 303(d) list of Impaired Waterbodies by the Oregon Department of Environmental Quality. The River is failing in all these parameters: Dissolved Oxygen, Fecal Coliform, Habitat Modification, and Temperature, and potentially Alkalinity. Beneficial Uses impaired by these listed parameters include resident fish and aquatic life; salmonid fish spawning and rearing; anadromous fish passage; trout rearing and migration; and shellfish growing.

Urbanization of the UGB, development of rural areas along stream corridors for housing, and climate change will exacerbate long-term watershed changes caused by established land use patterns, including altered sediment and detritus deposition patterns, changed peak flows, water circulation patterns, flooding regimes, and surface and groundwater contamination from septic systems and non-point source pollution. The presence and increased discharge of nitrates and other pollutants into the ecosystem through urban groundwater and surface water activities, and the loss of riparian and floodplain function, can be expected to further degrade the system. Another deleterious effect is increased erosion, which is already a problem in developed portions of the estuary and along Munsel Creek.

The City's extension of municipal sewer will reduce the contamination threat from septic systems; and the need for monitoring is critical, due to extensive existing and pending development on septic systems, and due to urbanization and densification impacts that will introduce new environmental threats. Development impacts will accelerate through use of pesticides and fertilizers, increased impervious surface, fill and alteration of drainage patterns and destruction of wetlands and floodplain functions. These impacts, and the effects of on-going and future climate change, will have a dramatic cumulative effect on salmon and their associated aquatic habitat throughout the watershed.

Since the 1986 groundwater study was conducted, there has been a significant proliferation of residential development outside the Florence city limits, within the boundary of the North Florence Dunal Aquifer. Recent empirical data indicate a

direct connection to surface and ground water contamination from human activities. In November, 2008, Oregon Shores Conservation Coalition and CoastWatch discovered suspected human waste on Heceta Beach; and, in December, CoastWatch took three grab samples at two locations from surface drainages in the area. Test results show high levels of coliform bacteria of 500 MPN/100 ml and 80 MPN/100 ml; testing of surface water in the vicinity of First Street on January 6, 2009, showed 20 MPN/100 ml and 208 MPN/100 ml; further testing on January 12, 2009 indicated E. coli Bacteria contamination of 10 to 30/100 ml; and, at one location, the test results indicated Nitrate at 1.3 mg/l.

The EPA-funded Oregon Beach Monitoring Program (OBMP) tests marine waters for the bacterium enterococcus, which is an indicator of the presence of other illness-causing organisms. Enterococcus is present in human and animal waste and can enter marine waters from a variety of sources such as streams and creeks, storm water runoff, animal and seabird waste, failing septic systems, sewage treatment plant spills, or boating waste. In 2008, two-three results at each of three testing locations in the North Jetty area showed fecal bacteria levels in the range of 10-50 orgs/100ml.

On-going and future climate change will have a dramatic cumulative effect on salmon and their associated aquatic habitat throughout the watershed. These effects would be expected to be evident as water yield, peak flows, and stream temperature are altered. As climate change progresses and stream temperatures warm, thermal refugia will be essential to persistence of many salmonid populations. According to the Siuslaw Watershed Council's 2005 report, "Tidal Wetland Prioritization for the Siuslaw River Estuary," (Green Point Consulting): "to restore tidal wetlands for salmon habitat functions, a landscape approach is needed, focusing on connectivity of habitats and restoration of the full continuum of habitats needed by rearing and migrating juveniles." The comprehensive, integrated, multiple objective approach of this project will meet this need.

Environmental targets and measurable outcomes will be established in the Guiding Principles that will guide all products and processes, as discussed above. Long-term outcomes are land use and water management policies and practices that maintain and protect rearing, migrating, and spawning habitat for resident and anadromous fish, and habitat for birds, mammals, amphibians and reptiles; conversion of rural lands to urban densities that do not impair water quality or result in dysfunctional stream conditions; enhanced floodplain functions and inter-connected wetlands and floodplain; and on-going surface and ground water quality monitoring and collaborative efforts to address and prevent future contamination. Ultimately, the natural resource economy will be re-invigorated. People will be drawn to the area with a renewed appreciation for its rich and complex ecosystem; and the area will be a model for other small coastal cities faced with growth pressures.

## Products and Tasks by Objective

### 1. *Collaboration and Scientific Investigation*

Year 1: Agenda Packets and Meeting Notes; Web Site; Guiding Principles Report; Baseline Monitoring Protocols Report; Research Reports on climate change and its effects relative to project area and results of literature search on range of issues, policies and measures; Quality Assurance Project Plan; Semiannual Reports to EPA.

- Year 2: Agenda Packets and Meeting Notes; Guiding Principles Evaluation and Alternatives Report; Reports to EPA.
- Year 3: Agenda Packets and Meeting Notes; Revised Draft and Final Report on Project, including on-going evaluation process.

## **2. Public Education and Stewardship**

- Year 1: Form and convene Stakeholder Group; create e-mail and hard copy mail list; create and mail newsletter #1; hold open house to obtain input on goals, guiding principles, and project design; provide monthly updates to the Planning Commission (PC), City Council (CC), and Heceta Water District Board (Board); estuary trail: identify alternative sites for potential acquisition of missing linkages in estuary trail and develop alternative design options.
- Year 2: Convene Stakeholder Group to plan public outreach; create and send newsletter #2 and maintain web page; hold second open house for input/feedback on milestones; update PC, CC and Board monthly; estuary trail: analyze site and design options' environmental and cost impacts; identify and analyze strategies to retain trail as permanent open space; prepare draft report on site and design options.
- Year 3: Convene Stakeholder Group to plan public outreach; create and mail newsletter; maintain web page; hold third open house to obtain feedback on milestones; provide monthly updates to PC, CC and Board; conduct focus group (about nine weeks) with Stakeholders to fully explain all outcomes and obtain feedback; estuary trail: prepare final Report: "Recommended Trail Design and Location Options," and present report to local officials for approval.

## **3. Water Quality and Quantity Protection**

- Year 1: **Surface and Ground Water Assessment and Monitoring Program**  
Develop scientific-based standards; develop methods for assessment and monitoring program; start to install ground water monitoring wells, stream flow gauges in Munsel and Ackerley Creeks; data loggers in Munsel and Ackerley Creeks and estuary; collect base line data and identify sources of contamination; seek corrective steps, with partner agencies, for any identified contamination.
- Source Water Protection Plan and Implementation**  
Develop Source Water Protection Plan Scope of Work.
- Stormwater Best Management Practices Manual**  
Identify policies to support guiding principles (connectivity, flood plain restoration and preservation, low impact development); develop design BMPs for typical subdivision and infill development, tailored to Florence area climate, soils, topography, aquifer sensitivity (this portion of the project is funded by a Department of Land Conservation and Development Grant with local match).

**Stormwater Demonstration Project**

Identify demonstration project area and seek to acquire site (preliminary site identification work has begun for Interpretive Center/ stormwater BMP demonstration project east of Siuslaw River Bridge)

Year 2:

**Surface and Ground Water Assessment and Monitoring Program**

Collect base line data; problem-solve and remedy existing contamination incidents; develop and analyze alternative solutions to contamination threats

**Source Water Protection Plan and Implementation**

Continue to identify sources of contamination; test alternatives and monitor; develop protection strategies; prepare Draft Plan and implementation measures; implement identified measures; and install five signs around Clear Lake.

**Stormwater Best Management Practices Manual**

Apply and evaluate design BMPs; analyze alternative policies and approaches based on lessons learned and refine BMPs.

**Stormwater Demonstration Project**

Prepare stormwater BMP design specifications; install stormwater system; obtain baseline data on water quality in estuary.

Year 3:

**Surface and Ground Water Assessment and Monitoring Program**

Adjust monitoring program as needed; collect updated data and analyze results; continue to problem-solve and remedy contamination incidents; establish on-going monitoring program for periodic surface and ground water and stream flow monitoring to characterize natural conditions and ensure that unacceptable contaminants are not affecting water quality

**Source Water Protection Plan and Implementation**

Propose Plan and Strategies (planning, zoning, education, technical assistance) to help prevent releases that could degrade water quality; Submit to local officials for adoption and to ODHS and DEQ; begin implementation.

**Stormwater Best Management Practices Manual**

Propose policies to support goals and guiding principles; propose alternative design BMPs for typical subdivision and infill development, as needed; evaluate effectiveness of BMPs where applied; develop hand-outs with design specification sheets and illustrations.

**Stormwater Demonstration Project**

Modify stormwater system to address water quantity/quality problems; revise stormwater BMP design specifications; continue to monitor water quality and quantity impacts on estuary.

#### **4. Wetlands, Riparian and Upland Areas Protection Plan**

- Year 1: Update wetland and riparian area inventory, assess floodplain capacity and connectivity, and analyze existing policies and measures for gaps and conflicts with guiding principles.
- Year 2: Evaluate biological soundness and feasibility of restoration goals using baseline data and follow-up monitoring program; analyze policy and implementation alternatives; Prepare Draft Plan.
- Year 3: Prepare Proposed Wetland and Riparian Area Protection and Restoration Plan with proposed implementation measures; submit to local officials for adoption, Division of State Lands, and Department of Land Conservation and Development for Goal compliance.

#### **5. Protect and Restore Key Estuary Wetlands**

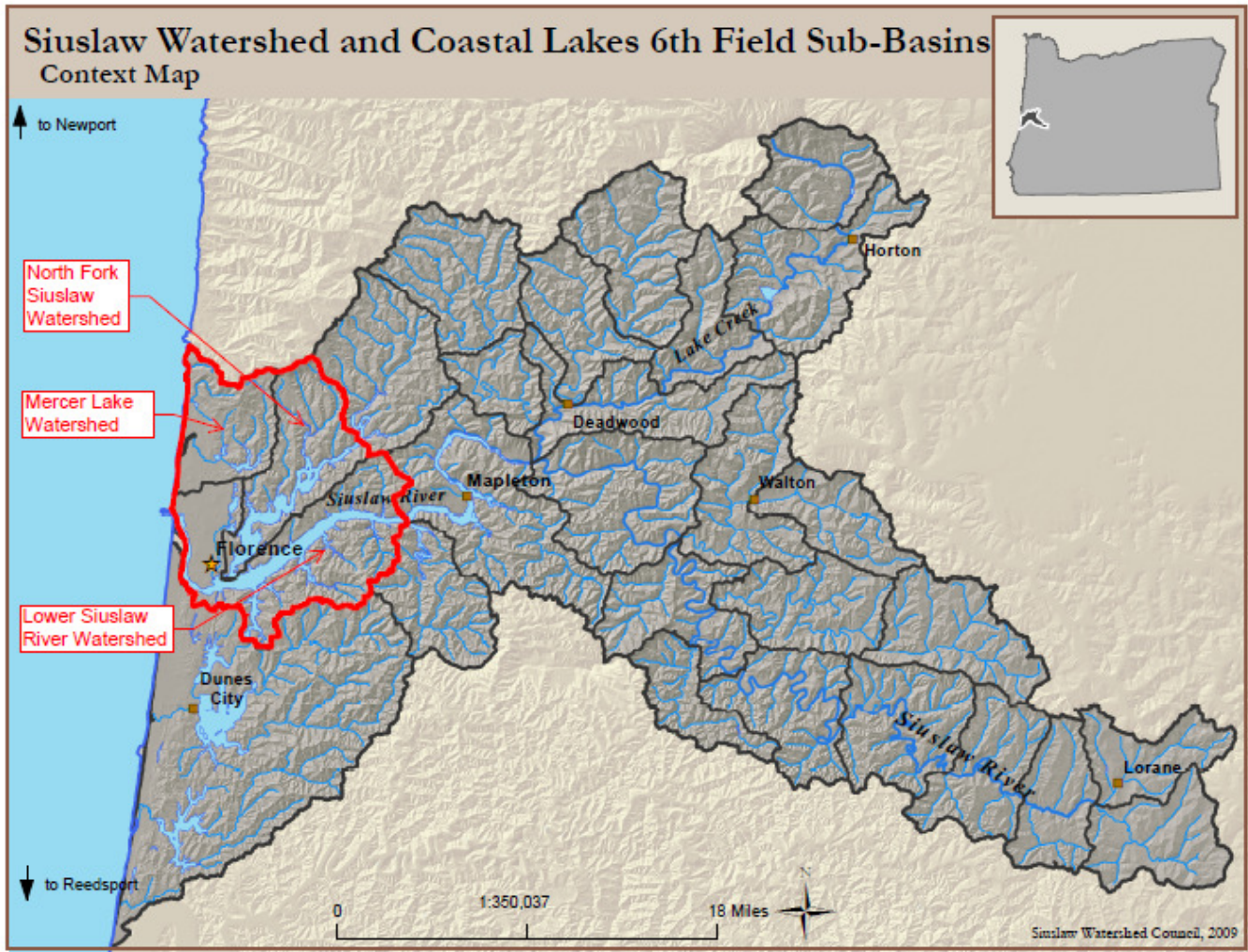
- Year 1: Begin preliminary site assessment for high priority wetlands, and acquisition of highest priority conservation areas in estuary from willing landowners.
- Year 2: Finish site assessments and permanently protect lands in the highest priority zones.
- Year 3: Create a conceptual design and implement restoration activities.

#### **6. Plan for Ecological Growth**

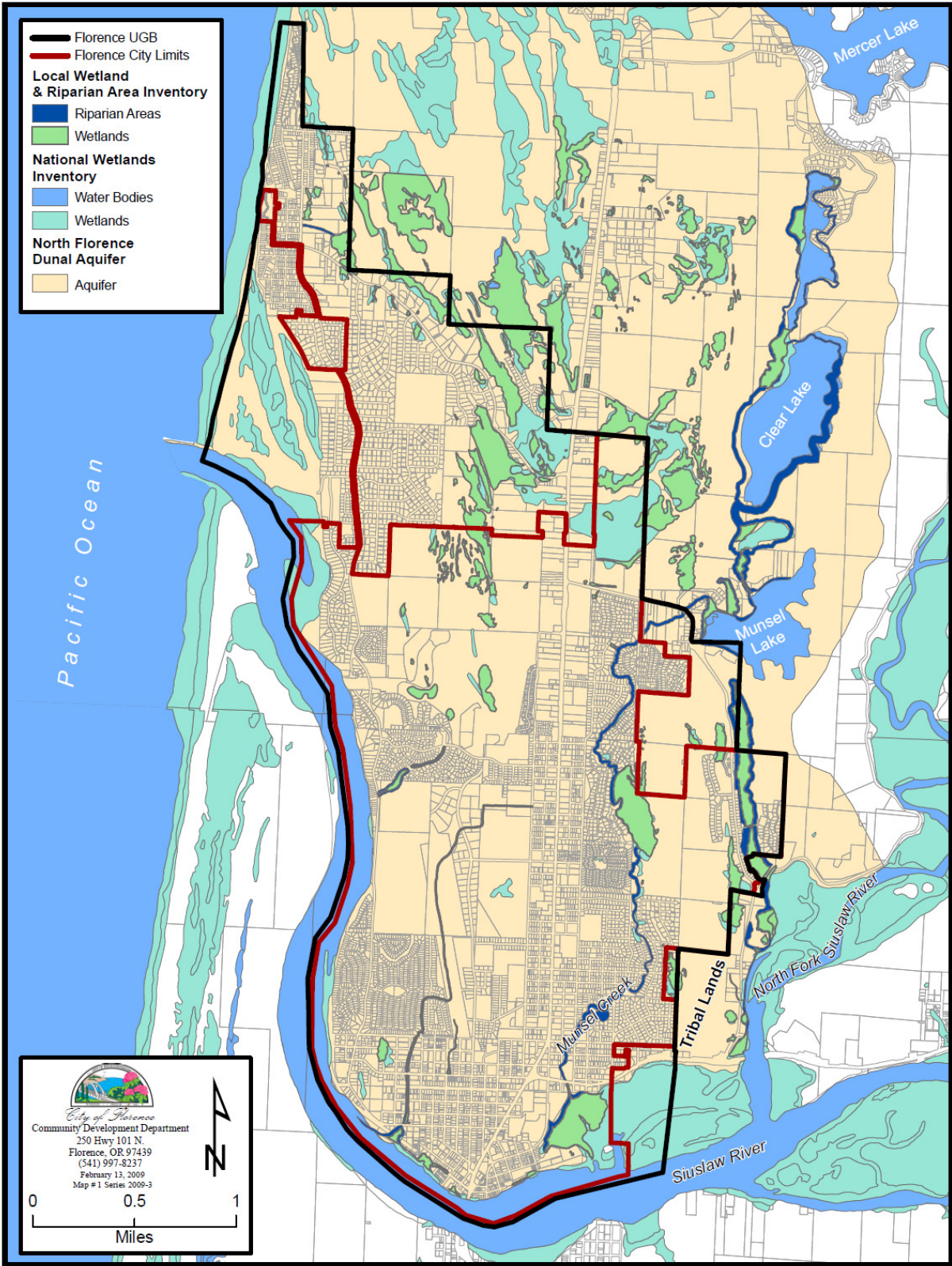
- Year 1: Develop a Preliminary List of Needed regulatory policies and measures.
- Year 2: Prepare draft Plan and Code amendments; review and revise.
- Year 3: Draft all proposed regulatory policies and measures; submit to local officials for adoption and appropriate state and federal agencies for compliance with all applicable requirements; begin public hearing process.

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# Study Area Map



# Study Area Map: Land Use Measures





The U.S. Environmental Protection Agency (EPA) has completed the required regulatory process for this information according to the Freedom of Information Act (FOIA). This information is being made available to the public in a format that is not subject to FOIA. It is not to be used for any purpose other than that for which it was originally prepared or for any other purpose for which it was not intended. The EPA does not guarantee the accuracy, completeness, or timeliness of the information shown, and shall not be held liable for any loss or injury resulting from reliance upon the information shown.

### North Florence Dunal Sole Source Aquifer



Map Created 12/04/2008 EPA Region 10