

State role in identifying and managing channel migration areas

Shorelands and Environmental Assistance Program
Washington Department of Ecology
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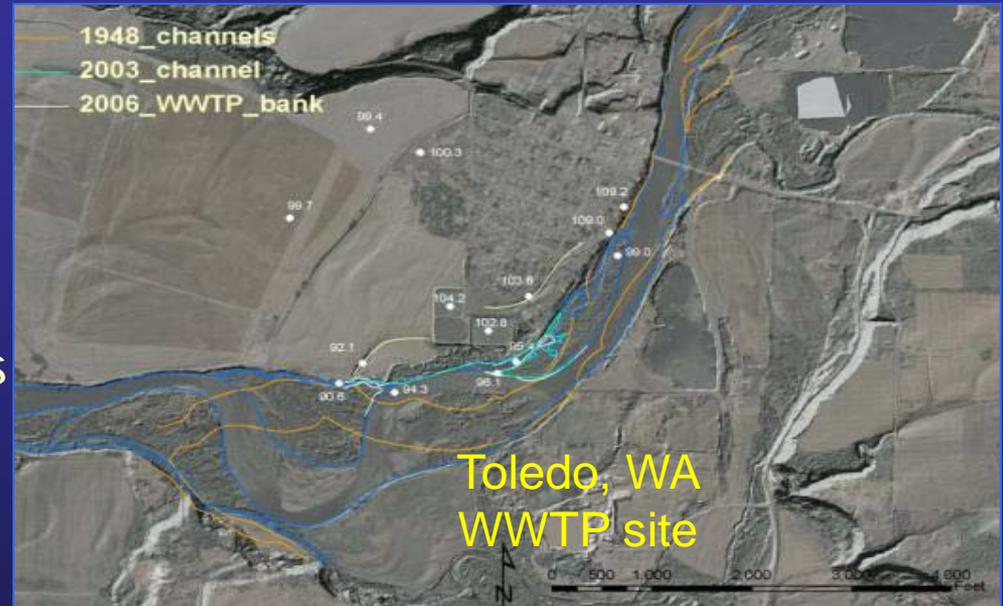
State programs that include managing channel migration areas

- Shoreline Management Act: Local Shoreline Master Programs
- Flood Plain Management Act: Comprehensive Floodplain Hazard Management Plans
- Growth Management Act: Critical Areas Ordinances
- Forest Practices Act: Timber Management Practices Regulations (Harvest, Thinning, Roads, etc.)

Why are channel migration areas included in state programs?

Social, economic and environmental benefits:

- Hazard reduction
- Economic infrastructure
- Water quality/quantity goals



Coal Creek



Wilkeson Creek



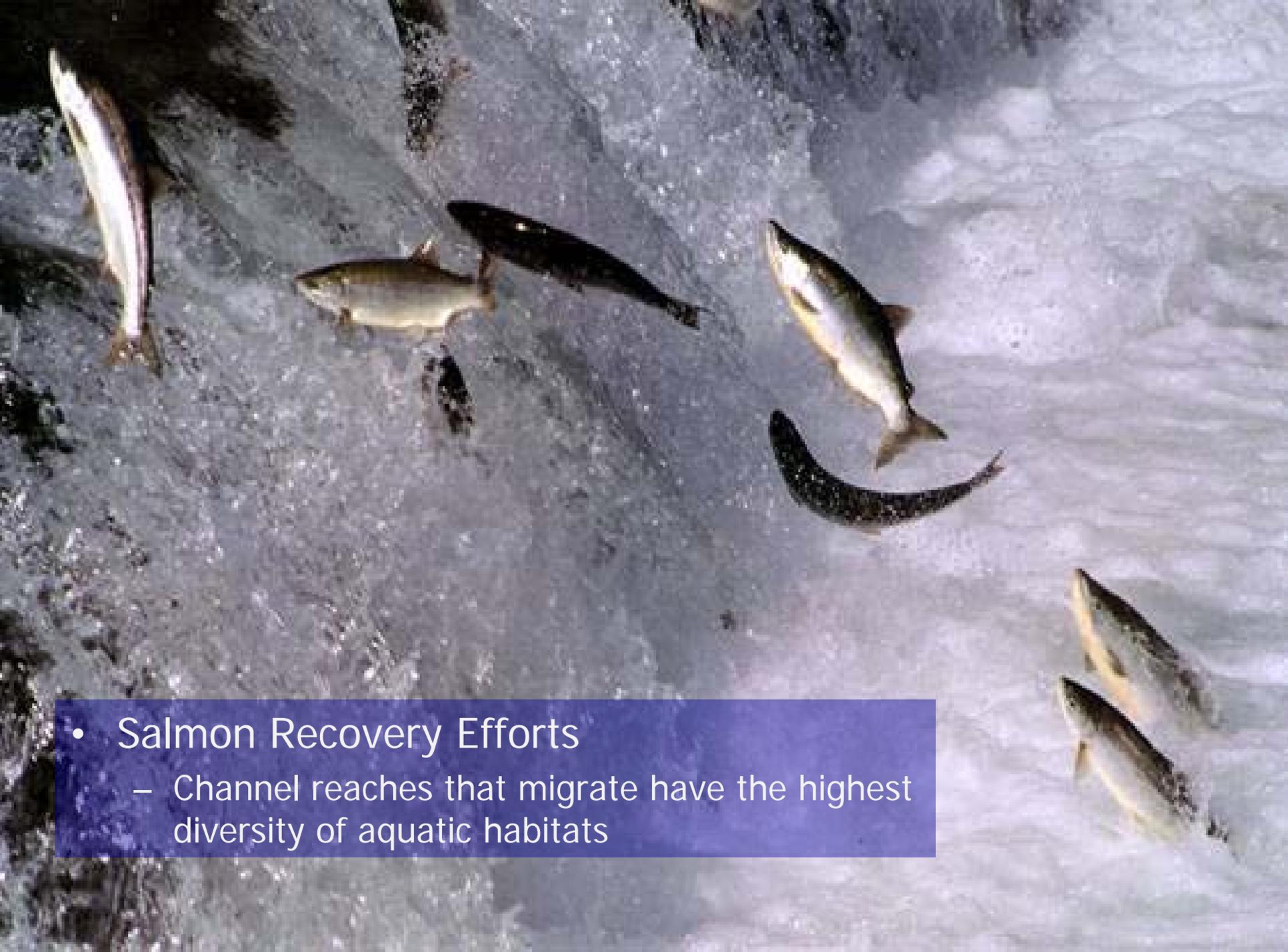
Reducing Flood and Geologic Hazards



Wilkeson Creek



Big Beef Creek



- Salmon Recovery Efforts
 - Channel reaches that migrate have the highest diversity of aquatic habitats

Ecology Shoreline Management Act

- Revision of state Shoreline Master Program administrative codes (WAC) in 2003
- A new approach to protect shoreline resources
- Inclusion of channel migration:
 - Critical freshwater habitat and measure of ecosystem health & flood hazard

Cowlitz River



Skokomish River

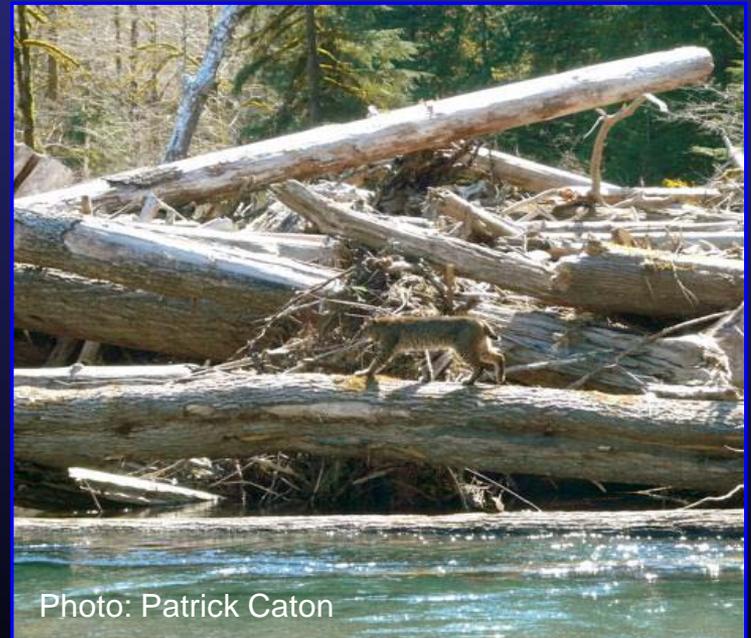


Photo: Patrick Caton

The Shoreline Management Administrative Code requires SMP updates to address channel migration

Shoreline Master Programs WAC 173-26

WAC 173-26-201(3)(c)(vii)
WAC 201(3)(d)(i)(D)

Inventory &
Analysis of CMZs

WAC 173-26-221(2)(c)(iv)(A):

Critical freshwater
habitat

WAC 173-26-221(3)(b):

Flood Hazard
Reduction

WAC 173-26-231(3):

Modifications
(to the shoreline environment)

What is a SMP 'Channel migration zone'?

WAC 173-26-020(6): "Channel migration zone (CMZ)" means ...

the area along a river within which the channel(s) can be reasonably predicted to migrate over time ...

as a result of natural and normally occurring hydrological and related processes ...

when considered with the characteristics of the river and its surroundings."



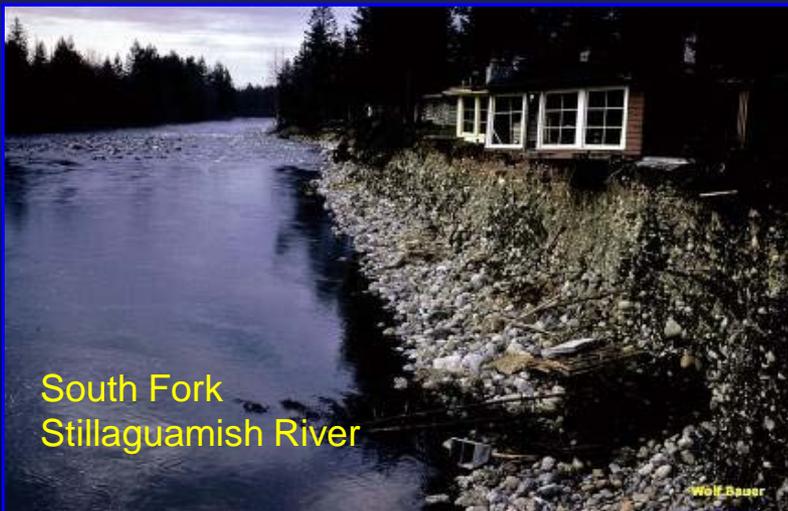
Channel Migration Examples



Cowlitz River



Nisqually River



South Fork
Stillaguamish River



Little Creek (Franklin Co.)

WAC 173-26-221: Flood Hazard Reduction

- **WAC 173-26-221(3)(b):** Failing to recognize the [channel migration] process often leads to damage to, or loss of, structures and threats to life safety.



South Fork
Stillaguamish River



Cowlitz River



Raging River



Cowlitz River

WAC 173-26-221: Flood Hazard Reduction

- WAC 173-26-221(3)(b and c): limit development, shoreline modifications that may:
 - Interfere with the channel migration process
 - Cause significant adverse impacts to property or public improvements and/or
 - Result in a net loss of ecological functions



Shoreline habitat, resources, critical areas

WAC 173-26-221(2)(c)(iv):

- Critical areas
 - CMZ included as a critical freshwater habitat
 - New development allowed in CMZs limited to that which does not cause net loss of ecological functions, at both the planning and permitting levels



Elwah River



Photo: E.R. Keeley

Ecology's Role

- Review and approve SMP update documents
- Provide reasonable and adequate funding when available - SMP update or FCAAP grants
- Provide technical assistance to local governments by developing tools to:
 - Make decisions on need for CMZ assessment
 - Determine approach, level of analysis and appropriate methods
 - Outline minimal acceptable standards of analysis
- Provide technical assistance for:
 - Implementing shoreland regulations where there are CMZs
 - Managing CMZs

Ecology technical resources



A Framework for Delineating Channel Migration Zones

November 2003

Ecology Publication #03-06-027 (Final Draft)

<http://www.ecy.wa.gov/biblio/0306027.html>

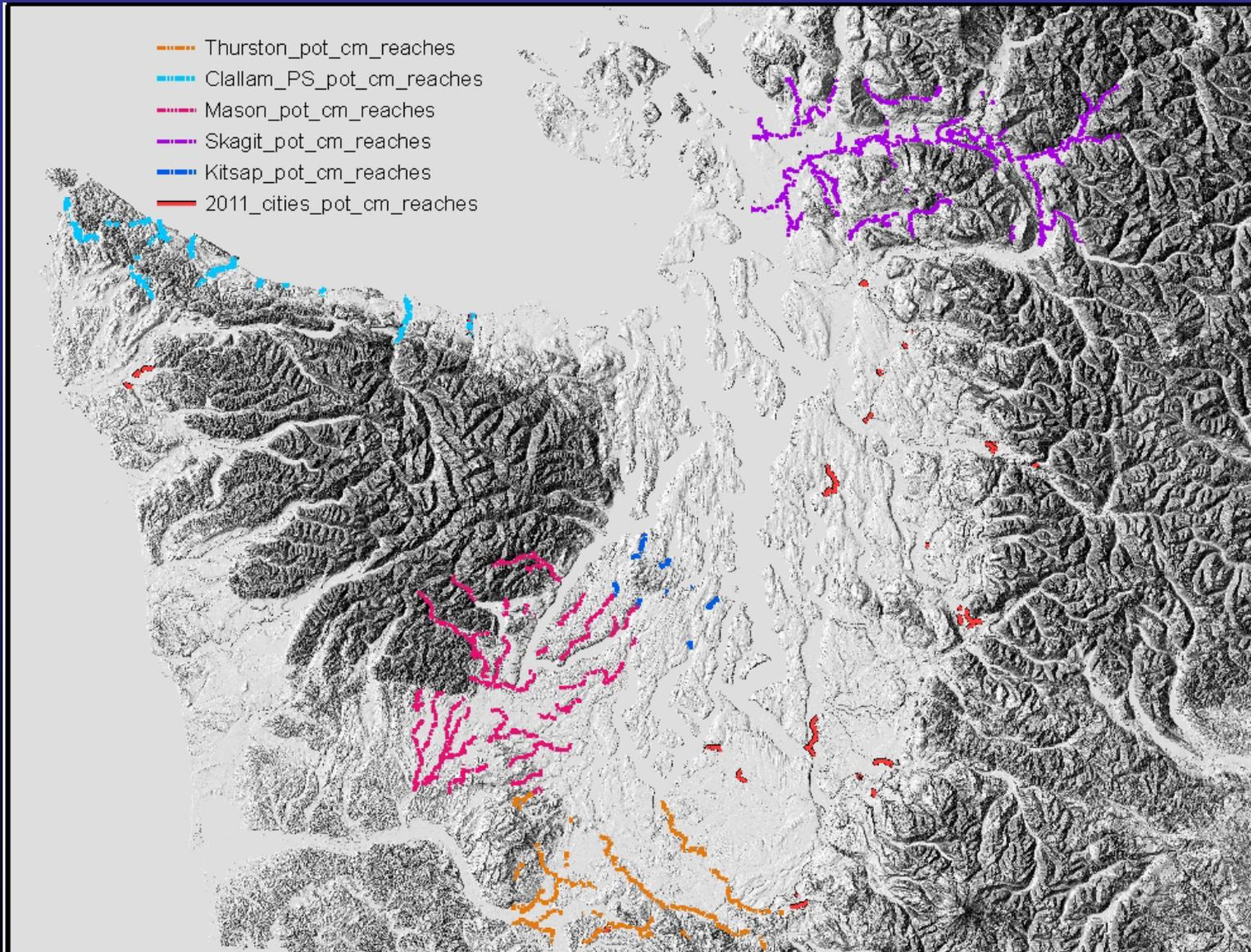
Web Guidance for Channel Migration Assessment under SMA

- Developed to help local communities during SMP updates

Other possible uses:

- Critical Area Ordinance updates
 - Comprehensive Flood Management Plans
 - Restoration Planning
- To download a copy of the Web Guidance go to:
<http://www.ecy.wa.gov/biblio/0806013.html>

Map showing reaches with potential to migrate



EPA Scientific and Technical Investigation Grant

Provide scientific and technical support so Ecology's Shorelands and Floodplain Programs can:

- Identify and map channel migration zones within the Puget Sound ecoregion
 - “General level” for SMP needs
 - Provide maps, reports and other technical assistance to local communities updating SMPs and floodplain management codes
- Evaluate existing channel migration assessments & how well they show changes in channel migration processes
 - Based on lessons learned, improve methods for future mapping

Communities to be generally mapped as required under WAC 173-26-201(3)(c)

<i>2011 SMP Update communities with Shoreline streams having potential to migrate and with no mapped CMZs</i>		<i>SMP 2012 SMP Update communities with Shoreline streams having potential to migrate and with no mapped CMZs</i>	
Community	Stream Length (miles)	Community	Stream Length (miles)
Arlington	2.0	Clallam County	70
Bothell	5.6	Mason County/Shelton	230
Gold Bar	3.1	Skagit County & municipalities	190
Granite Falls	1.0		
Lake Stevens	1.8		
Buckley	4.7		
Eatonville	3.6		
South Prairie	1.1		
Tacoma	0.6		
Wilkeson	1.4		
Kitsap County	18.1		
Total Miles	43.0	Total Miles	490

Enumclaw - King Co.

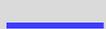
North



White River

Buckley - Pierce Co.

General CMZ=HMZ + AHZ + PMA + EHA

-  Historic migration zone (HMZ): 1936-2009
-  Historic channels & side channels
-  Avulsion hazard zone (AHZ)
-  Potential migration area (PMA)
-  Erosion hazard zone (EHA)
-  General CMZ

Source: USGS
Source: NASA, NGA, USGS
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Additional Tasks

- Develop hazard criteria for people, infrastructure, pollutant sources
- Evaluate potential future hazards due to development and changing hydrologic and sediment regimes
- Develop restoration/protection strategies for species that rely on channel migration to create necessary habitat
- Update scientific literature

EPA Funded CMZ Assessment - Project Schedule -

Timeline: December 2010 thru December 2013

1. General Mapping of CMZs
 - a. 2011 Communities draft maps Mar 15 2011
 - b. 2012 Communities draft maps Dec 30 2011
2. Assess existing CMZs Feb 29 2012
3. Refine CMZ delineation methods Sep 30 2013
4. Update CMZ guidance Sep 30 2013
5. Public meetings Oct 30 2013
6. Final documents Dec 31 2013

Questions, Assistance and Information:

Please contact the Ecology Shoreline Planner assigned to your community