



Memo

To: The Wahkiakum County Planning Commission

From: Dianna Adsero, Building and Planning Assistant & Clerk of the Board

Subject: February 26, 2026, Meeting Packet

Attached is your **Meeting Packet** for the February 26, 2026, Planning Commission Regular Public Meeting. Please bring with you the Comprehensive Plan Binder. We will continue to review Element 5 starting on page 101. Last month the question of the difference between Water Sources vs. Service Area came up. Dave has given me an explanation which is as follows:

Water Sources: Where the water comes from, for example, private wells, intake from the Elochoman River, City or County owned wells.

Service Area: The area for which utility services are provided, for example, the Town of Cathlamet is a service area, Puget Island is another service area, Skamokawa is another service area.

Don't forget the two requests that Ronn Wright had requested which are:

Is there anything else you are looking at that is not on your website that you think would be valuable for the kids to see?

In addition to the open town hall meetings, they also want to meet with leadership, is there anyone on the Planning Commission willing to get involved with this, by attending the meetings and/or go to UW?

Your packet includes:

- Memo
- Agenda
- Prior meeting minutes from January 22, 2026
- Notice of Public Meeting
- Element 5 pages 101-123 (partial element)

Please bring with you:

- Comprehensive Plan Binder created for you previously

Please submit all questions you have to me prior to the meeting so I can research and have answers for you before the meeting. If you are unable to attend, please let Dave and me know as soon as possible.

Sincerely,
Dianna Adsero
Wahkiakum Building & Planning Department
360-795-3067; adserod@co.wahkiakum.wa.us



**PLANNING COMMISSION
WAHKIAKUM COUNTY
February 26, 2026
6:00 p.m.**

AGENDA:

Approval of:

Agenda

Meeting minutes from January 22, 2025

New Business:

Public Comment

Old Business:

Ongoing Discussion of Comprehensive Plan Update: Planned Discussion Element 5 starting with page 101

WAHKIAKUM COUNTY PLANNING COMMISSION
Minutes for Meeting
January 22, 2026

Present: Tony Aegerter, Chairman; Robert Digirolamo; Bruce Craven; Steven Lake; Marshall Stowe; Forrest Mora
Janine Davidson

By Zoom: Donna Beaupre

Absent: Randy Vogt

Staff: Dianna Adsero, Clerk of the Board

Absent: Dave Hicks

Guests: Ronn Wright

Call to Order:

Chairman Tony Aegerter, called the meeting to order at 6:00 pm. There was a quorum present.

It was **M/S/A** Commissioner Robert Digirolamo & Commissioner Marshall Stowe to approve the agenda as written. Unanimously approved.

It was **M/S/A** Commissioner Robert Digirolamo & Commissioner Marshall Stowe to accept the November 20, 2025, Meeting Minutes as written. Unanimously approved.

New Business:

Public Comments:

Ronn Wright-Discussed the Wheel House project. He made two requests of the commission, 1-Is there anything else you are looking at that is not on your website that you think would be valuable for the kids to see? 2-In addition to the open town hall meetings, is there anyone on the Planning Commission willing to get involved with this, by attending the meetings and/or going to UW?

Election of Chairperson: It was **M/S/A** Commissioner Forrest Mora & Commissioner Bruce Craven to elect Commissioner Marshall Stowe as the new Chairperson for 2026. Unanimously approved.

Old Business:

Comprehensive Plan Update Element 4 was discussed. It was decided that outside help was needed to update this Element due to the heavy number of statistics. It was assigned to Dianna Adsero, the Clerk, to look into the options for this assistance and to see if there is a budget for it. It was decided to proceed to Element 5. Element 5 through page 100 was discussed and needed updates have been noted and minor wording changes have been made.

Adjournment:

Discussion halted and the meeting was adjourned at 6:58 pm.

Clerk of the Board, Dianna Adsero

Chairman, Marshall Stowe

NOTICE OF REGULAR PUBLIC MEETING

Notice is hereby given that the Wahkiakum County Planning Commission will hold a Public Meeting Thursday **February 26, 2026**, at 6:00 p.m. in the Meeting Room on the 3rd floor of the Wahkiakum County Courthouse, 64 Main Street Cathlamet, WA 98612.

The public is invited to attend in person or via Zoom.

Join Zoom Meeting

Computer:

<https://zoom.us/j/94973069303?pwd=S2xUaVdSaFR1S1NReWpiMlhGQVZ5UT09>

Meeting ID: 949 7306 9303

Passcode: DdM9Ab

Phone:

253 215 8782

253 205 0468

360 209 5623

Meeting ID: 949 7306 9303

Passcode: 856212

Agenda Items:

New Business:

Public Comment

Old Business:

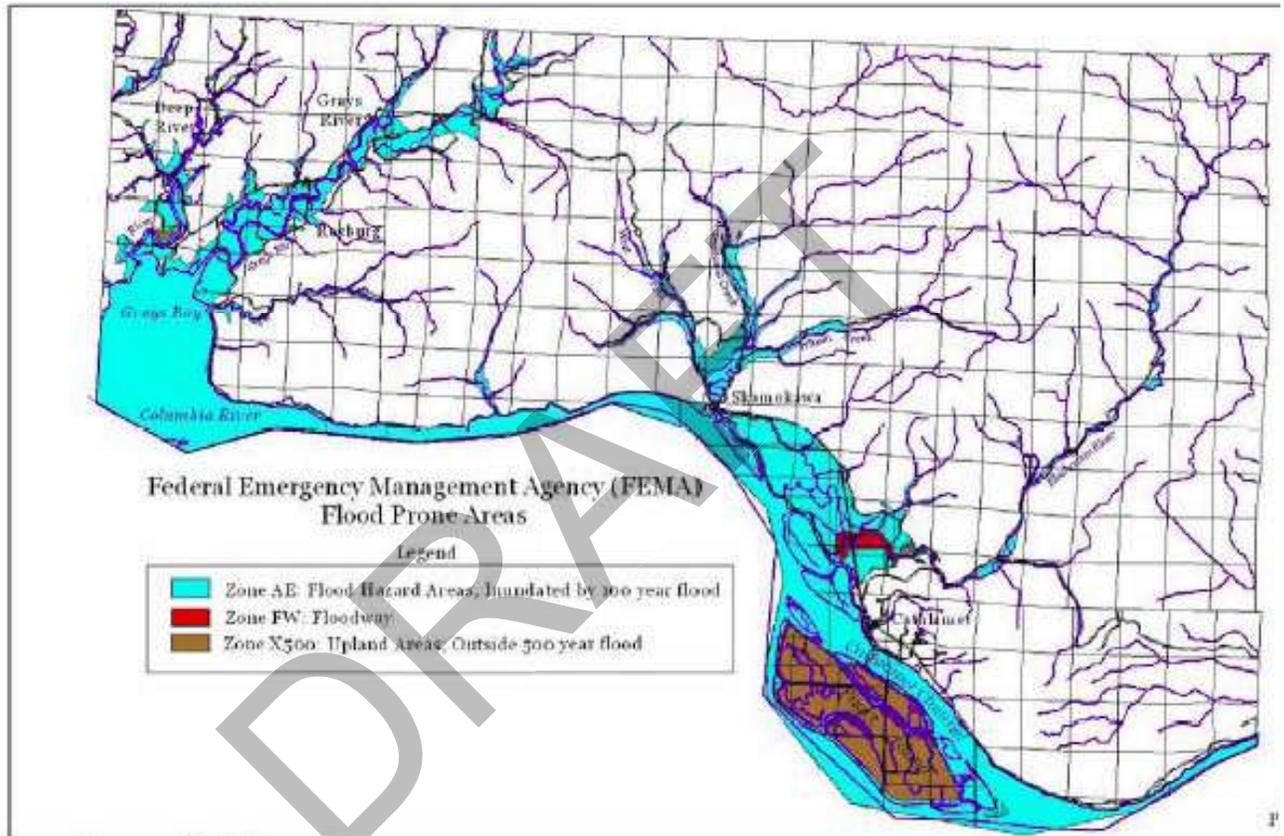
Ongoing Discussion of Comprehensive Plan Update: Planned Discussion Continue Element 5

Dianna Adsero

Planning Commission Clerk of the Board

is somewhat rudimentary. The map below shows existing floodplain areas within a 100-year flood event. Zone AE is considered an area of special flood hazard, as it is usually inundated during a 100-Year flood event. Areas of the 100-Year floodplain are shown in blue; floodways are shown in red. Areas outside the 500-Year flood event are shown in brown. This latter category applies to Puget Island, which has an extensive system of ditches and dikes that were constructed to protect farmers and settlers on the island.

Flood Prone Areas Federal Emergency Management Agency (FEMA)



Source: FEMA

Floodplain is divided into two categories: the floodway and the flood fringe. Under the National Flood Insurance Program (NFIP), floodways are defined as the channel of a river or other watercourse—including adjacent land areas—that must be reserved in order to discharge the flood without increasing the overall water surface elevation more than one foot in height. The floodway is where most of the water is moving during a flood event, and therefore where water has the greatest force and speed. Development and structures of any type are prohibited within a floodway because they obstruct flood flows and can divert flood waters onto neighboring properties. The flood fringe begins at the outer edge of the floodway and encompasses the area that would normally be completely covered with water, if the elevation of the 100-year flood has not been increased by obstructions or development. But the flood fringe is also where development is most likely to occur, since the land is fairly flat, easy to build on and often has nearby waterfront scenic qualities. This makes it an area where human activities should be carefully approached.

The frequency of flood events is based on river discharge data. Designation of the “100-year flood” area does not mean that a flood can be expected to occur once every 100 years; it means that a flood of a particular magnitude has a 1% chance of occurring each year. Likewise, a 25-year flood event has a 4% chance of occurring in a given year, and a 10-year event has a 10% chance of occurring in any given year. Discharge information looks at past events to predict discharge levels for a specified time period. Manmade influences—such as paved areas or other extensive, impervious surfaces—have huge impacts upon the rate that water is transferred. Instream structures such as dams, weirs, and rip-rap have similar effects and increase the erosion power of flood waters.

Grays River Basin Conditions

The Grays River headwaters originate in ridges and mountain peaks of the Willapa Hills. The entire watershed covers 124 square miles and is distributed over a three-county area. A land cover analysis found 87% of the land in forest cover, 5% logged, 6% in agriculture, and 2% in aquatic habitat. The river flows in a southwesterly direction as it reaches the lowland floodplains, where it meanders slowly towards the Columbia River. Stream flows in the Grays River are tied directly to rainfall, since there are no lakes, reservoirs, or impoundments for storage. Immediate impacts can—and frequently do—occur during heavy rainfall events. According to the sub-basin plan, the Grays River is “very unstable, prone to mass wasting, and very turbid during even modest rainfall events.” Most of the upper watershed flows through steep narrow canyons in the rugged Willapa Hills. When muddy soils are combined with logging activity and road construction, fine sediments are released throughout the watershed, increasing flooding risk.

The channel has been altered significantly due to past splash-damming, channel straightening, streambank hardening, and more recent flood control activities. The mainstem headwaters—East Fork, South Fork, and West Fork—of the Grays River primarily support winter steelhead spawning and rearing. These upper reaches have been impacted mostly by forest practices, which have disrupted riparian function, hydrology, and sediment distribution. The lower six miles of the river consists of tidally-influenced sloughs and diked lowlands. Siltation and runoff from farms and residential development have created water quality issues. The absence of riparian vegetation has exposed stream banks to erosion and created areas sharp stream banks that are increasingly subject to erosion and flooding.

The mainstem of the lower Grays River—as well as most of its lower tributaries—have been diked, armored, drained, and/or relocated, primarily for agricultural purposes. Portions of the middle Grays have been diked for agricultural purposes and armored to protect stream banks from erosion. The flood of 1996 deposited soils that may actually have improved floodplain connectivity in Klints Creek. Similar activity occurred in lower Fossil Creek during the same flood, reducing sediment losses. Subsequent efforts to reconnect Fossil Creek with the Grays River have led to erosion of the deposited sediment, and flooding problems still exist (Wade 2002). The lower reaches of Deep Creek (up to RM 3.9) are diked. Crooked Creek is channelized and entrenched for two miles along its lower reach. The effect of tide gates on floodplain connectivity on Grays Bay tributaries has not been assessed (Wade 2002).

The Wahkiakum Conservation District (WCD) inventoried areas of bank instability throughout the Grays River basin during 1994. Most of the areas identified on the lower reach of the Grays were farms with unrestricted cattle access to the stream and streambank. Areas of concern were identified on the lower Grays (along some of the dikes), upper Impie Creek, lower Thadbar Creek, lower Hull Creek, lower Silver Creek, and Honey Creek. Bank stability is also a concern along the middle mainstem of the Grays in the Gorley Springs area, due to a 1999 breach in the dike that left an unstable channel in its wake. The lower reaches of King and Fossil Creeks also have bank stability issues. Debris flows are common in the South and West Forks, typically a result of shallow landslides on steep, unstable slopes. Bank instability may contribute to elevated turbidity in the South Fork basin, which also decreases dissolved oxygen available for fish. The upper Grays is in fairly good condition for bank stability. The original railroad bed paralleling the East Fork has led to slope failures and debris flows (Wade 2002).

Tributaries to Grays Bay were also identified for bank stability issues during the WCD survey. Reaches of Rangila, Anderson, and Peterson Creeks were found to have extensive areas of streambank erosion. Lower Hendrickson Creek, lower Crooked Creek, and the North Fork Deep River each had isolated stretches of banks that were unstable. Mass bank failures were found at a frequency of 4.67 per square mile along the Deep River, and at a rate of 6.25 per square mile along Crooked Creek (Wade 2002).

Skamokawa Creek Basin Conditions

The Skamokawa Creek sub-basin drains approximately 14,100 acres or 22 square miles, with 79% of the area in forest cover, 9% is logged, 11% in agriculture, and 1% in aquatic habitat. Major flood prone tributaries include West Valley Creek, the West and Left Fork of Skamokawa Creek, Wilson Creek, Falk Creek and Pollard Creek. This watershed, like others in Wahkiakum County, has elevations that range from sea level to over 2,000 feet. Brooks Slough, a tidal channel through the Julia Butler Hansen Wildlife Refuge, is fed by Alger Creek and Risk Creek. Jim Crow Creek is a separate drainage sub-basin isolated by steep hills and partially influenced by tidal forces from the Columbia and represents a moderate flood hazard risk.

The Skamokawa has been diverted from its natural, meandering form into a straightened channel from the mouth up to River Mile (RM) 1.7. It flows through agricultural lands in a confined trench from this point up to RM 6.6. The lower reaches of tributaries to the Skamokawa have been diked and entrenched for agricultural uses. In addition to diking, a canal was constructed to divert flow from the stream, and tide gates were installed, effectively cutting off an artificially created stream meander. Pump stations control channel elevation on Nelson Creek and on Brooks Slough in the wildlife refuge. Alger Creek is diked along the first 1,700 feet of its length, although the Columbia Land Trust has proposed a project to improve floodplain connectivity in this section.

Jim Crow and Skamokawa Creek watersheds were found to have generally good bank stability during WCD surveys. Over 90% of the reaches on the mainstem Skamokawa had less than 10% of actively eroding streambank. Surveys of the middle reaches of the Skamokawa in 1991 found that 28% of banks surveyed were eroding—up to 34%, in areas of agricultural use (Ludwig 1992). Bank erosion is significant where land is cultivated or used for agricultural uses, due to stream incision, alluvial soils, and a lack of streambank (riparian) vegetation.

Elochoman River Basin Conditions

The Elochoman watershed drains 42,000 acres, or 66 square miles, and at the last inventory, 81% of the land was in forest cover, 9% logged, 9% in agriculture, and 1% was aquatic habitat. The headwaters of the Elochoman River flow through narrow canyons originating in the northeast corner of the county, flowing south-southwest towards the Columbia River. The middle reaches consist of wide valley floodplains draining Duck Creek to the west, and Beaver Creek to the east. The lower reaches consist of tidally influenced slough channels. Nelson Creek is included due to its proximity and the risk it presents to life and property. Birnie Creek is a similar situation, technically distinct from the Elochoman and having separate issues related to its proximity to the Town of Cathlamet. Areas of Special Flood Hazard include the lower portions of Nelson, Beaver, and Alger Creek, as well as a significant portion of the mainstem Elochoman.

The Elochoman River is diked for the first 1.4 miles of its lower reach. The lower portion of Nelson Creek, a tributary to the Elochoman, is also diked, with the banks showing signs of advanced incision. The lower reaches of the Elochoman and its tributaries have many areas of disconnected floodplains, due to the presence of roads and an old logging railroad bed constructed during the settlement of the valley. Agricultural uses and former logging practices in the middle reaches of the Elochoman Valley have resulted in a high degree of stream entrenchment. Connectivity of the floodplain is somewhat better in the upper reaches of the watershed.

Puget Island Drainage Conditions

Puget Island lies within the Elochoman drainage basin, but due to its mid-channel location in the Columbia River, it experiences different set of drainage patterns and flooding issues. The island at one time was crisscrossed by a network of slough channels created from flow patterns of the Columbia River and tide cycles of the Lower Columbia Estuary. Human activities such as diking, filling, construction of flood structures, and development activities have partially disconnected the island from its original floodplain. Flood control structures have been installed to control tidal elevations. The level of sediment accretion in Grove Slough affects tide gate functioning increasing burden on the pump station.

Surface water patterns have been manipulated by dredging and the construction of pile dikes. Cathlamet Channel, located between Little Island and Cathlamet, is experiencing siltation from the Elochoman as well as the Columbia River. The Columbia River Navigation Channel, which lies on the south side of Puget Island, is maintained by the Portland District Army Corps of Engineers. Pile dikes and jetties along the channel were installed to direct flow velocities into the navigation channel to minimize maintenance of the existing channel configuration for transportation needs. The position and angle of these structures has created eddies which scour deep holes resulting in erosion. Shorelines adjacent to East Sunny Sands Road at Pancake Point and along North Welcome Slough Road downstream from the Aegerter Dairy have experienced increased risk to life and property.

Bank stability in the Elochoman watershed was generally found to be adequate. Road-related erosion problems exist on the mainstem, West Fork and the Nelson Creek systems. Mass wasting events are viewed as a much more significant issue in the Elochoman watershed, and is associated with road construction in the West Fork system. A DNR survey of the North Elochoman basin found that 205 of 383 the landslides surveyed originated in forest practices (WDNR 1996).

Sources: WRIA 25/26 Watershed Management Plan; Wahkiakum County Comprehensive Flood Hazard Management Plan, 2005 Final Draft

Inventory of Flooding Issues

An examination of flooding issues at the landscape scale during the development of the Comprehensive Flood Hazard Management Plan found several four key areas of concern:

1. **Channel Aggradation** – Two primary forces affect the equilibrium of floodplain areas within a drainage basin. One force builds up sediment and soils (aggradation) and the other carries sediment to other locations (erosion). Aggradation occurs when the forces building up the sediment level are more powerful than flows that discharge sediment further downstream. Two types are occurring within Wahkiakum County—fluvial or river-dominated forces—wash sediment from steep headwaters and canyons under high energy forces, and deposit coarse sediments in lower elevations. This often overwhelms channel carrying capacity, which leads to flooding and/or creation of a new stream channel, as occurred in the Gorley Springs area. The second form of aggradation—tidal-fluvial—represents a combination of river and much larger, ocean-derived estuary forces operating at slower energy levels, allowing deposits of the remaining fine material. While the popular perception is that accretion of sediment in bays along the Columbia River contributes to flooding within the watershed because of reduced stream capacity for discharge into the river, there are larger-scale forces at work. A complex combination of natural forces, including flow patterns, sediment sources, distribution of sediment sizes, and river-bay transition zone dynamics are part of the equation. Human activity such as pile diking, disposal of dredge spoils, and changes in the Columbia River dynamics due to hydropower modifications are the other side of the equation. All of these factors have a bearing on the buildup of sediments in channels and bays throughout the watershed.

2. **Overbank Flooding** – This type of flooding occurs when there is more water than the stream channel can carry. Water spilling into the floodplain affects most human activities that take place in the lower elevations, affecting homes, farming activities, and travel along the county road system. Overbank flooding commonly results from periods of heavy precipitation combined with demands placed upon deteriorating flood control structures and overdue maintenance on the county road system, particularly in regards to adequately sized culverts. While diking can be beneficial within a particular stretch of river, it tends to displace flooding to other areas further downstream, which are then impacted.
3. **Streambank & Shoreline Erosion** – The energy of water action against the stream banks causes erosion, which leads to increased flooding impacts. This is particularly common in the middle reaches of the county’s watersheds, once water has left the steep hillsides to travel down to the tidal areas. Areas in the Grays River basin have experienced significant threats from stream bank erosion, including the well field that serves Western Wahkiakum Water System, as well as various locations along Loop Road. Alternative approaches to reduce impacts of stream bank erosion have taken place in the Skamokawa basin, with mixed results. More study is needed on effective alternatives.

Erosion has presented significant threats to property along Puget Island shorelines, especially at Pancake Point, the southwest corner near Welcome Slough, and at Brown Slough. Shoreline erosion is related to pile dikes and jetties to improve and maintain the navigation channel within the Columbia River. These issues have been studied by Pacific International Engineering as well as Coast & Harbor Engineering. The county is currently working through project planning and permitting issues with the Corps of Engineers and other permitting authorities. The Corps maintains the pile dike and jetties to ensure navigational passage in the Columbia River. They have placed dredge spoils in limited locations as an interim measure.

4. **Localized Flooding** –Localized water ponding occurs frequently in the valley lowlands, particularly in areas that have been diked for agricultural activity. Many of these diked areas are characterized by slow draining or hydric soils related to wetland habitat.

HABITATS, SPECIES, SHORELINES & WATER RESOURCES

PRIORITY HABITATS & SPECIES

The Priority Habitats and Species (PHS) Program was begun in 1989 by the Washington Department of Fish and Wildlife (WDFW) to provide important fish, wildlife, and habitat information to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for land use planning purposes. PHS information is used for:

- ❑ Screening of Forest Practice, Hydraulic Project and State Environmental Protection Act (SEPA) applications
- ❑ Critical Area protection requirements for all cities and counties required by the Growth Management Act
- ❑ Development of Habitat Conservation Plans on state, federal, and private lands
- ❑ Landscape-level planning and ecosystem management by state, federal, and tribal governments;
- ❑ Statewide oil spill prevention planning and response.

PHS provides the information necessary to incorporate the needs of fish and wildlife in land use planning. The PHS program focuses on three central issues:

1. Which species and habitat types are priorities for management and conservation?
2. Where are these habitats and species located?

3. What should be done to protect these resources when land use decisions are made?

In responding to these questions, the PHS program conducts ongoing studies and surveys in order to:

- Identify habitats and species determined to be priorities based on defensible, scientific criteria
- Map known locations of priority habitats and species
- Provide information on conditions required to maintain healthy populations of priority species as well as viable, functioning priority habitats, using best available science
- Provide consultation and guidance on land use issues affecting priority habitats and species
- Distribute information in easily accessible formats

The Washington Department of Fish and Wildlife publishes updated lists of Priority Habitats and Species (PHS) and Species of Concern (SOC) on an ongoing basis. The PHS List is a catalog of habitats and species considered to be priorities for conservation and management. The statute requires **delineation, listing, and protection** of priority species in order to ensure continued viability. Factors affecting the viability of a species include:

- ❑ Population status
- ❑ Sensitivity to habitat alteration
- ❑ Recreational, commercial, or tribal importance

The state listing of priority species is continuously reviewed and updated according to a process established by state law. A listed species may or may not be located on a particular land parcel even though it is listed as present within the region. The list is intended as a point of reference for land owners, local governments, and planners. The Department also develops management recommendations for priority species.

Priority habitats have unique or significant values for species diversity. A priority habitat may be described by a unique vegetation type or by a dominant plant species that is of primary importance to fish and wildlife (e.g., oak woodlands, eelgrass meadows). A priority habitat may also be described by a successional stage (e.g., old growth and mature forests). Alternatively, a priority habitat may consist of a specific habitat element (e.g., consolidated marine/estuarine shorelines, talus slopes, caves, snags) of key value to fish and wildlife. WDFW has identified 18 habitat types, 140 vertebrate species, 28 invertebrate species, and 14 species groups throughout Washington State. Taken together, these constitute about 16% of the 1,000 or so of the known vertebrate species and a fraction of the state's invertebrate species.

WDFW has very limited authority over the habitats upon which listed species depend. Most protective actions are conducted by landowners and through applications of the State Environmental Policy Act (SEPA), the Growth Management Act (GMA), the Forest Practices Act (FPA), the Shoreline Management Act (SMA), and similar local government processes. A priority species is a fish or wildlife species requiring protective measures and/or management guidelines to ensure their continued existence. Criteria for listing priority species fall into three categories:

Criterion 1 - State Listed and Candidate Species

State listed species are those native fish and wildlife species legally designated as Endangered, Threatened, or Sensitive. State Candidate species are those fish and wildlife species that will be reviewed by WDFW for possible listing as Endangered, Threatened, or Sensitive according to the process and criteria defined in state administrative code.

Criterion 2 - Vulnerable Aggregations

Vulnerable aggregations include those species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to aggregate. Examples include heron rookeries, seabird concentrations, marine mammal haul outs, shellfish beds, and fish spawning and rearing areas.

Criterion 3 - Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable

Native and non-native fish and wildlife species of recreational or commercial importance, and recognized species used for tribal ceremonial and subsistence purposes that are vulnerable to habitat loss or degradation.

The **Species of Concern (SOC) List**, published by the Wildlife Management Program, includes only native Washington Fish and Wildlife species that are listed as Endangered, Threatened, or Sensitive, or those that are Candidates for these designations. Endangered, Threatened, and Sensitive species are legally established by the Washington Administrative Code. Candidate species are established by WDFW policy. There are currently 24 Endangered, 11 Threatened, 4 Sensitive, and 103 Candidate species on the SOC List. Every species included in the Species of Concern list is included in the Priority Habitat & Species listing.

DRAFT

Priority Species of Southwest Washington

<i>Common Name</i>	<i>Species Criteria</i>
<i>Mollusks</i>	
California floater	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations
<i>Arthropods</i>	
Columbia River tiger beetle	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
<i>Butterflies</i>	
Chinquapin hairstreak	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Golden hairstreak	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Johnson's hairstreak	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Juniper hairstreak	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Mardon skipper	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Valley silverspot	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Whulge checkerspot	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
<i>Fish</i>	
River lamprey	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Green sturgeon	<ul style="list-style-type: none"> ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
White sturgeon	<ul style="list-style-type: none"> ▪ 2 Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Olympic mudminnow	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Lake chub	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Leopard dace	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Mountain sucker	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Channel catfish	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Eulachon	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Bull trout/Dolly Varden	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Chinook salmon	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species

	<ul style="list-style-type: none"> ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Chum salmon	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Coastal resident/Sea run cutthroat	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Coho salmon	<ul style="list-style-type: none"> ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Kokanee	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
<i>Common Name</i>	<i>Species Criteria</i>
Pygmy whitefish	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations
Rainbow trout/Steelhead	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Sockeye salmon	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species ▪ Vulnerable Aggregations ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Westslope cutthroat	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Largemouth bass	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Smallmouth bass	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
Walleye	<ul style="list-style-type: none"> ▪ Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable
<i>Amphibians</i>	
Cascades torrent salamander	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Columbia torrent salamander	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Dunn's salamander	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Larch Mountain salamander	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species
Van Dyke's salamander	<ul style="list-style-type: none"> ▪ State Listed and Candidate Species

<i>Northern leopard frog</i>	▪ <i>State Listed and Candidate Species</i>
<i>Oregon spotted frog</i>	▪ <i>State Listed and Candidate Species</i>
<i>Western toad</i>	▪ <i>State Listed and Candidate Species</i>
Reptiles	
<i>Western pond turtle</i>	▪ <i>State Listed and Candidate Species</i>
<i>California mountain king snake</i>	▪ <i>State Listed and Candidate Species</i>
<i>Sharptail snake</i>	▪ <i>State Listed and Candidate Species</i>
Birds	
<i>American white pelican</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
<i>Brandt's cormorant</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
<i>Common loon</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
Common Name	Species Criteria
<i>Marbled murrelet</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
<i>Terns (Laridae)</i>	▪ <i>Vulnerable Aggregations</i>
<i>Black-crowned night heron</i>	▪ <i>Vulnerable Aggregations</i>
<i>Great blue heron</i>	▪ <i>Vulnerable Aggregations</i>
<i>Aleutian Canada goose</i>	▪ <i>State Listed and Candidate Species</i>
<i>Cavity-nesting ducks</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Wood duck</i>	
<i>Barrow's golden eye</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Common golden eye</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Bufflehead</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Hooded merganser</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
Common Name	Species Criteria
<i>Western Washington non-breeding arrow's golden eye</i>	▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Common golden eye</i>	▪ <i>Vulnerable Aggregations</i>

	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Bufflehead</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Harlequin duck</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Trumpeter swan</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Tundra swan</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Anatidae excluding Canada geese</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Bald eagle</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Golden eagle</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Merlin</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Northern goshawk</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Peregrine falcon</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Prairie falcon</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Blue grouse</i>	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Chukar</i>	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Mountain quail</i>	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Wild turkey</i>	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Sandhill crane</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Western Washington non-breeding plovers, sandpipers and phalaropes</i>	<ul style="list-style-type: none"> ▪ <i>Vulnerable Aggregations</i>
<i>Band-tailed pigeon</i>	<ul style="list-style-type: none"> ▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Burrowing owl</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Spotted owl</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>
<i>Vaux's swift</i>	<ul style="list-style-type: none"> ▪ <i>State Listed and Candidate Species</i>

<i>Black-backed woodpecker</i>	▪ <i>State Listed and Candidate Species</i>
<i>Lewis' woodpecker</i>	▪ <i>State Listed and Candidate Species</i>
<i>Pileated woodpecker</i>	▪ <i>State Listed and Candidate Species</i>
<i>White-headed woodpecker</i>	▪ <i>State Listed and Candidate Species</i>
<i>Loggerhead shrike</i>	▪ <i>State Listed and Candidate Species</i>
<i>Oregon vesper sparrow</i>	▪ <i>State Listed and Candidate Species</i>
<i>Purple martin</i>	▪ <i>State Listed and Candidate Species</i>
<i>Sage thrasher</i>	▪ <i>State Listed and Candidate Species</i>
<i>Slender-billed white-breasted nuthatch</i>	▪ <i>State Listed and Candidate Species</i>
<i>Common Name</i>	<i>Species Criteria</i>
<i>Streaked, horned lark</i>	▪ <i>State Listed and Candidate Species</i>
<i>Big brown bat, Myotis bats, Pallid bat</i>	▪ <i>Vulnerable Aggregations</i>
<i>Townsend's big-eared bat</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
<i>Rodents</i>	
<i>Gray-tailed vole</i>	▪ <i>State Listed and Candidate Species</i> ▪ <i>Vulnerable Aggregations</i>
<i>Brush Prairie pocket gopher</i>	▪ <i>State Listed and Candidate Species</i>
<i>Western gray squirrel</i>	▪ <i>State Listed and Candidate Species</i>
<i>Western pocket gopher</i>	▪ <i>State Listed and Candidate Species</i>
<i>Carnivores</i>	
<i>Fisher</i>	▪ <i>State Listed and Candidate Species</i>
<i>Gray wolf</i>	▪ <i>State Listed and Candidate Species</i>
<i>Marten</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Mink</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Wolverine</i>	▪ <i>State Listed and Candidate Species</i>
<i>Marine Mammals</i>	
<i>Harbor seal</i>	▪ <i>Vulnerable Aggregations</i>
<i>Big Game</i>	
<i>Columbian black-tailed deer</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>

<i>Columbian white-tailed deer</i>	▪ <i>State Listed and Candidate Species</i>
<i>Mountain goat</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Rocky Mountain elk</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Rocky Mountain mule deer</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>
<i>Roosevelt elk</i>	▪ <i>Species of Recreational, Commercial, and/or Tribal Importance that are Vulnerable</i>

Source: Washington Department of Fish & Wildlife

FISH RECOVERY

The WRIA 25/26 Watershed Management Plan conducted under the state watershed planning act also examined habitat conditions, particularly those that relate to the recovery of anadromous fish populations. The Lower Columbia Fish Recovery Board (LCFRB), established in 1988 by state law, has been tasked with constructing a collaborative approach to restoring threatened anadromous fish species as well as other fish and wildlife species within the region. The Board's activities include recovery and watershed planning as well as habitat restoration and protection.

The fish recovery and sub-basin plans developed by LCFRB focus on six salmonid species. Four are listed as threatened under the Endangered Species Act (ESA): chum, chinook, steelhead, and bull trout. One other species—coho—is a proposed candidate for listing. Coastal cutthroat is identified as a species of regional interest that may be proposed for listing under ESA. These six species comprise 85 individual populations. Other fish and wildlife of interest include sturgeon, Pacific lamprey, smelt, northern pike minnow, shad, introduced game fish, dusky Canada goose, Caspian terns, Columbia white-tailed deer, sand hill crane, western pond turtle, and selected neotropical birds.

All watersheds of Wahkiakum County flow into the Columbia River, with the exception of the Naselle and Salmon Creek, which flow into Willapa Bay. Each of the river basins within Wahkiakum County has historically supported thousands of fall Chinook, winter steelhead, chum, and coho. The numbers of naturally spawning salmon and steelhead have plummeted far below historical numbers. Chinook and chum have been listed as Threatened under the Endangered Species Act, while coho is proposed for listing. The decline has occurred over several decades, and causes can be attributed to many factors, as identified in the Lower Columbia Fish Recovery and Fish & Wildlife Sub-basin Plan:

- The quality of freshwater and estuary habitat has declined due to agricultural and forestry practices.
- Actions such as channel modifications, diking, filling, draining of floodplains and wetlands have eliminated or isolated essential habitat areas.
- Losses caused by predators have increased, due to altered habitat conditions.
- Fish productivity has been reduced by competition and interbreeding with domesticated/non-local hatchery fish.
- Fish numbers have been reduced by harvests in fresh and saltwater fisheries.

Each of the drainage basins in Wahkiakum County—the Grays, Elochoman, and Skamokawa—are viewed as more critical to the regional recovery of salmon and steelhead because they comprise the coastal portion of the Evolutionary Significant Unit (ESU). Salmon and steelhead within these basins should be restored to a high level to meet regional recovery objectives. This means that the populations are abundant and productive, exhibit multiple life history strategies,

and occupy a significant portion of the watershed. Although there have been many efforts by local, state and federal governments, citizens and landowners and conservation groups, much still remains to be accomplished. The recovery plan states that there is no single threat or action that will turn around the decline in fish populations. The recovery plan recommends a reduction in all threats and environmental limiting factors.

Conditions that have an influence on habitat and salmonid populations include passage barriers, stream flow, water quality, nutrient loads, habitat diversity, substrate and sediment, woody debris, channel stability, riparian function, and floodplain function. The recovery plan identifies limiting factors and management objectives to improve watershed health and habitat.

Fish Recovery Plan Recommendations

The fish recovery plan analysis has indicated that recovery cannot be achieved by addressing only one limiting factor. Recovery will require actions to reduce or eliminate all manageable factors or threats, both in-basin (such as stream flows, riparian habitat, floodplain connectivity, and hatchery management) and out-of basin activities (such as fish harvesting, impacts of hydropower, loss of estuary habitat, etc.). General recommendations for immediate action are found in the Fish Recovery & Watershed Plan for Water Resource Inventory Area 25/26, (July 2006).

NATURAL AREAS

Lands with a high priority for conservation include those with critical wildlife habitat, prime natural features, examples of native ecological communities, and environmentally significant sites. These sites provide opportunities for outdoor environmental education and appropriate low impact public uses. The Julia Butler Hanson National Wildlife Refuge is a federally designated area for the protection of the Columbian White-tailed Deer. Hendrickson Canyon is listed as a state Natural Area Preserve through the Department of Natural Resources. Other natural areas listed below have been identified by conservation groups as significant enough to warrant some form of restoration and/or protection.

The **Grays River watershed** has experienced a high level of interest in protecting natural areas through acquisition, primarily by the Columbia Land Trust (CLT). Using Salmon Recovery Funding Board (SRFB) funding, the CLT acquired 116 acres of delta estuarine habitat near the mouth of Grays River, 202 acres of wetlands and associated forested uplands near Grays Bay, 200 acres of floodplain near Devils Elbow, 125 acres of floodplain near Eden Valley and 183 acres of floodplain habitat adjacent to Grays River and Seal Slough, for a total of 826 acres. All of these properties are situated along the lower three miles of the watershed. Once additional proposed acquisitions are completed, the Grays River watershed may include over 1500 acres of permanently protected areas.

The Washington Department of Fish and Wildlife (WDFW) has management authority over 26 acres adjacent to **Miller Point**, near the mouth of Grays River. This parcel was acquired by WDFW to protect unique fish and wildlife habitat and a high quality emergent, scrub-shrub and forested wetland. Most of the property is dominated by a mature stand of Sitka spruce.

Natural Resources Conservation Areas (NRCA) and Natural Areas Preserves (NAP) are the two types of natural areas managed by the Department of Natural Resources. Conservation areas protect outstanding examples of native ecosystems, habitat for endangered, threatened and sensitive plants and animals, and scenic landscapes. Environmental education and low impact public use are appropriate on conservation areas where they do not impair the resource values of the area protected. The NRCA program was established by the Legislature in 1987, and represents an important protection alternative which complements the preserves and provides for a diverse natural areas program. State-designated conservation areas presently include

approximately 88,560 acres in 28 sites distributed throughout the state, including a 272-acre Natural Resource Conservation Area (NRCA) in the Grays River watershed.

Hendrickson Canyon NCRA is situated along the upper reaches of the Grays River and protects old growth silver fir, western hemlock, and western red cedar, in three distinct forest ecosystem types. This property represents one of the last undisturbed examples of this forest community in southwest Washington. This NAP is known to support a variety of fish and wildlife species, including the Vandyke's salamander, cascade torrent salamander, pacific giant salamander, Cope's giant salamander, coastal cutthroat trout, and marbled murrelets.

Source: Washington Department of Natural Resources

The **Julia Butler Hansen Refuge for the Columbian White-tailed Deer** was established in 1972 specifically to protect and manage the endangered Columbian white-tailed deer. The refuge contains over 6,000 acres of pastures, forested tidal swamps, brushy woodlots, marshes and sloughs along the Columbia River in both Washington and Oregon. The mainland refuge unit, the Hunting Islands and Price Island are in Washington. Tenasillahe Island, Crims Island, Wallace Island and several small parcels around Westport are in Oregon.

The refuge also provides habitat for a variety of other species, including birds, a small herd of Roosevelt elk, river otter, various reptiles and amphibians including painted turtles and red-legged frogs, and several pairs of nesting bald eagles and ospreys. The refuge is a wintering area for tundra swans, Canada geese, mallards, wigeon, and pintails. Water birds and raptors are common. Salmon, steelhead, sturgeon, and trout are found in surrounding waters.

Known Occurrences of Rare Plants in Wahkiakum County

Common Name	State Status	Federal Status
Dense Sedge	T	
Chaffweed	R1	
Gorge Daisy	T	SC
Pink Fawn-lily	S	
Floating Water Pennywort	S	
Ussurian Water-milfoil	R1	
Loose-flowered Bluegrass	S	
Soft-leaved Willow	S	
Water-pimpernel	S	
Hairy-stemmed Checker-mallow	E	
Columbia Water-meal	R1	

Source: Washington Department of Natural Resources, Washington Heritage Program, August 2005

The State Status of a plant species is determined by abundance, occurrence patterns, vulnerability, threats, existing protection, and taxonomic distinctness. State Status categories as used in the above chart include:

- E = Endangered - In danger of becoming extinct or extirpated from Washington.
- T = Threatened - Likely to become Endangered in Washington.
- S = Sensitive - Vulnerable or declining and could become Endangered or Threatened
- X = Possibly extinct/extirpated in Washington
- R1 = Review group 1 - Of potential concern but needs more field work to assign another rank.
- R2 = Review group 2 - Of potential concern but with unresolved taxonomic questions.

The designation of "SC" under Federal Status indicates a Species of Concern. This is an unofficial status, indicating that the species appears to be in jeopardy, but without sufficient information to support a formal listing.

NATIVE PLANT SPECIES

The intentional or accidental introduction of non-native species to an area often brings unintended consequences. Non-native species are capable of overwhelming native species, under favorable conditions. Eradication efforts are rarely successful, and can involve expensive, time-consuming methods that create additional impacts. Non-native species can have detrimental effects upon fish and wildlife habitat, agricultural and silvicultural activities, as well as the landscape. Native plantings to restore riparian habitat is recommended in the Comprehensive Flood Hazard Management Plan. The Washington Native Plant Society has identified vascular plants that are native to Wahkiakum County, which are listed below:

Native Plant Species of Wahkiakum County, Washington

- Grand fir
- Vine maple
- Big-leaf maple
- Vanilla leaf
- Baneberry
- Maidenhair fern
- Wheatgrass
- Red alder
- Short-awned foxtail
- Serviceberry
- False indigo
- Kneeling angelica
- Red columbine
- Pacific madrone
- Sandwort
- Goatsbeard
- Western aster
- Weedy milk-vetch
- Lady fern
- Bitter wintercress
- Gray birch
- Deer fern
- Leathery grape-fern
- Autumnal water-starwort
- Spring water-starwort
- Yellow marshmarigold
- Common harebell
- Seaside bittercress
- Dense sedge
- Henderson's sedge
- Slough sedge
- Sawbeak sedge
- Harsh paintbrush
- Diffuse knapweed
- Spotted knapweed
- Chaffweed
- Western golden-carpet
- Enchanter's nightshade
- Virgin's bower
- Tufted hairgrass
- Bleeding heart
- Foxglove
- Hooker fairy-bell
- Smith fairy-bell
- Coastal wood-fern
- Spreading wood-fern
- Crowberry
- Common willow-herb
- Small-flowered willow-herb
- Watson's willow-herb
- Giant helleborine
- Giant horsetail
- Gorge daisy
- Rough wallflower
- Mole plant
- Red fescue
- Crinkle-awn fescue
- Quickweed
- Cleavers
- Small bedstraw
- Salal
- Large-leaved avens
- Globe gilia
- Reed mannagrass
- White bog-orchid
- Cow parsnip
- Small-flowered alumroot
- Ocean spray
- Pacific waterleaf
- Jewell-weed
- Spurless balsam
- Hall's isopyrum
- Toad rush
- Soft rush
- Western juniper
- Primrose-willow
- Angled pea
- Leafy peavine
- Small-flowered woodrush
- Fringed loosestrife
- False lily-of-the-valley
- Manroot
- Japanese mazus
- Pennyroyal
- Fool's huckleberry
- Toothed-leaf monkey-flower
- Common monkey-flower
- Musk-flower
- Allegheny monkey-flower
- Coastal mitrewort
- Streambank spring beauty
- Candyflower
- Common forget-me-not
- South American water-milfoil
- Pond lily
- Indian plum
- Water parsley
- Devil's club
- Mountain sweet-cicely
- Oregon wood-sorrel
- Great oxalis
- Broad-leaf penstemon
- Bolander's phacelia
- Woodland phacelia
- Reed canarygrass
- Mock-orange
- Pacific ninebark
- Gold-back fern
- Scouler's popcorn-flower
- Annual bluegrass
- Roughstalk bluegrass
- Licorice fern
- Sword fern
- Closed-leaved pondweed
- Self-heal
- Cherry plum
- Bitter cherry

Native Plant Species of Wahkiakum County, Washington (continued)

- Queen's cup
- Varied-leaf collomia
- Red-osier dogwood
- Western corydalis
- Hazelnut
- English hawthorn
- Slender hawksbeard
- Columbia larkspur
- Himalayan blackberry
- Evergreen blackberry
- Blackcap
- Thimbleberry
- Salmonberry
- Wild blackberry
- Sheep sorrel
- Stickystem pearlwort
- Arctic pearlwort
- Coyote willow
- Pacific willow
- Purple-osier willow
- Soft-leaved willow
- Sitka willow
- Russian thistle
- Blue elderberry
- Water pimpernel
- Yerba buena
- Grassland saxifrage
- Merten's saxifrage
- Nuttall's saxifrage
- Northern starwort
- Cutgrass
- Butter and eggs
- Yellow-seed false-pimpernel
- Fern-leaf biscuit-root
- Black twinberry
- Big deervetch
- Miniature lotus
- Broad-leaf lupine
- Prairie lupine
- Streambank lupine
- Field woodrush
- Stinging nettle
- Oval-leaved huckleberry
- Red huckleberry
- Sitka valerian
- Inside-out-flower
- American brooklime
- Giant vetch
- Tiny vetch
- Evergreen violet
- Oregon stonecrop
- Oregon selaginella
- Wallace's selaginella
- Bolander's groundsel
- Rayless alpine butterweed
- Wood groundsel
- Hairy-stem checker-mallow
- Douglas' silene
- Hardhack
- Cooley's hedge-nettle
- Meadow buttercup
- Gmelin's buttercup
- Little buttercup
- Cascara
- Poison oak
- Stink currant
- Coast black gooseberry
- Gummy gooseberry
- Yellowcress
- Sweetbrier
- Clustered wild rose
- Crisped starwort
- Bronze bells
- Clasping-leaved twisted-stalk
- Common snowberry
- Fringecup
- Western meadowrue
- Foamflower
- Youth-on-age
- Broadleaved starflower
- White trillium
- Purple sandgrass
- Western hemlock
- Narrow-leaved cattail
- Common cattail
- Small-flowered bulrush
- Triangular bulrush
- California figwort
- Mexican betony
-

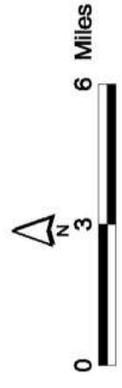
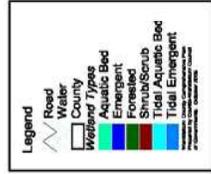
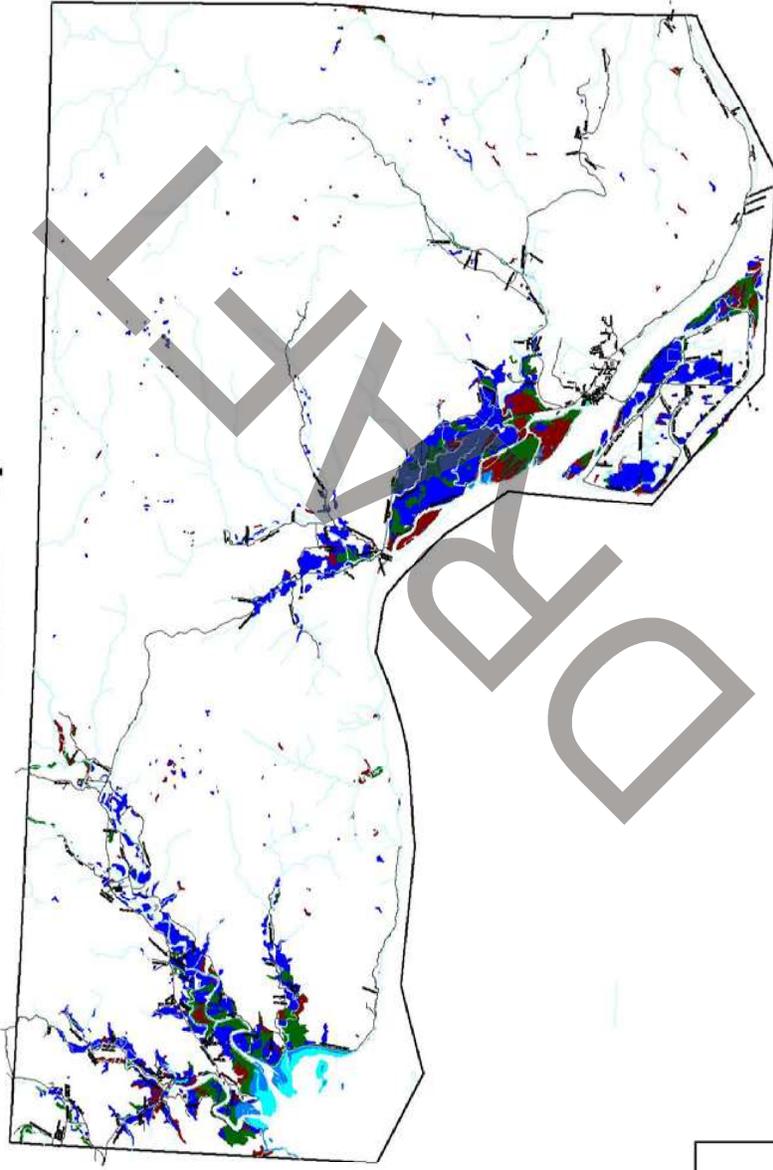
Source: Washington Native Plant Society, 2004

HABITATS OF INTEREST

Wetlands & Riparian Areas

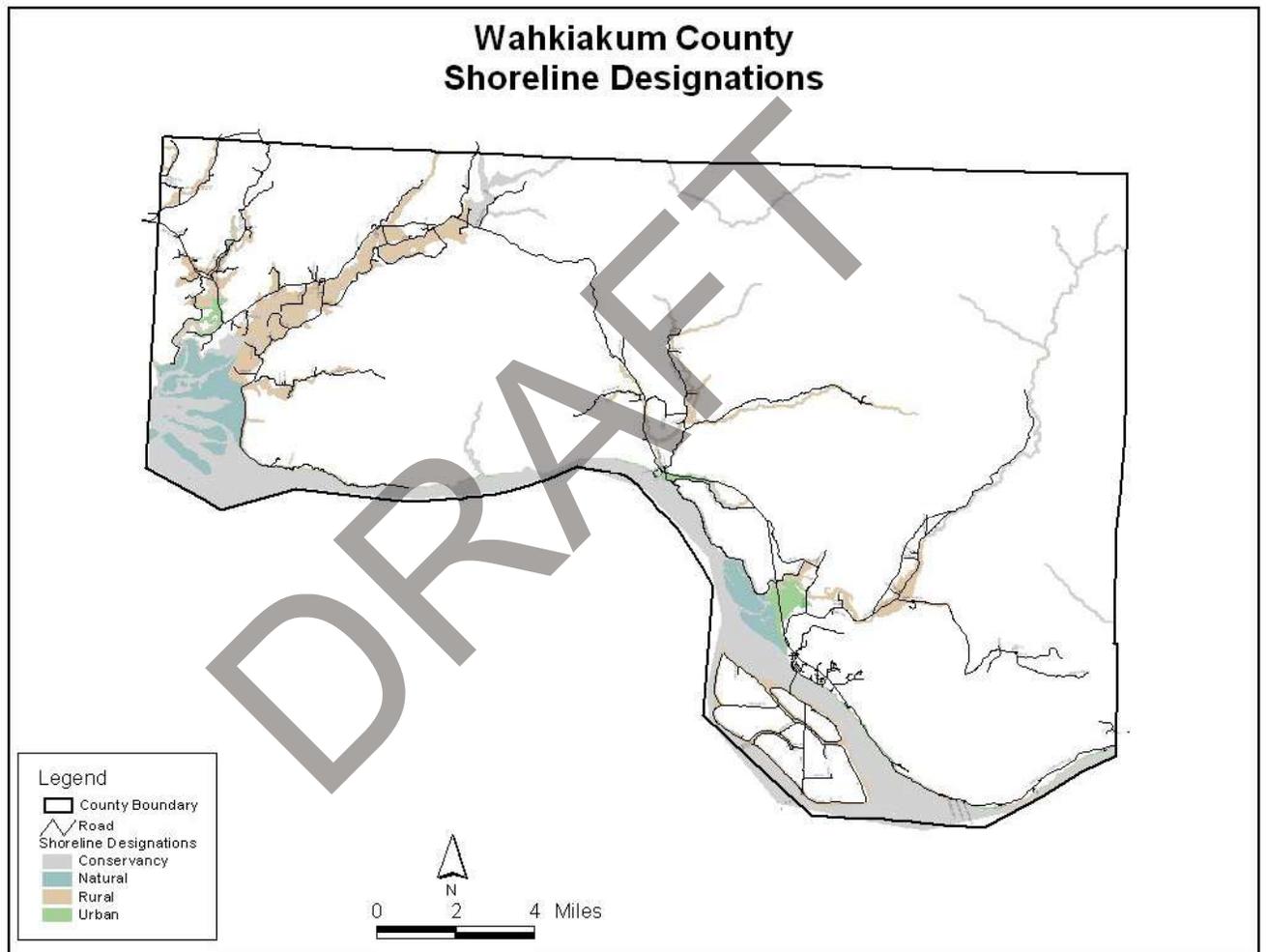
Wetlands and riparian habitat serve a key function by providing a transition between aquatic and terrestrial species and habitats. The different types of wetland and riparian areas include deepwater tidal habitats, freshwater wetlands, fresh deepwater habitat, and riparian areas.

Wahkiakum County National Wetlands Inventory (NWI) Wetland Map



Wahkiakum County has a Shoreline Management Plan in place. Washington State developed a new Coastal Zone Management Program in February 2001. Wahkiakum County must update its shoreline master program no later than **2014** in order to stay in compliance with state requirements. Legislation requires that local plans:

- Recognize and protect the statewide interest over local interest
- Preserve the natural character of the shoreline
- Result in long-term over short-term benefit
- Protect the resources and ecology of the shoreline;
- Increase public access to publicly owned areas of the shorelines
- Increase recreational opportunities for the public in the shoreline



Water Resource Problems

Pacific International Engineering (PIE) studied **water resource problems** along the Columbia River for the Lower Columbia River Port Communities in 2002. This report identified several projects in Wahkiakum County and presented some methods and cost estimates to address these issues. Some of these solutions may be combined with structural and nonstructural recommendations of the Comprehensive Flood Hazard Management Plan, while others might be modified, in light of the recommendations found in the CFHMP. The issues and solutions identified by PIE can be summarized as follows:

Location	Problem	Solution/Alternatives
County Sand Pit (Puget Island)	Deficit of dredge material	~Use hopper dredge to fill site ~Use cutterhead pipeline dredge
Brown Slough Pump Station (Puget Island)	Erosion	~Rock revetment rehabilitation ~Beach nourishment
Grove Slough Tidegate (Puget Island)	Sedimentation	~Regular maintenance dredging
North Welcome Slough Road (Puget Island)	Bank Erosion	~Rock revetment rehabilitation ~Steel sheetpile wall
Ferry Terminal (Puget Island)	Deposition/shoaling	~Coordinated dredging schedule ~Advanced maintenance dredging
Pancake Point (Puget Island)	Pancake Point erosion	~Beach nourishment ~Buried rock revetment
Cathlamet Channel	Sedimentation	~Coordinated dredging schedule
Cathlamet Marina	Sedimentation	~Flow improvement ~Dredging
Skamokawa Creek Channel	Sedimentation	~Federal dredging ~local dredging
Mouth of Grays River	Sedimentation	~Detailed Hydraulic evaluation ~Local dredging

Source: Pacific International Engineering, Inc., 2002.

Dredged Material Management Plan (DMMP) for the Columbia Estuary

The Columbia River Estuary Study Taskforce (CREST) developed a Dredged Material Management Plan for the Columbia River Estuary in 1979, which identified 98 sites for dredged material disposal along the Oregon and Washington shorelines of the Columbia River. These sites were then protected by comprehensive plans (in Oregon) and through Shoreline Management Master Programs (in Washington). The plan was updated in 1986 to reflect changes in availability and suitability of disposal sites. Another review was undertaken in 2000 to refine the dredging and disposal policies and to inventory an adequate number of disposal sites with sufficient capacity to accommodate projected disposal needs for at least a five-year period. This update is also intended to be incorporated into comprehensive plans and shoreline management master programs, and included the 1998 Dredged Material Management Plan conducted for channel maintenance by the U.S. Army Corps of Engineers. The plan also provides for disposal needs created by local dredging projects. For these projects, disposal sites in close proximity of the local dredging areas were identified, where permitting authority appeared feasible. **Three circumstances can trigger local review of dredging or disposal issues:**

1. Dredging within the jurisdiction
2. Disposal within the jurisdiction
3. Review of a development proposal for a designated disposal site

These activities should be reviewed for consistency with the policies, standards, and other requirements of the comprehensive plan or shoreline master program. In addition to reviewing for consistency, local governments should encourage early timing of disposal projects when this might create beneficial impacts. The DDMP recommends that local jurisdictions **designate and reserve** the dredged material disposal sites listed in the DDMP; otherwise, the absence of a designation may allow development to occur prior to placement any dredged material, thereby reducing overall capacity for disposing of dredged materials. A “30-day freeze” on pre-emptive development proposals is provided so that local governments can negotiate for the use of the property as a disposal site. Approval of the project will result in removal of the site from the DDMP list. The plan recommends the **use of zoning to designate sites** and assist in limiting the potential of pre-emptive development at a disposal site. The list of disposal sites is to be updated every five years.

Site selection criteria for dredged material disposal are set out in the DDMP as follows (in no particular order:

- Sites that provide opportunity for beneficial use of dredged material
- Sites where the comprehensive plan/shoreline master program designate for development, provided that disposal does not preclude future development of the site
- The final use of the site will benefit from the placement of the material
- Sites where material may be stockpiled for future use
- Areas where dredged spoils containing organic, chemical or potentially toxic/polluted materials can be properly contained without environmental damage or health risks
- Placement will help restore degraded habitat
- Wetlands will not be impacted
- Lands owned by the state, owned or leased by a county, port, or other public entity
- Review/permitting processes for impacts to listed species has been followed and approved
- Important fish and wildlife habitat or scenic, recreation, archaeological or historical areas that would not benefit from placement of spoils should be avoided.
- Engineering factors, such as size and capacity of the site, dredging method, composition of dredged materials, distance, control of drainage, elevation, costs of acquisition, preparation and revegetation
- Flow lane disposal sites are allowed only where sediments can reasonably be expected to be transported without excessive shoaling, interference with recreation and commercial fishing is minimized, hydraulic effects will be minimal, disposal depth is between 20 and 65 feet below MLLW, and the disposal site does not create a hazard for safe navigation
- Estuarine in-water disposal sites only in areas of low benthic productivity, unless for an approved fill project; these sites will be used only when there is no feasible upland or ocean disposal site, and where biological and physical impacts are minimal, and only where sufficient data is available to meet this criteria
- Beach nourishment sites only on sandy beaches currently experiencing active erosion, and only to offset erosion—not to create new beach or upland areas, and not where adverse impact to tidal marshes or intertidal areas would occur

Many designated disposal sites in Wahkiakum County have environmental constraints, such as threatened or endangered species, juvenile salmon migration, or located within an organized gillnet drift. These sites would require lengthier time frames for negotiation of conditions and procedures that would minimize impacts on affected resources. Dredged material disposal sites recommended for Wahkiakum County are listed in the following table.

Designated Locations & Characteristics of Dredged Material Disposal Sites

Water Mile	Common Name	Owner	Acres/Feet	Capacity (Cubic Yards)
21.2	Rice Island	State	215	6,900,000
	Mouth of			20' above elevation
20.7	Deep River	Private	15	240,000
	Deep River			10' above elevation
21.1		Private	22	350,000
	Mouth of			10' above elevation
22.4	Grays River	Private	19	307,000
				10' above elevation
22.9	Grays River	Private	25	400,000
				10' above elevation
28.2	Jim Crow Point	--	--	--
	Skamokawa	Wahkiakum		250,000
33.4	Vista Park	Port District 2	3,300'	(~200 X 10)
34.4	Skamokawa Bar	--	--	--
				120,000
36.9	Elochoman	Private	7.5	10' above elevation
				58,000
38.1	Hunting Island	Unknown	3.6	10' above elevation
		Wahkiakum		128,000
38.4	County Sand Pit	County	8	10' above elevation
			2,900'	216,000
38.7 (CF)	Orhberg's Beach	Unknown	(beach length)	(~200 X 10)
				62,000
38.8 (CF)	Brown's Slough	Private	800'	(~200 X 10)
				33,0000
40.8 (CF)	Puget Island	Private	900'	(~100 X 10)
				92,500
40.9 (CF)	Puget Island	Unknown	2,500'	(~100 X10)
	Welcome Slough			85,000
41.2	(Puget Island)	Private	5.3	10' above elevation
				148,000
41.3 (CF)	Coffee Pot Island	Private	4,000'	(~100 X 10)
		Wahkiakum		100,000
41.8	Puget Island	County	6.2	10' above elevation
				310,000
42.4	Puget Island	Private	4,200'	(~200 X 10)
	Coffee Pot Island			560,000
42.5	(upstream)	Federal	35	10' above elevation
				120,000
43.8 (CF)	Pancake Point	Private	3,250'	(~100 X 10)
44.0	Vik Property	Private	100	3,200,000
45.0				300,000
Beach (CF)	White Island	State	5,400'	(~150 X 10)
				330,000
46.3 (CF)	Brown Island	State	6,000'	(~150 X 10)
51.3	Eagle Cliff	--	--	--
		Wahkiakum		230,000
51.8 (CF)	County Line Park	County	3,100'	(~200 X 10)

Note: (CF) indicates disposal site is within an organized gillnet drift.

Source: Columbia River Dredged Material Disposal Plan, 2000

The Columbia River Channel Deepening Project will increase the shipping channel by an additional three feet. This project began in late 2004 and is a multi-year project requiring millions in federal assistance, much of which has not been officially approved. Once completed, ports along the Columbia River should be more competitive with ports further north (Tacoma, Seattle, Everett, Vancouver) and further south (Los Angeles). The project is not without controversy. Concerns over environmental damage and injury to fish stocks during the work have been expressed. Increased shipping traffic at higher speeds has raised issues over wake damage and shoreline erosion. Serious erosion problems already exist, particularly on Puget Island at Pancake Point and Welcome Slough. Wahkiakum County has been attempting to negotiate a stop-gap measure to place dredged soils in locations where pile dikes have generated erosive forces. Permanent solutions appear distant, though the Corps of Engineers is developing a Regional Sediment Management Initiative for the Lower Columbia that could suggest beneficial management practices.

Neglected maintenance dredging at the confluence of local rivers and the Columbia has created problems with sport and commercial traffic. The forces of sedimentation and erosion have different sources and dynamics. This has resulted in imbalances, such as more extensive flooding than in years past, and loss of private property. Six port districts in Wahkiakum and Pacific counties have joined forces to push for more frequent and beneficial maintenance dredging efforts. This costly activity must be assisted by other dredging and disposal activity taking place at the federal level.

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