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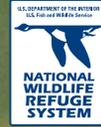
For National Wildlife Refuge Information  
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Lewis & Clark National Wildlife Refuge  
P.O. Box 566  
Cathlamet, WA 98612  
360/795 3915

Willapa National Wildlife Refuge Complex  
3888 SR 101  
Ilwaco, WA 98624-9707  
360/484 3482

November 2009



*Cover photo: River otter.*  
©Tom and Pat Leeson

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# Lewis and Clark

## *National Wildlife Refuge*



*O!  
The Columbia River!  
Her vast breadth and  
ever changing color,  
islands dotting the  
channels and abundant  
waterfowl.*

The islands and estuary of the Lewis and Clark National Wildlife Refuge were always a meeting place of waters and people. The Chinook and Cathlamet Indians were famed traders encountered by early European explorers and traders. As Meriwether Lewis, William Clark and the Corps of Discovery journeyed toward their goal of the Pacific Ocean, they traveled through the estuary of the Columbia River in November, 1805. Their notes and journals record our first scientific knowledge of the geography, plants, animals and native peoples they encountered in the American Northwest. Lewis and Clark passed through the estuary and noted the weather, birds and land. The refuge today looks much like it did when the Corps of Discovery traveled through.

*The interplay of light,  
wind, and weather and  
the armada of vessels  
plying her waters is  
a sight to behold.*

*Named for the famed explorers,  
the landscape and rich wildlife of  
this Refuge have changed  
very little in the past  
200 years. Modern-day  
explorers visit this Refuge to  
experience its wilderness qualities  
and enjoy the abundant wildlife  
resources. Native species of  
migratory birds, wild salmon and  
other native plants and animals  
thrive where natural processes take  
precedence within the varied habitats  
of Sitka spruce swamps, riparian  
forest, tidal marshes, mudflats  
and sand bars typical of the  
Columbia River estuary today  
and 200 years ago.*

## About the Refuge

Located in the Columbia River, the Lewis and Clark National Wildlife Refuge is part of the largest marsh in north-western Oregon. The refuge's estuary islands form a chain that begins at Tongue Point and follows the Oregon shore of the Columbia's main river channel east to Welch Island.



As the river nears the ocean, its fresh water mingles with salt water from the ocean. The current slows down and the water deposits its silt load to form low, marshy islands and sandbars. Twice a day the islands are part of the land, and twice they are reclaimed by the water as rising tides reverse the river's current.

Lewis and Clark Islands can be viewed and accessed only by boat. There are several public boat ramps to access the refuge waters. Boating is permitted elsewhere in the open water areas of the refuge within the Columbia River.

Visitors to Lewis and Clark NWR can enjoy viewing a variety of marsh wildlife. The refuge provides habitat with peak populations of 3,000 tundra swans, 5,000 Canada geese and 50,000 ducks in February and March each year, when birds gather here before migrating north.

Established in 1972 to preserve estuary land and water as vital fish and wildlife habitat, the Lewis and Clark National Wildlife Refuge includes 33,000 acres of islands, sand bars, mud flats and tidal marshes. The Refuge preserves much of the wildlife, vegetation and estuarine environment first seen by Lewis and Clark almost two centuries ago.



*This flying "Blue Goose" (a stylized Canada goose) was designed by renowned cartoonist and conservationist J.N. "Ding" Darling in 1935. It has become the symbol of the National Wildlife Refuge System.*



## A Haven for Fish and Wildlife

Estuarine wetlands are some of the most productive environments on earth. The estuary supports abundant life because of the large expanses of shallow water, mud flats and marshy and swampy islands. Fertile soil contributed by the river, nutrients and oxygen brought in by the tides and sunlight combine to promote luxurious plant growth, ranging from plankton in the water to trees on the islands.

### Estuary:

*A partially enclosed body of water formed where freshwater from rivers and streams flows into the ocean, mixing with the salty sea water.*

Animals eat some of the vegetation but most of it eventually dies and decays. The decaying plant material feeds the estuary. Bits of decomposing plants become coated with bacteria and algae, and tides and currents carry these about. Small animals such as clams, worms, and young fish feed on this material. They in turn may be eaten by larger fish, seals, mammals or birds in a complex food web that also includes humans.



*Hooded merganser male.*



*Sitka spruce.*



*Above: River otters/  
©Jim Cruce;  
Left: Tundra swan.*



## Wildlife To See



The estuary is both a migrational stopping place and a wintering area for waterfowl that nest in Alaska and winter in Oregon and California. The most common species are tundra swans, Canada

geese, mallards, pintails, American wigeon, green-winged teal and greater scaup.

*“here we See great numbers of water fowls about those marshey Islands;”*

Moulton, Journals, 6:32 Clark

Great blue herons, gulls and shore-birds wade the extensive sandbars and mud flats in search of small fish, insects, worms and crustaceans. Grebes and cormorants dive in the deeper water of the channel in search of fish. The willow, cottonwood and spruce trees of the vegetated islands provide nesting sites and lookout perches for numerous small birds, hawks and bald eagles.

### *Mammals*



Harbor seals use sandbars and mud flats as haul out sites at low tides, while both seals and California sea lions feed on a variety of fish in the estuary. Beaver, raccoon, mink, muskrat, coyote, river otter and Columbian white-tailed deer inhabit the up-stream islands.

### *Reptiles and Amphibians*



Lewis and Clark Wildlife Refuge has several reptiles and amphibians that are found throughout the Pacific Northwest. A few of these include red-legged frogs, common gartersnakes, rough-skinned newts and northwestern salamanders. Many newts produce toxins to avoid predation, but the toxins of rough-skinned newt are particularly potent.

### *Viewing Tips*

Although the refuge is open year round, the best time to see large numbers of wildlife is October through April.



### *Fish*

The estuary is home to many species of fish. Fish use the estuary for spawning, feeding and as a passageway between the ocean and the upper river. The estuary is particularly important as a feeding area for juvenile salmon while they go through the physical changes that allow them to survive in salt water. The salmon then migrate into the ocean where they grow to adulthood and live for several years. As adults, they return through the estuary, seeking out their natal streams upriver to spawn the next generation.



*Opposite: Above: female and male harlequin ducks; Middle: Columbian White-tail deer; Below: Red-legged frog.*

*Pacific lamprey.*

Major sport and commercial fish species include coho, chum and Chinook salmon, steelhead and cut-throat trout and white sturgeon.

Other fish using the estuary include American shad, smelt, starry flounder and Pacific lamprey.

## A Vast Array of Habitats

### *Deep Water*

Salt water and ocean organisms move into the estuary through these main river channels. Migrating salmon and steelhead use deep channels to pass through the estuary and estuarine fish escape predators in deep water, particularly at low tide.

### *Shallows and Flats*



Mud flats and sandbars are the most productive estuarine habitat. Billions of microscopic plants and animals, shellfish, worms and insects live in the water and mud. Shallow areas serve as nurseries for juvenile fish and as resting places and feeding sites for waterfowl. You may see mallards, American wigeon or greater scaup. Shorebirds such as western sandpipers and dunlins feed on worms, snails and insects at low tide.

*Hundreds of fish and shellfish such as oysters, clams, shrimp and salmon, live in estuaries at some point in their life. Estuaries protect water quality by filtering out dirt and pollution. In addition, estuaries and the land surrounding them are places where people live, sail, fish, swim and bird watch. As a result, estuaries are often the centers of our coastal communities.*

### *Tidal Marshes*

Marshes and their tidal channels provide important habitat for birds, mammals, fish and invertebrates. Marsh vegetation contributes significantly to the estuary food supply. Watch for a northern harrier cruising for prey or a river otter swimming and looking for lunch. An alert visitor might even see tiny smelt vanishing in the marsh grass away from predators.

### *Tidal Swamp*

Swamps are higher elevation marshes with woody vegetation that can include willows, cottonwood, dogwood and Sitka spruce trees. Mammals and birds use these forested islands. Visitors can see raccoons, beavers, weasels and an occasional Columbian white-tailed deer. Trees are nesting sites for small birds such as olive-sided flycatchers or chestnut-backed chickadees and the tallest trees are perfect perches for red-tailed hawks and bald eagles.

### *Upland*



Grass planted on the dredge materials create an upland environment. Uplands provide nesting areas for rare streaked horned larks and attract mergansers, mallards, and Canada geese to feed.



*Above left: Greater scaup;  
Above: Canada geese;  
Background: Sandbar at low tide with  
sea gulls.*

## Early History of the Columbia River

*Coulee:*  
A water created valley or drainage zone.

*Ice Age:*  
A period in Earth's history when much of the continents are covered with ice sheets and glaciers.

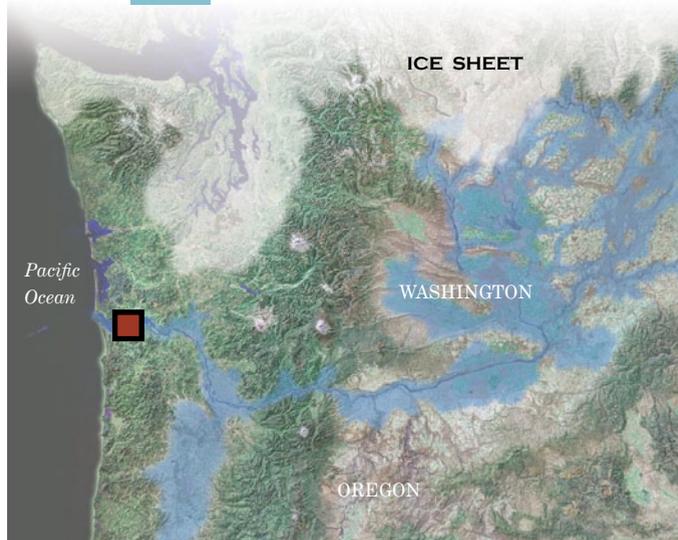
The Columbia River and its tributaries form the dominant water system in the Pacific Northwest. The Columbia originates in Columbia Lake in British Columbia, Canada. After flowing a circuitous path for 1,270 miles, the Columbia joins the Pacific Ocean near Astoria, Oregon.

The massive Columbia River basin was formed 12,000 to 19,000 years ago near the end of the last Ice Age. Immense ice dams half a mile wide held back melting ice creating a huge lake in northwest Montana called Lake Missoula. Each time the ice gave way (at least 40 times) massive walls of water as high as 400 feet rushed seaward with great destructive force, ripping away silt, blasting through rock, creating a tormented landscape of coulees, dry falls, and barren channels. The great floods found their way to the Pacific by reaming out the Cascade canyon that the Columbia River had been slowly cutting for several million years. These floods generally followed the path of the present day Columbia River.

Lewis & Clark NWR



Flood Path



*The Columbia River was named in 1792 by American Captain Robert Gray after his ship "Columbia."*

[Source: USGS [http://vulcan.wr.usgs.gov/LivingWith/Historical/Lewis-Clark/Maps/map\\_columbia\\_river\\_and\\_tributaries.html](http://vulcan.wr.usgs.gov/LivingWith/Historical/Lewis-Clark/Maps/map_columbia_river_and_tributaries.html)]

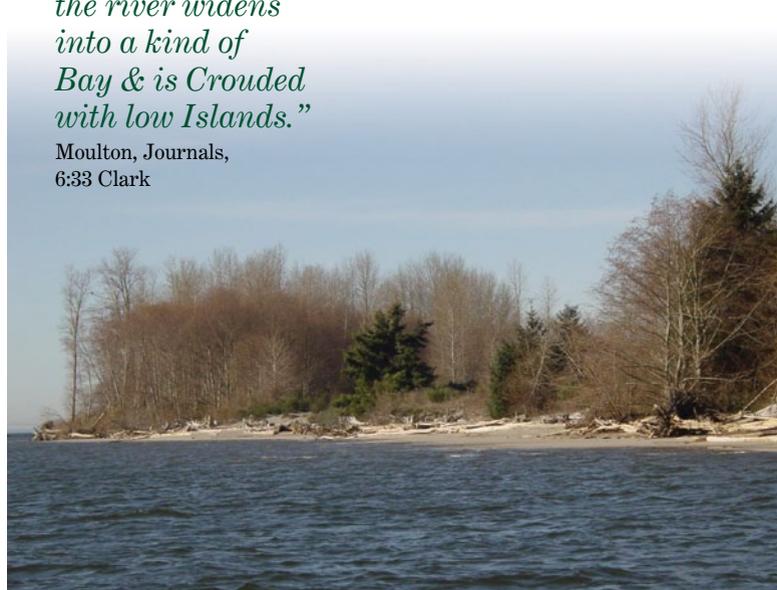
The earliest archaeological evidence of human habitation in the Columbia River Basin dates to 12,000-19,000 years ago. The earliest groups lived by fishing, hunting large mammals and gathering plant foods. One particular root vegetable that grows along shallow ponds, swamps and slow moving streams, the wapato, was harvested in an abundance.

For 200 river miles, from the ocean to above The Dalles, Oregon, the Columbia River was home to peoples speaking several related Chinookan languages, beginning with the Chinook on the north bank and the Clatsop on the south side.

The banks of the Columbia River were studded with villages of large rectangular longhouses constructed of huge cedar planks. The natural abundance of the region, including five types of salmon, wapato, camas and other bulbs, berries and many other plant and animal resources, sustained a complex material and social culture and made the lower Columbia one of the most heavily populated and richest areas north of Mexico.

*"the high mountaneous Country leave the river... the river widens into a kind of Bay & is Crouded with low Islands."*

Moulton, Journals,  
6:33 Clark



*Boating*

Lewis and Clark Islands can be viewed and accessed only by boat. There are several public boat ramps to access the refuge waters. Boating is permitted elsewhere in the open water areas of the refuge within the Columbia River. Tidal flows and tide fluctuations, strong winds and wake from ships in the navigation channel can make boating difficult and sometimes dangerous. Deep channels separate most of the islands at high tide, but tide tables and navigation charts should be consulted to avoid grounding on sandbars. If your boat becomes stuck in the mud, waiting for the next high tide to float it free may be your best alternative. In Washington, launch facilities are available at Skamokawa Vista Park at the state launch site by Highway 4 between Cathlamet and Skamokawa. Kayaks or canoes can be rented seasonally in Skamokawa. In Oregon, boats may be launched at John Day County Park or Aldrich Point.

*Hiking*

Public entry on the refuge islands is limited to foot travel only.

*Wildlife  
Observation and  
Photography*

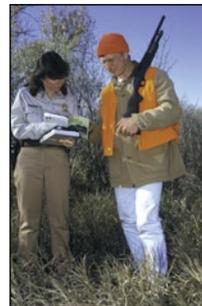
For optimal bird watching and photographic opportunities, plan your visit during the fall migration. One secret to spotting more wildlife is to stand still and look quietly around. Movement and noise scares most animals and birds away.

Please help us minimize disturbance to plants and wildlife by staying out of all closed areas.

*Paddling*

Opportunities abound to get out on the water at the Lewis and Clark National Wildlife Refuge. From the cockpit of a kayak or the seat of a canoe, a water-level perspective gets us closer to wildlife and the landscape. Recreating with respect for the landscape, private property, fish and wildlife and cultural resources is everyone's responsibility.

The Lower Columbia River Water Trail is a 146-mile, bi-state trail spanning the tidally influenced river waters from the Bonneville Dam to the Pacific Ocean.

*Hunting*

*Hunter check station.*

Most of the refuge is open to hunting geese, ducks, coots and snipe in accordance with Oregon and Federal regulations. All other species are protected. Hunters must possess a valid Oregon hunting license, and all waterfowl hunters 14 or older must have a signed, valid Oregon State Waterfowl Stamp. Waterfowl hunters 16 or older must possess a signed, valid Federal Duck Stamp. Temporary blinds may be built, but they will be available for general use on a first-come basis on subsequent days. These areas are posted and closed to public hunting: all exposed lands on Miller Sands Island and its partially enclosed lagoon and the diked portion of Karlson Island.

## Sport Fishing

Sport fishing is regulated by the State of Oregon.

## Pack It In, Pack It Out

Take all your trash home with you. Pick up litter -- yours and what others may have left behind.

## Plan Your Visit



### Information

The Refuge is open daily from dawn to dusk. Refuge information is available at the the Julia Butler Hansen National Wildlife Refuge for the Columbian White-tailed Deer. The Refuge is located in Washington on state highway 4 between Cathlamet and Skamokawa.

### Hours

Refuge headquarters hours are 7:30 am – 4 pm Mondays through Fridays, excluding Federal holidays.

### Pets

No dogs are allowed on the refuge except those used while hunting waterfowl.

### Bring Camera, Binoculars, Field Guidebook, and Water

Quiet craft, such as kayaks or canoes, allow visitors to approach wildlife more easily than motorboats.

*Bald eagle nest.*



Although wildlife often disappears when you arrive, they may return if you are still and drift quietly. When birds or animals are not close, binoculars and telephoto lenses will help get a good look or photograph.

A field guidebook helps in identifying particular species.

Be sure to carry enough drinking water.

### Camping, Fires

Neither camping nor fires are permitted on the refuge.

### Collecting Artifacts

Collecting and removing archeological or historic objects is prohibited, as well as removing any natural material such as plants, rocks or antlers.

### Firearms

Possession of firearms is prohibited except during the waterfowl hunting season in areas open to hunting.

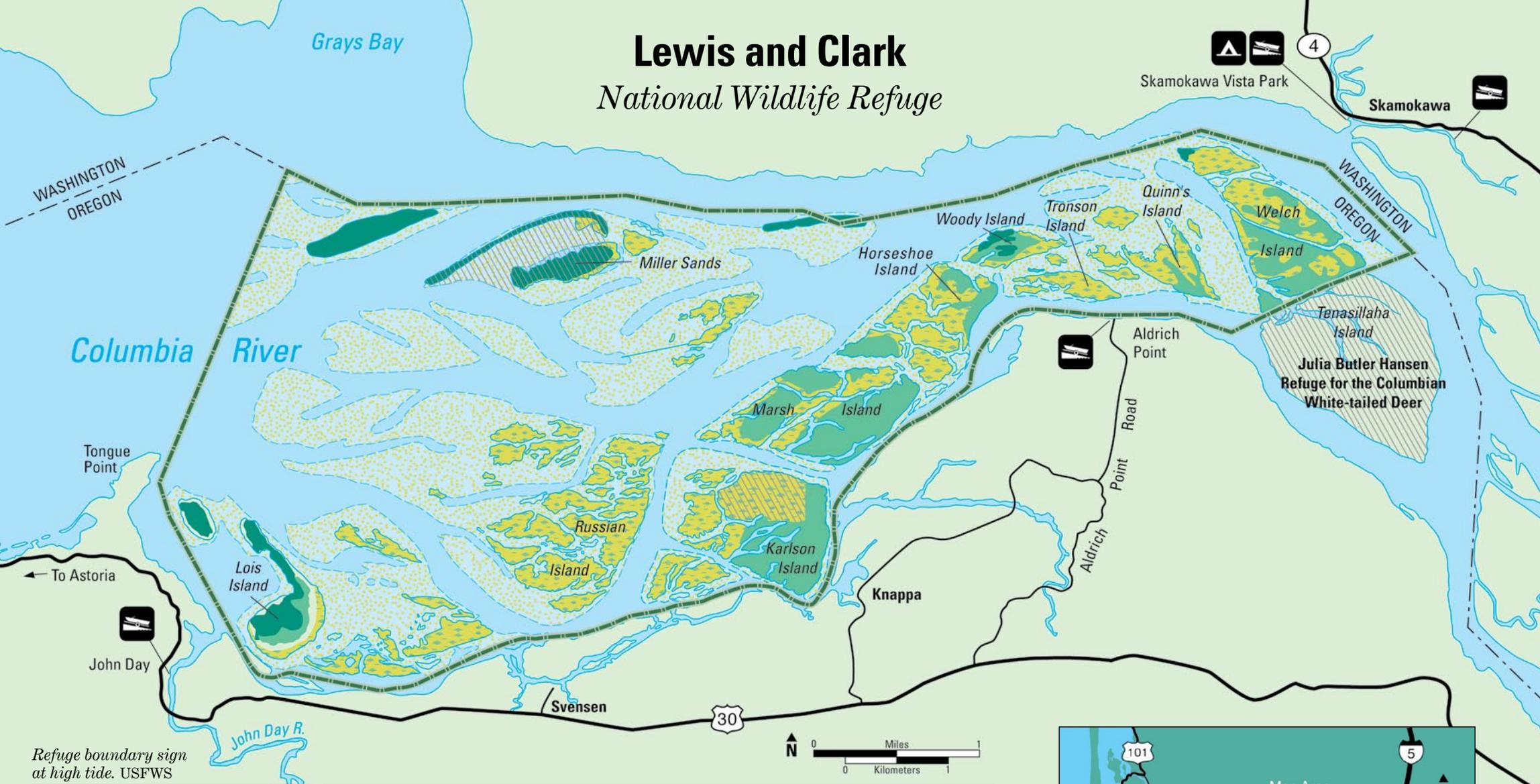
### Nearby Facilities

In Oregon, there are a few small towns located along state highway 30 and larger lodging and retail facilities available in Astoria. In Washington, gasoline, grocery stores, restaurants and lodging are located in Cathlamet. There are no services in Skamokawa.



*Above: River otters.*  
USFWS

# Lewis and Clark National Wildlife Refuge



Refuge boundary sign at high tide. USFWS



## LEGEND

- Deep Water
- Shallows and Flats
- Tidal Marshes
- Tidal Swamp
- Upland

- Boat Launch
- Camping Sites Available
- Parking
- Information
- Restrooms
- Refuge Headquarters and Visitor Center\*

- Lewis and Clark National Wildlife Refuge Boundary
- Closed to Hunting

\*c/o Julia Butler Hansen National Wildlife Refuge for the Columbian White-tailed Deer  
Cathlamet, WA 98612  
360/795 3915

