

## Chapter 4

# Shoreline Characterization

### Overview

This chapter describes the character and baseline conditions of the shoreline areas within the incorporated limits of the Town of Winthrop and its adopted Future Service Area (also known as Urban Growth Area or Area of Interest) within Okanogan County, Washington. The characterization provides information from which shoreline designations and regulations were established. The regulations in this SMP are intended to protect shoreline ecological function to the extent of no net loss as mandated by the SMA. This chapter provides a brief summary of how current baseline levels of ecological function in Winthrop were established. The complete inventory and analysis for Okanogan County is contained in Appendix A.

The first step in designating and protecting shorelines in Winthrop required a comprehensive inventory of the biological and physical features found within the maximum limits of shoreline jurisdiction. Preparation of the inventory and subsequent analysis that resulted in this characterization was completed by two consultant teams. ENTRIX led the science and analysis side, while Highlands Associates provided current use and planning data. The inventory completed by the consultants was conducted on a county-wide basis and included scientific information gathered from data sets provided by state, federal, and local agencies.

In order to provide a manageable and meaningful scale for the analysis of the inventory data, ENTRIX, using geomorphologic features, divided all shoreline areas into Analysis Units (AUs)<sup>1</sup>. Each AU was analyzed based on biological, physical and land use data<sup>2</sup> and given a Biological Function Score. When synthesized together and run through a computer model, the biological, physical and planning factors provided a baseline reading of existing biological.

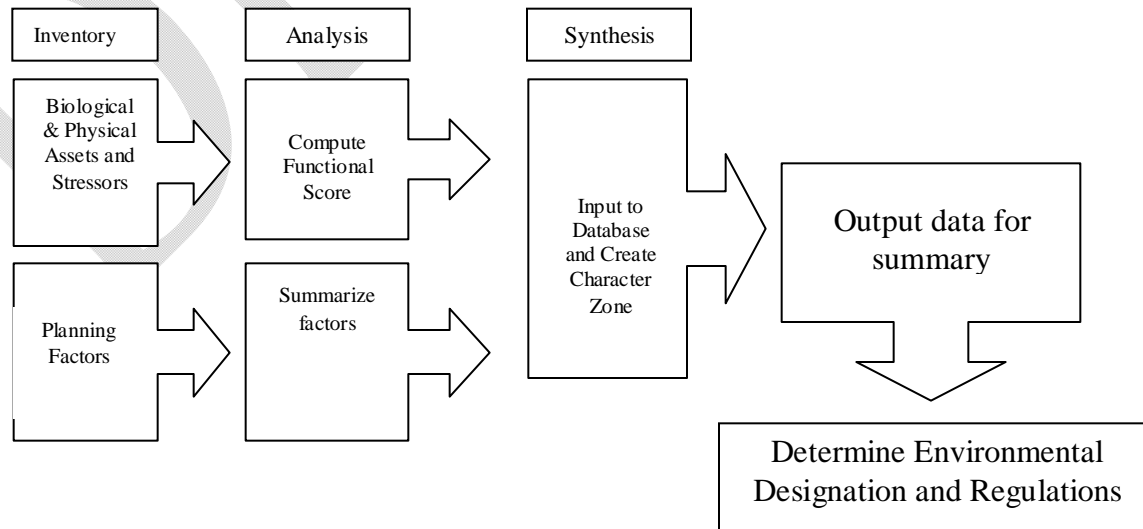
For the purpose of providing a characterization of specific shoreline areas, the AUs were grouped into Character Zones. Character Zones were created based on logical natural landscape features such as prominent changes in the geomorphology, jurisdictional boundaries, Future Service Area Boundaries, or in some cases on the Analysis Unit boundaries. Each Character Zone serves as unit of description by which the scientific inventory and analysis and planning factors are summarized and presented for the Town of Winthrop in this chapter.

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<sup>1</sup> See the *Okanogan County Shoreline Characterization Report* in Appendix A

<sup>2</sup> See Appendix B, *Analyzing Planning Factors*

## Shoreline Characterization Process



### Inventory of biological and physical factors

ENTRIX, Inc. conducted the inventory of biological and physical factors at a county-wide scale primarily using existing data sets from local, state, and federal agencies. ENTRIX staff reviewed available data sets and selected data that provided consistent coverage of all of the water bodies in the County. Partial data sets that were not available for the whole county were not used in the ENTRIX analysis, however individual jurisdictions may opt include these data (e.g., the Methow Subbasin Plan, Town of Winthrop Flood Hazard Report? and Methow River Channel Migration Zone Study). ENTRIX staff then identified potential stressors to shoreline function and ecological assets from the selected data sets. The inventory methodology is explained in detail in Appendix A. Stressors and assets included in the inventory and analysis are listed below.

<b>Stressors</b>	<b>Assets</b>
<ul style="list-style-type: none"> <li>▪ Water quality class</li> <li>▪ Facilities based on permitting</li> <li>▪ Bridges</li> <li>▪ Overwater Structures</li> <li>▪ Mines</li> <li>▪ Culverts</li> <li>▪ Boat launches</li> <li>▪ Rail</li> <li>▪ Roads</li> <li>▪ Levees</li> <li>▪ Riprap</li> <li>▪ Geologically hazardous areas</li> <li>▪ Intensive Agriculture</li> <li>▪ Disperse Agriculture</li> <li>▪ Residential Development</li> <li>▪ Light Industrial Development</li> <li>▪ Heavy Industrial Development</li> </ul>	<ul style="list-style-type: none"> <li>▪ Aquatic species</li> <li>▪ Riparian species</li> <li>▪ Upland Species</li> <li>▪ Salmon spawning/rearing habitat</li> <li>▪ NOAA critical habitat</li> <li>▪ Wetlands</li> <li>▪ Potential Migration Zones</li> <li>▪ % Riparian vegetation</li> </ul>

### **Inventory of planning factors**

Highlands Associates conducted an inventory of planning factors, using existing data layers from Okanogan County and additional data layers created by Highlands' staff. Planning factors were selected that would be useful for making planning decisions related to designation and protection of shoreline ecological functions, public access, and navigation while also allowing for development consistent with local plans and protection of property rights. The inventory methodology is explained in detail in Appendix B. The planning factors included in the inventory are listed below.

- Parcel size and density of subdivision
- Current land uses
- Building Set backs

- Number of Structures in shoreline environment
- Public Access and Recreation Sites
- Current Comprehensive Plans and Zoning (1965 Comprehensive Plan)
- Ownership Patterns
- Over-water Structures

### **Analysis Units**

The purpose of the analysis unit was to create a unit of measure that could appropriately capture and synthesize county-wide scientific data while providing meaningful interpretation of results. Analysis units were based on geomorphological and physiographic breaks calculated from Digital Elevation Models (DEMs), and, to some degree, jurisdictional boundaries. The inventory and analysis of biological and physical factors completed by ENTRIX resulted in the shoreline areas of Okanogan County being divided into a total of 233 analysis units, 3 of which comprise the Winthrop Town Character Zone; These analysis units (AUs) serve as the unit of assessment for the baseline shoreline function analysis. Each analysis unit was plotted based on its combined ecological resources (assets) and stressor to arrive at a location in a given quadrant along the plot. The analysis unit was then given a final composite quadrant score ranging from 1-4:

- 1 = low condition, low asset**
- 2 = high condition, low asset**
- 3 = low condition, high asset**
- 4 = high condition, high asset**

The results of this analysis can be found in Appendix A. The analysis units were then used to compile the planning factor data listed above.

### **Shoreline Character Zones**

While the AU scale served as the unit of measure for both the scientific and planning factors, the character zone provides a manageable scale to summarize and describe the bio-physical and land use patterns. The character zone may have multiple shoreline designations but it will likely have similar land use patterns and be administered under the same jurisdiction. The character zone summary page for Winthrop found in this chapter is a summary of all the components entered in a central database to create the characterization and can be used as reference to gain meaningful information regarding shoreline's ecological condition and land use patterns. A database of the characterization was created and is stored at Okanogan County Office of Planning.

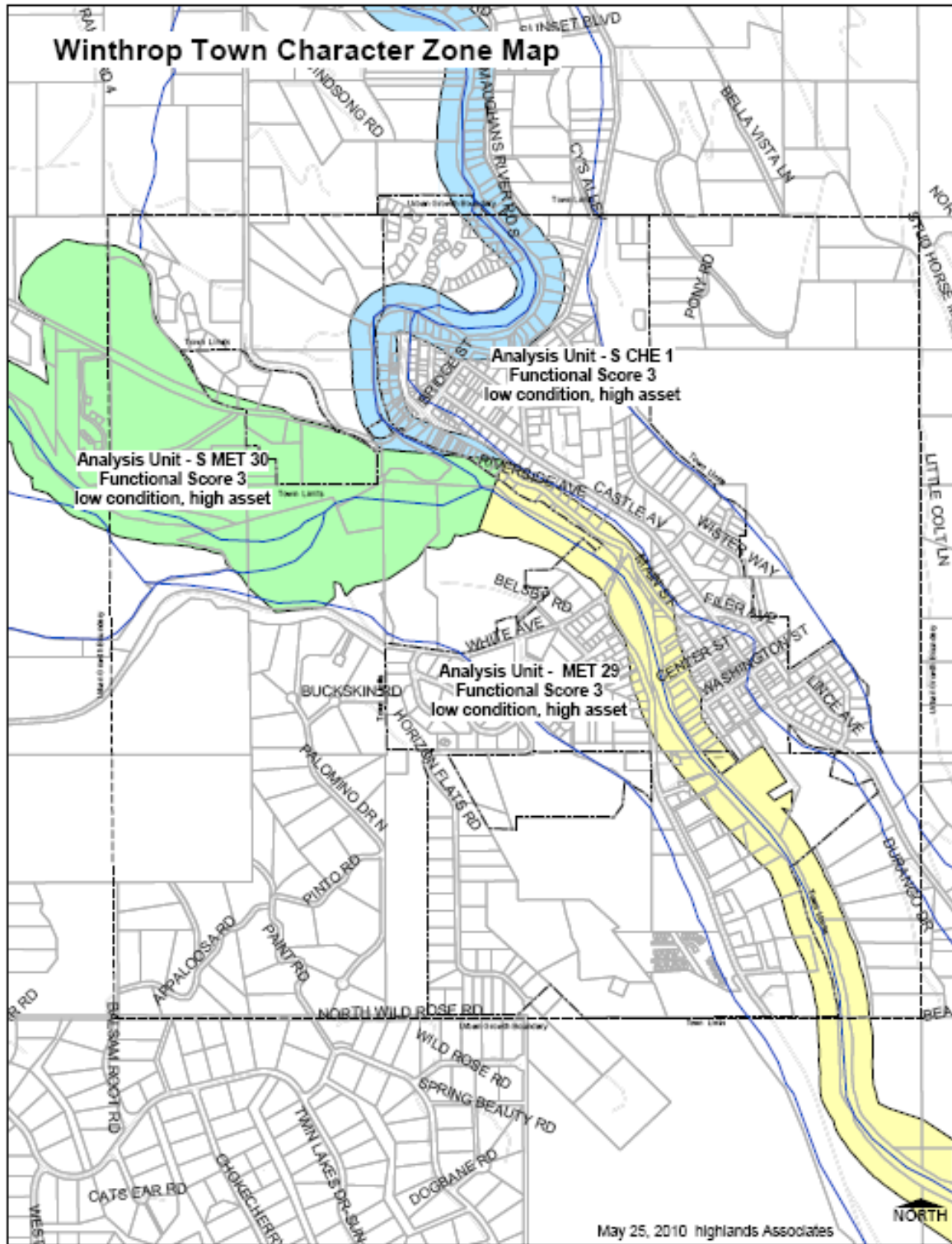
## **Town of Winthrop Shoreline Characterization**

The Town of Winthrop is located along the both banks of the Methow and Chewack (Chewuch) Rivers; both are Shorelines of Statewide Significance (see Chapter 5 for more information on Shorelines of Statewide Significance). The Winthrop Character zone contains three AU's, S CHE 01 and S MET 29 & 30, in one HUC 10 Watershed, the Upper Methow River.

Shorelines in the Town of Winthrop include the Chewuch River from about RM 0.5 downstream to the confluence with the Methow River, and the Methow River between RM 49-51. Where these rivers meet is a dynamic braided channel with narrow mid-channel islands. Efforts to control channel movement to protect property have resulted in a flood control levee along the right bank of the Methow (which serves a ski trail in the winter) and extensive rip rap along the Chewuch to protect riverfront businesses. Highway bridge crossings occur on the Methow and the Chewuch for SR 20. Nevertheless, this highly developed portion of the river still maintains a high level of ecological assets with AU scores of 3 (low condition, high asset) for all units.

The Winthrop Park offers direct public access at the confluence for fishing, swimming and light boat craft launch. A pedestrian bridge at the north end of downtown provides access to Sa Teekh Wa Park along the Chewuch River, and in south Winthrop, Heckendorn Park provides access to the Methow River shoreline. A pedestrian and bicycle bridge crossing is scheduled for construction in 2010 to cross the Methow River at the southern edge of downtown, just north of SR 20. Visual access to the river is an important feature to the town's identity as the riverfront properties command high real estate values related to tourism and recreation. Recreation and commercial interests are a top priority for shorelines in this zone.

A map of the Winthrop City Character Zone is included on the following page.



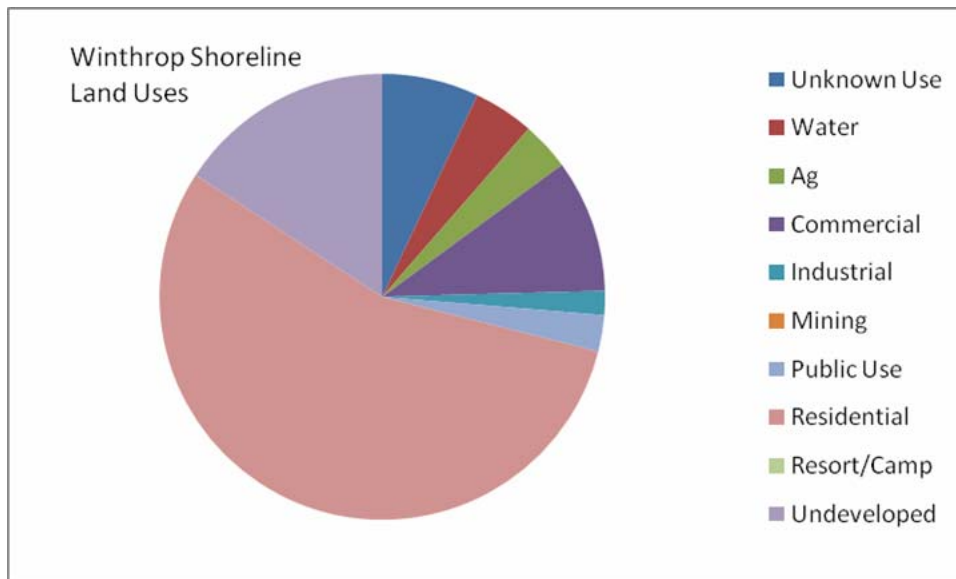
## Population and Demographics

Poised as tourist hub for Okanogan County and gateway to the North Cascades National Park and vast wilderness surrounding the park, Winthrop hosts a variety of services and amenities geared at appreciating the surrounding environment, including the rivers. Okanogan County's population estimate for 2009 was 40,500 (OFM). Winthrop's share of the County's population is roughly 1.05% with a population of 425 (OFM estimates, accessed April 2010).

## Land Uses and Development Patterns

Winthrop's central business district is located along the banks of Chewack River where it flows into the Methow. Commercial development in this zone is subject to strict design standards to maintain a westernization façade, creating a dense riverfront with restaurants, shops, and hotels and inns. Less dense commercial development extends south through town parallel to SR 20, where a variety of retail services are located along high banks of the Methow's western shoreline. Residential development is located along the eastern shorelines of the Methow in the Heckendorn Neighborhood in the south end of town. Single family and mixed uses, including the US Forest Service Methow Ranger District offices, are located along the Chewack River at both banks on the northern ends of downtown. There are approximately 207 buildings within the shoreline area of Winthrop.

## Shoreline Land Uses in Winthrop



The potential impacts of increased development of the shorelines in Winthrop are discussed in Chapter 9.

## **Recommendations**

The results of the characterization find that the shorelines within and adjoining the Town of Winthrop offer high potential for restoration as they contain high ecological assets. Impairment results from flood control levees and armoring to protect vital businesses in the central business district.

With the majority of shoreline parcels within the Town presently developed with residential or commercial uses, it is important that the shoreline designations and regulations applied in this SMP recognize existing structures and uses as well as the Town's future land use plans.

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**Shoreline Character Zones – Summary Pages**

WATERSHED	CHARACTER ZONE	ANALYSIS UNITS
CHEWACK RIVER	WINTHROP TOWN	S CHE 01 S MET 29 S MET 30

**Landuse Percentage (by Parcel) within Shorelines of Okanogan County**

Column Key	(a) Number of Parcels	(b) Parcels Analyzed	(c) Unknown Use	(d) Number of Water Parcels	(e) Agriculture	(f) Commercial	(g) Industrial	(h) Mining	(i) Public Use	(j) Residential	(k) Resort/Camp	(l) Undeveloped
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	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)
S CHE 01	186	178	3	5	0%	21%	1%	0%	1%	53%	0%	24%
S MET 29	112	102	5	5	12%	10%	1%	0%	1%	41%	2%	33%
S MET 30	84	75	4	5	16%	15%	1%	0%	11%	40%	1%	16%
Totals/Avg:	382	355	12	15	9%	15%	1%	0%	4%	45%	1%	24%

Comprehensive Plan Designations	Public Access Points	Zoning
Rockview/Big Val	DEVELOPED: 2	B-I
Sub-Unit B	UNDEVELOPED: 5	B-II
WATER	INFORMAL:	C-3
Wolf Creek	UNKNOWN: 2	MRD1
		R-1
		R-2
		R-HI
		Rural Residential
		Valley Floor
		WATER

Structures	Current Shoreline Designations		
S CHE 01	79	S CHE 01	HIGH
S MET 29	76		MEDIUM
S MET 30	52		RUR
Total	207		WATER
		S MET 29	CONS
			HIGH
			MEDIUM
			RUR
			WATER
		S MET 30	CONS
			HIGH
			MEDIUM
			RUR
			WATER

Okanogan County Cities and Towns Regional Shoreline Master Program  
 Town of Winthrop SMP  
 Chapter 4 - Characterization  
 May 2010 Draft

Overwater Structures		QuadScore		
		Score 1	Score 2	Quad Score
S CHE 01	2	0.79	0.71	3
S MET 29	1	0.80	0.70	3
S MET 30	none	0.80	0.71	3
Averages:		0.80	0.71	3

Setbacks					Subdivision Density	
	Avg	Max	Min	Std Dev		
S CHE 01	107.75	880.00	4.00	116.05	S CHE 01	1.79
S MET 29	190.21	820.00	40.00	159.27	S MET 29	0.73
S MET 30	319.21	1310.00	20.00	322.42	S MET 30	0.41
Averages:	205.72	1003.33	21.33	199.25	Average:	0.98

**Narrative**

Shorelines in the Town of Winthrop include the Chewack River from about RM 0.5 downstream to the confluence with the Methow River, and the Methow River between RM 49-51. Where these rivers meet is a dynamic braided channel. Efforts to control channel movement have resulted in a flood control levee along the right bank of the Methow (which serves a ski trail in the winter) and extensive rip rap along the Chewack to protect riverfront businesses and two bridges. Nevertheless, this highly developed portion of the river still maintains a high level of ecological integrity and the Winthrop Park offers direct public access at the confluence for fishing, swimming and light boat craft launch. A pedestrian bridge at the north end of downtown provides access to a new park area along the Chewuch River and in south Winthrop, Heckendorn Park provides access to the Methow. Visual access to the river is an important feature to the town's identity as the riverfront properties command high real estate values. Recreation and commercial interests are a top priority for shorelines in this zone.

**Recommendations**