

FINAL (REVISED)

KITTITAS COUNTY REGIONAL SHORELINE MASTER PROGRAM UPDATE - SHORELINE INVENTORY AND CHARACTERIZATION REPORT

Ecology Grant No. 1200054

Kittitas County,
City of Cle Elum,
Town of South Cle Elum,
and City of Ellensburg
Shoreline Master Program Updates

Prepared for:

May 2013

Kittitas County Community Development Services,
City of Cle Elum Department of Community Development,
Town of South Cle Elum, and City of Ellensburg Department of Community Development



TABLE OF CONTENTS

GLOSSARY.....	1
CHAPTER 1. INTRODUCTION.....	1-1
1.1 BACKGROUND AND PURPOSE	1-1
1.2 SHORELINE INVENTORY AREA AND METHODS	1-2
1.2.1 <i>Data Gaps</i>	1-3
1.3 REPORT ORGANIZATION	1-4
CHAPTER 2. ECOSYSTEM PROFILE	2-1
2.1 INTRODUCTION	2-1
2.1.1 <i>Upper Yakima Basin (WRIA 39)</i>	2-6
2.1.2 <i>Naches Basin (WRIA 38)</i>	2-6
2.1.3 <i>Alkali – Squilchuck Basin (WRIA 40)</i>	2-6
2.2 CLIMATE, GEOLOGY, AND LANDFORMS	2-7
2.2.1 <i>Climate</i>	2-7
2.2.2 <i>Geology and Landforms</i>	2-9
2.2.3 <i>Geologic and Flooding Hazards</i>	2-14
2.3 VEGETATION AND LAND COVER.....	2-21
2.3.1 <i>Major Montane Ecological Systems</i>	2-23
2.3.2 <i>Shrub-Steppe Ecological Systems</i>	2-26
2.3.3 <i>Riparian Ecological Systems</i>	2-28
2.3.4 <i>Upper Yakima Land Cover</i>	2-29
2.3.5 <i>Naches Land Cover</i>	2-31
2.3.6 <i>Alkali-Squilchuck Land Cover</i>	2-31
2.3.7 <i>Transportation Infrastructure</i>	2-32
2.4 SURFACE WATER AND GROUNDWATER.....	2-33
2.4.1 <i>Surface Waters</i>	2-33
2.4.2 <i>Groundwater</i>	2-38
2.4.3 <i>Instream Flows</i>	2-39
2.5 WATER QUALITY	2-42
2.5.1 <i>Upper Yakima</i>	2-42

Table of Contents

2.5.2 *Naches* 2-46

2.5.3 *Alkali-Squillchuck* 2-47

2.6 FISH AND WILDLIFE SPECIES AND HABITATS 2-48

2.6.1 *Aquatic Species and Habitats* 2-48

2.6.2 *Riparian Species and Habitats* 2-53

2.6.3 *Terrestrial Species and Habitats* 2-54

2.6.4 *PRIORITY HABITATS AND SPECIES*..... 2-57

2.7 SUMMARY OF ECOSYSTEM CONDITIONS AND MANAGEMENT NEEDS 2-67

2.7.1 *Upper Yakima Basin*..... 2-67

2.7.2 *Naches* 2-81

2.7.3 *Alkali-Squillchuck*..... 2-82

CHAPTER 3. UPPER COUNTY 3-1

3.1 KEECHELUS LAKE 3-2

3.1.1 *Physical Characterization*..... 3-2

3.1.2 *Habitats and Species*..... 3-2

3.1.3 *Land Use* 3-4

3.1.4 *Public Access*..... 3-5

3.1.5 *Reach Sheet* 3-5

3.2 KEECHELUS LAKE TRIBUTARIES 3-9

3.2.1 *Physical Characterization*..... 3-9

3.2.2 *Habitats and Species*..... 3-9

3.2.3 *Land Use* 3-13

3.2.4 *Public Access*..... 3-13

3.2.5 *Reach Sheets*..... 3-13

3.3 UPPER YAKIMA RIVER..... 3-31

3.3.1 *Physical Characterization*..... 3-31

3.3.2 *Habitats and Species*..... 3-33

3.3.3 *Land Use* 3-38

3.3.4 *Public Access*..... 3-40

3.3.5	<i>Reach Sheets</i>	3-40
3.4	CABIN CREEK AND LOG CREEK.....	3-59
3.4.1	<i>Physical Characterization</i>	3-59
3.4.2	<i>Habitats and Species</i>	3-59
3.4.3	<i>Land Use</i>	3-60
3.4.4	<i>Public Access</i>	3-61
3.4.5	<i>Reach Sheets</i>	3-61
3.5	LOWER KACHESS RIVER AND LAKE EASTON.....	3-67
3.5.1	<i>Physical Characterization</i>	3-67
3.5.2	<i>Habitats and Species</i>	3-67
3.5.3	<i>Land Use</i>	3-69
3.5.4	<i>Public Access</i>	3-69
3.5.5	<i>Reach Sheets</i>	3-69
3.6	KACHESS LAKE	3-75
3.6.1	<i>Physical Characterization</i>	3-75
3.6.2	<i>Habitats and Species</i>	3-76
3.6.3	<i>Land Use</i>	3-77
3.6.4	<i>Public Access</i>	3-77
3.6.5	<i>Reach Sheet</i>	3-77
3.7	KACHESS LAKE TRIBUTARIES.....	3-81
3.7.1	<i>Physical Characterization</i>	3-81
3.7.2	<i>Habitats and Species</i>	3-81
3.7.3	<i>Land Use</i>	3-83
3.7.4	<i>Public Access</i>	3-83
3.7.5	<i>Reach Sheets</i>	3-83
3.8	SILVER CREEK.....	3-95
3.8.1	<i>Physical Characterization</i>	3-95
3.8.2	<i>Habitats and Species</i>	3-95
3.8.3	<i>Land Use</i>	3-96

Table of Contents

3.8.4 *Public Access*.....3-96

3.8.5 *Reach Sheet*3-96

3.9 LAVENDER LAKE.....3-99

3.9.1 *Physical Characterization*.....3-99

3.9.2 *Habitats and Species*.....3-99

3.9.3 *Land Use*3-100

3.9.4 *Public Access*.....3-100

3.9.5 *Reach Sheet*3-100

3.10 BIG CREEK.....3-103

3.10.1 *Physical Characterization*.....3-103

3.10.2 *Habitats and Species*.....3-103

3.10.3 *Land Use*3-104

3.10.4 *Public Access*.....3-105

3.10.5 *Reach Sheet*3-105

3.11 LITTLE CREEK3-109

3.11.1 *Physical Characterization*.....3-109

3.11.2 *Habitats and Species*.....3-109

3.11.3 *Land Use*3-110

3.11.4 *Public Access*.....3-111

3.11.5 *Reach Sheet*3-111

3.12 LOWER CLE ELUM RIVER3-115

3.12.1 *Physical Characterization*.....3-115

3.12.2 *Habitats and Species*.....3-116

3.12.3 *Land Use*3-118

3.12.4 *Public Access*.....3-118

3.12.5 *Reach Sheet*3-118

3.13 CLE ELUM LAKE.....3-123

3.13.1 *Physical Characterization*.....3-123

3.13.2 *Habitats and Species*.....3-124

3.13.3	<i>Land Use</i>	3-126
3.13.4	<i>Public Access</i>	3-127
3.13.5	<i>Reach Sheet</i>	3-127
3.14	LAKE CLE ELUM TRIBUTARIES	3-131
3.14.1	<i>Physical Characterization</i>	3-131
3.14.2	<i>Habitats and Species</i>	3-133
3.14.3	<i>Land Use</i>	3-138
3.14.4	<i>Public Access</i>	3-138
3.14.5	<i>Reach Sheet</i>	3-138
3.15	TEANAWAY RIVER AND TRIBUTARIES	3-167
3.15.1	<i>Physical Characterization</i>	3-167
3.15.2	<i>Habitats and Species</i>	3-168
3.15.3	<i>Land Use</i>	3-171
3.15.4	<i>Public Access</i>	3-172
3.15.5	<i>Reach Sheets</i>	3-172
3.16	SWAUK CREEK	3-185
3.16.1	<i>Physical Characterization</i>	3-185
3.16.2	<i>Habitats and Species</i>	3-186
3.16.3	<i>Land Use</i>	3-188
3.16.4	<i>Public Access</i>	3-188
3.16.5	<i>Reach Sheet</i>	3-188
CHAPTER 4. KITTITAS VALLEY		4-1
4.1	YAKIMA RIVER: KITTITAS VALLEY REACHES	4-2
4.1.1	<i>Physical Characterization</i>	4-2
4.1.2	<i>Habitats and Species</i>	4-4
4.1.3	<i>Water Quality</i>	4-8
4.1.4	<i>Riparian Habitat Conditions (Land Cover)</i>	4-9
4.1.5	<i>Wetlands</i>	4-9
4.1.6	<i>Wildlife Habitats and Species</i>	4-10

Table of Contents

4.1.7 *Land Use* 4-10

4.1.8 *Public Access*..... 4-11

4.1.9 *Reach Sheets*..... 4-11

4.2 TANEUM CREEK 4-29

4.2.1 *Physical Characterization*..... 4-29

4.2.2 *Habitats and Species*..... 4-30

4.2.3 *Land Use* 4-31

4.2.4 *Public Access*..... 4-32

4.2.5 *Reach Sheets*..... 4-32

4.3 MANASTASH CREEK 4-39

4.3.1 *Physical Characterization*..... 4-39

4.3.2 *Habitats and Species*..... 4-40

4.3.3 *Land Use* 4-41

4.3.4 *Public Access*..... 4-41

4.3.5 *Reach Sheets*..... 4-41

4.4 MATOON LAKE 4-49

4.4.1 *Physical Characterization*..... 4-49

4.4.2 *Habitats and Species*..... 4-49

4.4.3 *Land Use* 4-51

4.4.4 *Public Access*..... 4-51

4.4.5 *Reach Sheets*..... 4-51

4.5 WILSON, NANEUM, AND COLEMAN CREEKS..... 4-57

4.5.1 *Physical Characterization*..... 4-57

4.5.2 *Habitats and Species*..... 4-58

4.5.3 *Land Use* 4-61

4.5.4 *Public Access*..... 4-62

4.5.5 *Reach Sheets*..... 4-62

4.6 FIORITO LAKE..... 4-69

4.6.1 *Physical Characterization*..... 4-69

4.6.2	<i>Habitats and Species</i>	4-69
4.6.3	<i>Land Use</i>	4-70
4.6.4	<i>Public Access</i>	4-70
4.6.5	<i>Reach Sheet</i>	4-70
4.7	CHERRY CREEK AND TRIBUTARIES.....	4-73
4.7.1	<i>Physical Characterization</i>	4-73
4.7.2	<i>Habitats and Species</i>	4-73
4.7.3	<i>Land Use</i>	4-74
4.7.4	<i>Public Access</i>	4-75
4.7.5	<i>Reach Sheets</i>	4-75
CHAPTER 5. YAKIMA CANYON AND LITTLE NACHES RIVER.....		5-1
5.1	YAKIMA CANYON.....	5-2
5.1.1	<i>Physical Characterization</i>	5-2
5.1.2	<i>Habitats and Species</i>	5-3
5.1.3	<i>Land Use</i>	5-8
5.1.4	<i>Public Access</i>	5-8
5.1.5	<i>Reach Sheets</i>	5-8
5.2	LITTLE NACHES RIVER AND TRIBUTARIES	5-13
5.2.1	<i>Physical Characterization</i>	5-13
5.2.2	<i>Habitats and Species</i>	5-14
5.2.3	<i>Land Use</i>	5-16
5.2.4	<i>Public Access</i>	5-16
5.2.5	<i>Reach Sheets</i>	5-16
CHAPTER 6. COLUMBIA RIVER.....		6-1
6.1	COLUMBIA RIVER.....	6-2
6.1.1	<i>Physical Characterization</i>	6-2
6.1.2	<i>Habitats and Species</i>	6-6
6.1.3	<i>Land Use</i>	6-10
6.1.4	<i>Public Access</i>	6-11

6.1.5	<i>Reach Sheets</i>	6-11
CHAPTER 7. REGULATORY PROGRAMS THAT COMPLEMENT THE SHORELINE MASTER PROGRAM		
7.1	LOCAL REGULATIONS AND PLANS	7-1
7.1.1	<i>Existing Shoreline Plans, Comprehensive Plans, and Zoning</i>	7-1
7.1.2	<i>Critical Areas Regulations</i>	7-4
7.1.3	<i>Other Relevant Local Provisions</i>	7-7
7.1.4	<i>Other Regional Plans</i>	7-9
7.2	STATE AND FEDERAL REGULATIONS AND PLANS	7-9
7.2.1	<i>Clean Water Act Sections 401 and 404</i>	7-10
7.2.2	<i>Rivers and Harbors Act Section 10</i>	7-10
7.2.3	<i>Endangered Species Act</i>	7-11
7.2.4	<i>State Hydraulic Code</i>	7-11
7.2.5	<i>Forest Practices Act</i>	7-11
CHAPTER 8. SHORELINE USES		
CHAPTER 9. REFERENCES		
APPENDIX A MAP FOLIO		
APPENDIX B REACH SHEET DATA SOURCES		
APPENDIX C CHANNEL MIGRATION ZONE METHODS, DATA TABLES, AND MAP FOLIO		
C.1	DELINEATION METHODOLOGY	C-1
C.2	CMZ DELINEATION DATA TABLES	C-3
C.2.1	<i>Big Creek</i>	C-3
C.2.2	<i>Cabin Creek</i>	C-4
C.2.3	<i>Cle Elum River and Scatter Creek</i>	C-5
C.2.4	<i>Coal Creek</i>	C-8
C.2.5	<i>Cooper River</i>	C-9
C.2.6	<i>Gold Creek</i>	C-10
C.2.7	<i>Little Naches River and tributaries</i>	C-11

C.2.8	<i>Log Creek</i>	C-12
C.2.9	<i>Manastash Creek</i>	C-13
C.2.10	<i>Manastash Creek, S. Fork</i>	C-16
C.2.11	<i>Swauk Creek</i>	C-17
C.2.12	<i>Taneum Creek</i>	C-20
C.2.13	<i>Teanaway River</i>	C-23
C.2.14	<i>Teanaway River, Middle Fork</i>	C-25
C.2.15	<i>Teanaway River, N. Fork and N. Fork U.T.</i>	C-26
C.2.16	<i>Teanaway River, W. Fork</i>	C-27
C.2.17	<i>Yakima River</i>	C-28
C.3	CMZ MAP FOLIO.....	C-31

LIST OF TABLES

Table 1-1.	Kittitas County Shoreline Inventory Map Themes and Numbers	1-6
Table 2-1.	Mean-annual precipitation by Upper Yakima River subbasin, 1951-1980. (Source: Rinella et al. 1991.)	2-8
Table 2-2.	Area of active and dormant slides by WRIA and subbasin.	2-17
Table 2-3.	Physical characteristics for Upper Yakima and Naches River basin reservoirs (Period of Record: 1920-1999). (Source: Reclamation 2002).....	2-33
Table 2-4.	Estimated physical characteristics of the Wanapum reservoir. (Source Source: Grant PUD 2003.)	2-37
Table 2-5.	Title XII target flows to be maintained past Prosser and Sunnyside diversion dams, based on TWSA. (Source: Reclamation 2002.).....	2-40
Table 2-6.	Minimum instantaneous and minimum average weekly flows at the Wanapum control station. (Source: WAC-173-564-040)	2-41
Table 2-7.	303(d) impaired waters in the Kittitas County portion of WRIA 39. (Source: Ecology 2009d).....	2-43
Table 2-8.	303(d) impaired waters in the Kittitas County portion of WRIA 38. (Source: Ecology 2009c.)	2-46

Table 2-9. 303(d) impaired waters in the Kittitas County portion of WRIA 40.
(Source: Ecology 2009b.).....2-47

Table 2-10. Area of wetlands in each basin and subbasin in Kittitas County2-49

Table 2-11. Distribution of most threatening non-native aquatic invasive plant species.
(Source: Ecology n.d).....2-50

Table 2-12. Priority habitats found in each of the three WRIAs.....2-57

Table 2-13. Percentage of priority habitat area in each of the three WRIAs of Kittitas County.....2-60

Table 2-14. Priority species found in each of the three WRIAs of Kittitas County.2-61

Table 2-15. Priority species noted to occur in Kittitas County, but could not be verified using geospatial analysis. (Source: WDFW 2012)2-66

Table 3-1. Fish Use in Keechelus Lake Tributaries (Source: StreamNet 2010)3-11

Table 3-2. Fish Use in Kachess Lake Tributaries (Source: StreamNet 2010).....3-82

Table 3-3. Fish Use in Lake Cle Elum Tributaries (Source: StreamNet 2010) ¹.....3-135

Table 4-1. Fish Use in Unnamed Waterbodies along Middle Yakima River
(Source: StreamNet 2010).....4-5

Table 4-2. Fish Use in Wilson, Naneum, and Coleman Creeks (Source: StreamNet 2010)¹4-59

Table 5-1. Fish Use in Little Naches River and Tributaries (Source: StreamNet 2010)5-14

Table 6-1. Summary of Management Plans for Priest Rapids Project FERC Relicensing6-3

Table 7-1. Zoning Designations in Kittitas County Established by KCC Title 177-3

Table 7-2. Other Relevant Local Plans and Programs.....7-8

Table 8-1. Description of Shoreline Uses8-2

Table C-1. Tiers of effort for Kittitas County CMZ mapping.....C-2

LIST OF FIGURES

Figure 1-1. Kittitas County shoreline inventory areas – Upper County, Kittitas Valley, Yakima Canyon, Naches River and Columbia River - for Chapters 3 through 6.....1-5

Figure 2-1. Locations of WRIAs in Kittitas County.....2-2

Figure 2-2. Ecoregions covering Kittitas County.2-3

Figure 2-3. Public land ownership in Kittitas County.2-4

Figure 2-4. 2010 population density in Kittitas County.2-5

Figure 2-5. Subbasins of the Upper Yakima Basin.....2-7

Figure 2-6. Major landforms in Kittitas County.2-10

Figure 2-7. Generalized Geologic Map of the Wenatchee 1:100,000 quadrangle2-11

Figure 2-8. Structural groundwater basins of the Yakima River basin.....2-14

Figure 2-9. Locations of active and dormant landslides and areas of landslide incidence and susceptibility.....2-16

Figure 2-10. July 3, 1998 debris flows in the Yakima River canyon.2-18

Figure 2-11. Location of the 100-Year floodplain in Kittitas County.....2-19

Figure 2-12. Manastash Creek and channel avulsions on Manastash alluvial fan.....2-21

Figure 2-13. Major ecological systems in Kittitas County.2-22

Figure 2-14. Location for active and abandon gravel pits in the Upper Yakima basin.2-30

Figure 2-15. Major irrigation diversions between Kachess Lake and Ellensburg.2-36

Figure 2-16. Areas of 303(d) list impaired waters in WRIAs 38, 39, and 40.2-44

Figure 3-1. “Upper County” shorelines.....3-1

Figure 4-1. “Kittitas Valley” shorelines.4-1

Figure 5-1. “Yakima Canyon” shoreline.5-1

Figure 5-2. “Little Naches River” shorelines.5-2

Figure 6-1. “Columbia River” shoreline within Kittitas County.....6-1