Bear River Watershed Management Unit
Water Quality Assessment

The Bear River Basin is part of the Great Basin Hydrologic Region and the Bear River is the principal stream within this drainage area. It flows north out of Utah into Wyoming near Evanston, then back into Utah, then crosses into Idaho, then back into Utah, into Idaho again, and then turns and flows southwest into Utah and empties into the Great Salt Lake. The Bear River is the longest river (approximately 500 miles long) in the United States whose waters do not eventually empty into an ocean. Originally the Bear River did not flow into Bear Lake, but since the early 1900's, it has been diverted into Bear Lake at Stewart Dam. Water flows from Bear Lake into the Bear River via a canal. Other streams of interest include the Logan, Blacksmith Fork and Little Bear Rivers.

Water quality samples were collected at eighty-nine sites from July 1998 through June 1999. Samples were collected twice a month during the spring runoff period and then monthly during the remainder of the survey. Samples were not collected during December 1998. Streams were assessed against State water quality standards and pollution indicators to determine if their designated beneficial uses were being met. The streams in the Bear River Watershed Management Unit are classified as one of the following or a combination of the following beneficial use classifications: protected for contact recreation (2B), cold water game fish (3A), warm water game fish (3B), warm water non-game fish (3C), and waterfowl (3D), and agricultural use including irrigation and stock watering (4). Only a portion of the streams were assessed under the contact recreation classification. The quality of water was assessed as "fully supporting" (good to excellent water quality), "partially supporting" (meets the standards most of the time), and "not supporting" (frequently the water quality standards are not met).

There are approximately 1,445 perennial stream miles within the management unit. Of these, 1,128.7 (74.3%) stream miles were assessed under one or more of their designated beneficial uses. Eight-hundred thirty-eight miles (74.3%) were assessed as fully supporting all their beneficial uses that they were assessed for. Two-hundred eighty miles (24.8%) were assessed as partially supporting and 9.8 miles (0.9%) were assessed as not supporting at least one designated beneficial use (Figure1).

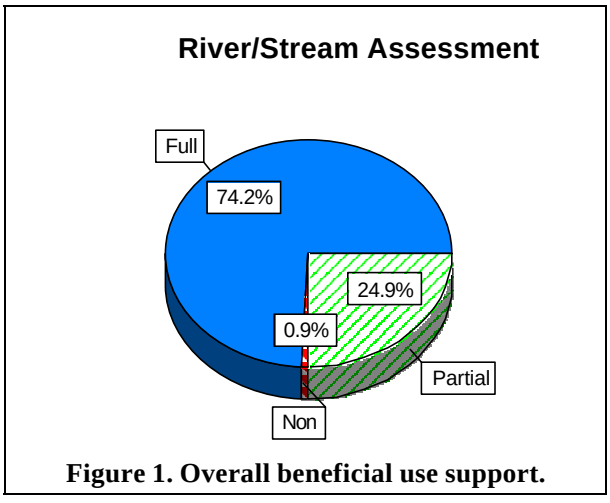

Figure 1. Overall beneficial use support.

The relative impact by causes on water quality are illustrated in Figure 2. The major causes of impairment were total phosphorus (nutrients), low dissolved oxygen, temperature and sediments.

The relative impact by various sources is shown in Figure 3. The major sources of impairment were agricultural activities, industrial point sources and municipal sources.

Upper Bear River–In the upper Bear River, all but three waterbodies were assessed as fully supporting their beneficial uses that were assessed. These were the Class 3A and 4 waters located in Summit and Rich Counties. Two segments on the main-stem of the Bear River were assessed as partially supporting their Class 3A (cold water game fish) beneficial use because of low dissolved oxygen. The source of this impairment is not known. These two segments included the Bear River from the Utah-Wyoming border to the Woodruff Creek confluence, and the Bear River from the Woodruff Creek confluence to the Utah-Wyoming border. The other waterbody assessed not supporting all of its beneficial uses

was Saleratus Creek and its tributaries. The parameters of concern were dissolved oxygen, temperature, and total dissolved solids. The probable sources of the total dissolved solids are agriculture and natural. The probable sources for the temperature and low dissolved oxygen is unknown.

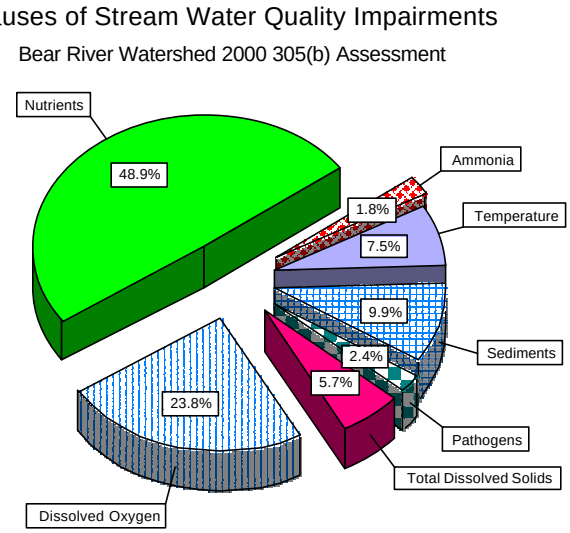

Figure 2. Relative percent impact by causes in the Bear River Watershed Management Unit - 2000 305(b)

Lower Bear River–Beneficial use assessment remained essentially unchanged in the lower Bear River watershed. The major problem within the system is total phosphorus and the sources are agricultural activities and point sources. The waterbodies identified as having an EPA approved TMDL were not listed on the 303(d) list, but are still identified as not meeting the beneficial use support for the parameters listed in the 1996 and 1998 305(b) reports. Extensive implementation work has been done in the Little Bear watershed, and preliminary analysis of data on the Little Bear and Mendon indicated a decreasing trend in total phosphorus. A 319 non point source project was implemented on the Cub River in 1999 to improve water quality. A total maximum daily load analysis will be completed in the early part of 2001 for the Spring Creek drainage near the Little Bear River.

In the previous intensive monitoring survey, Clarkston Creek and the Malad River were not assessed. During the most recent survey they were monitored and the results indicated that they were fully supporting all of the beneficial uses that they were assessed for. The Class 2B use designation was not assessed.

Elevated Levels of Phosphorus--In addition to the waterbodies listed as being impaired by total phosphorus, there were four other waterbodies that were assessed as having elevated levels of total phosphorus. These waters need further evaluation to determine if there is a water quality problem. The four water bodies were the lower portion of Woodruff Creek, Clarkston Creek, Big Creek, and North Eden Creek. The tributaries to the latter three are included in the assessment. The estimate of miles in these waterbodies was 119.6.

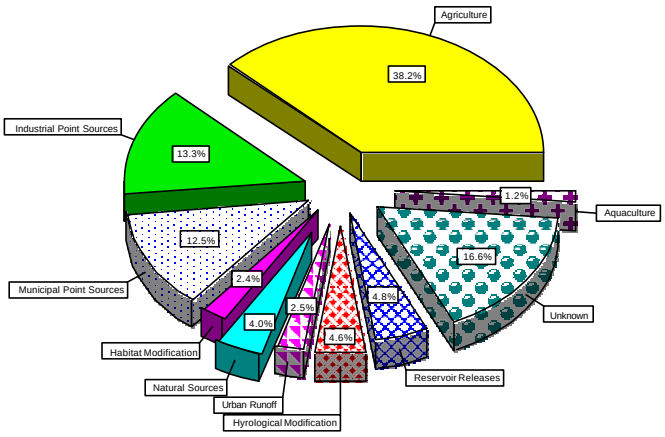

Figure 3. Relative percent impact in the Bear River Watershed Management Unit by sources on stream water quality - 2000 305(b).

The primary causes of impairment throughout the basin were total phosphorus, low dissolved oxygen, sediments, and temperature. The primary sources of impairment were agricultural practices, industrial and municipal point sources.

If you have questions about the report or wish to obtain a copy, it can be found at the Division of Water Quality's home page or by requesting a copy from Tom Toole, (801) 538-6859 or e-mail ttoole@deq.state.us.ut.

INTERNET SITE:**http://www.deq.state.ut.us/eqwq/dwq_home.ssi**

Bear River Watershed Stream Beneficial Use Support

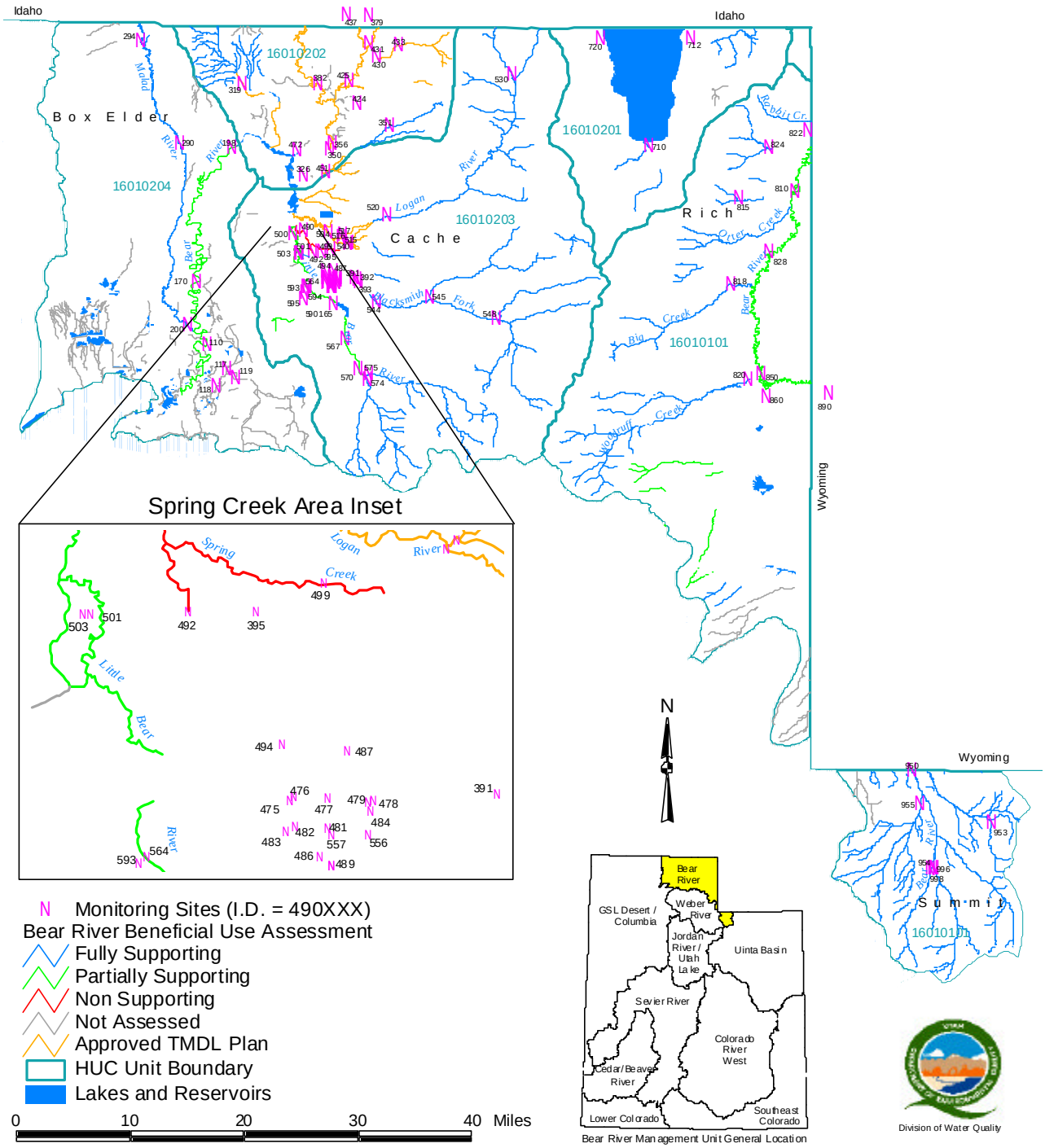

Figure 4. Stream beneficial use support and sampling sites in the Bear River watershed.