Upper Owyhee Watershed Assessment

Appendix G. TMDLs in Idaho

Current Idaho

The Idaho Department of Environmental Quality (DEQ) has conducted assessments and developed Total Maximum Daily Loads (TMDLs) for the Upper Owyhee Watershed subbasin and the South Fork Owyhee River subbasin.

Idaho's water quality standards establish the potential beneficial uses of a waterbody to be habitat for aquatic life, recreation, water supply, wildlife habitat, and aesthetics. The first three uses are further divided. Aquatic life includes cold water, salmonid spawning, seasonsal cold water where coldwater aquatic life may be absent or tolerate seasonally warm termperatures, warm water, and modified "with aquatic life limited by one or more conditions that preclude attainment of reference streams or conditions."[Idaho 2010a] Recreational uses are divided into primary contact recreation in the water with a chance of swallowing water and secondary contact recreation with possible occasional ingestion of water. Water supply is further broken down to providing domestic drinking water, providing agricultural water for irrigation or drinking water for livestock, and industrial. Industrial use as well as wildlife habitat and aesthetics are considered to be beneficial uses that apply to all of the surface waters of the state.

A. Upper Owyhee Watershed

The DEQ's *Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Load, Owyhee, County, Idaho* is a 151 page document. The information in the document is found in a number of different places and sometimes it is difficult to distinguish between existing and recommended designations. An effort has been made to ensure that the data presented here in table format accurately represents the information. There seem to be some discrepancies between these summaries and the summary information of the same document included in the *Upper Owyhee River five year review*.

In the assessment of the Upper Owyhee Watershed, there were no waterbodies with a designated or presumed beneficial use of domestic drinking water. The agricultural and industrial uses were combined under "water supply".

1. 303(d) waterbodies

Table G.1. Beneficial uses of waterbodies identified or recommended as 303(d) in the Upper Owyhee HUC of Idaho as included in the *Upper Owyhee Watershed Subbasin Assessment*. Only Red Canyon Creek has designated uses. The others are presumed beneficial uses.

e = existing use
x = beneficial use
f = beneficial use fully supported
s = beneficial use no evidence not supported
n = beneficial use not fully supported
i = recommended listing as impaired beneficial use
r = recommended beneficial use

303(d) waterbody*	Cold water aquatic	Salmonid spawning	Modified aquatic	Primary recreation	Secondary recreation	Water supply	Wildlife	Aesthetics
Included in Idaho 2003 assessment					❋			
Blue Creek Reservoir	e, n,i	i		e,f	e,f	f	f	f
Juniper Basin Reservoir	i	i	r	e,f	e,f	s	s	s
Red Canyon Creek	e, n, i	e, n, i		x		x	x	x
Deep Creek	e, n, i	e, n, i		r		s	s	s
Pole Creek	e, n, i	e, n, i		r		s	s	s
Castle Creek	e, n, i	e, n, i		s	s	s	s	s
Battle Creek	e,n	e,n		e,f,i	e,f,i	s	s	s
Shoofly Creek		r		e,f,i	e,f,i	s	s	s
Nickel Creek	e, n, i	e, n, i		e	e	s	s	s
Proposed for next 303(d) list								
Camas Creek	i	i						
Battle Creek	i	i						
Camel Creek	i	i						
Dry Creek	i	i						
Beaver Creek	i	i						
	Cold water aquatic	Salmonid spawning	Modified aquatic	Primary recreation	Secondary recreation	Water supply	Wildlife	Aesthetics

Changes to the TMDL noted in the 2009 Five Year Review

❋ Most streams receive some recreational use by hikers, hunters, and anglers. Secondary contact recreation use should apply to all of these streams.

* Thomas and Smith Creeks are also mentioned as being included in the original TMDL.

2. DEQ identified pollutants

In the past each state submitted two documents to the EPA: a list of impaired waters in the state (303(d)) and a report summarizing the status of all the waters of a state (305(b)). Now the two documents are combined into one document called an Integrated Report.

Table G.2. DEQ identified pollutants of waterbodies in the Upper Owyhee HUC of Idaho. Pollutants were identified in the 2003 TMDL or in the 2010 integrated report.

303(d) waterbody	Temperature 2003 TMDL	Temperature 2010 integrated report	Sedimentation/ siltation*†	Flow regime alterations*	Escherichia coli*	Mercury*	Metals	Aquatic plant bioassessments*	Organic enrichment	Dissolved oxygen	Combined biota/ habitat bioassessments*
Included in Idaho 2003 assessment											
Blue Creek Reservoir											
Juniper Basin Reservoir					x						
Red Canyon Creek	x	x		x							
Deep Creek	x								x	x	
Pole Creek	x	x		x							
Castle Creek	x	x	x								
Battle Creek											
Shoofly Creek - delist											
Nickel Creek	x	x	x				x	x			
Proposed for next 303(d) list											
Camas Creek		x									
Battle Creek											
Camel Creek		x									
Dry Creek											x
Beaver Creek											
Included in 2010 combined report											
Thomas Creek		x	x					x			
Smith Creek		x	x					x			
Little Blue Creek											x
Shoofly Reservoir						x					
Dry Creek											x
Big Springs Creek											x

† This includes waterbodies listed for sedimentation in either the TMDL or the 2010 combined report.

* From the 2010 303(d) 305(b) combined report.

3. Temperature impaired waterbodies.

In the 2003 TMDL, the DEQ judged Deep Creek, Pole Creek, Castle Creek, and Red Canyon Creek as being water quality limited due to temperature.

Table G.3. The target temperatures for Deep Creek, Pole Creek, Castle Creek, and Red Canyon Creek in the 2003 TMDL for the Upper Owyhee HUC from the *Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Load,*.

Beneficial use	Selected targets
Salmonid spawning	Temperature ≤ 13 °C (55 °F) Maximum daily average ≤ 9°C (48 °F)
Cold water aquatic life	Temperature ≤ 22 °C (72 °F) Maximum daily average ≤ 19°C (66 °F)
Shade component	Shade required to meet targets as determined through the use of the SSTEMP model

The Idaho TMDL for the Upper Owyhee HUC identified temperature impairment as a nonpoint source. The TMDL attempts to assign part of the responsiblity for improving the condition to different contributing factors. These contibuting "loads" are considered to be the different streams and the amount of change which is required in each one, therefore some streams which are not listed as 303(d) have recommended shading requirements.

Table G.4. Shade requirements to achieve load capacity for stream segments in the Upper Owyhee HUC. The stream segment temperature model was used to develop these estimates, from the *Upper Owyhee Watershed Subbasin Assessment and Total Maximum Daily Load*

	June	July	August
	Criteria		
	Salmonid spawning - 9°C % shade	Cold water aquatic life - 22 °C % shade	Cold water aquatic life - 22 °C % shade
Upper Deep Creek	100	52	59
Middle Deep Creek	100	57	57
Lower Deep Creek	100	66	67
Deep Creek below Nickel Creek to Pole Creek	100	58	57
Upper Pole Creek	96	96	58
Lower Pole Creek	100	65	60
Castle Creek	95	95	58

Red Canyon Creek	94	94	57
Nickel Creek	88	88	56
Hurry Back Creek	92	95	54
Nip & Tuck Creek	87	87	54
Current Creek	91	91	53
Camas Creek	98	98	61
Camel Creek	97	97	62
Bull Gulch	98	98	62
Beaver Creek	97	97	59
Upper Dickshooter Creek	100	100	62
Lower Dickshooter Creek	94	65	67

The table above from the *Upper Owyhee Watershed Subbasin Assessment* describes "the required load allocation to address . . . temperature *. . .* issues in the Upper Owyhee Watershed. All allocations are gross estimates with the belief that once more data is collected by the appropriate land management agencies, and other interested parties, refinements to these allocations can be made."[Idaho 2003]

B. South Fork

The conclusion of the *South Fork Owyhee River Subbasin Assessment and Total Maximum Daily Load* is that only temperature is impairing beneficial uses. In the assessment, there were no waterbodies with a designated or presumed beneficial use of domestic drinking water. The agricultural and industrial uses were combined under "water supply".

Table G.5. Beneficial uses of waterbodies identified or recommended as 303(d) in the South Fork Owyhee HUC and Idaho DEQ identified pollutants, from the *South Fork Owyhee River Subbasin Assessment and Total Maximum Daily Load*.

303(d) waterbody*	Cold water aquatic	Salmonid spawning	Modified aquatic	Primary recreation	Secondary recreation	Water supply	Wildlife	Aesthetics
South Fork Owyhee River	x	x		x	x	x	x	x
Impaired by temperature	x	x						

Table G.6. Target overall maximum and average temperature reductions necessary at the Nevada - Idaho state line for the South Fork Owyhee River in Idaho to achieve State of Idaho water quality standards.

Beneficial use	Maximum temperature load capacity	Daily average temperature load capacity
Salmonid spawning	13 °C (55 °F)	9°C (48 °F)
Reduction needed from current temperature	78%	97%
Cold water biota	22 °C (72 °F)	19°C (66 °F)
Reduction needed from current temperature	27%	28%

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