Appendix F . Middle Snake Reach Spring Development (from IDWR, 1998).

Springs in the Malad River to Bliss Reach

		Water Rights
Vineyard Creek	Undeveloped	17cfs
Devil's Corral Springs	Undeveloped: 48 cfs pending for fish farming and hydropower	48 cfs
Blue Lakes Springs (Alpheus Creek)	The springs and upper reaches of the outflow streams are undeveloped ar flow through the Blue Lakes Country Club. In its lower reaches water is heavily diverted for fish farming and municipal use. Pending application propose further development for fish farming, hydropower, and aesthetic uses.	
Crystal Springs	Developed for fish farming and irrigation. This complex of springs supplies water to a large federal steelhead hatchery and a private fish farm. There are existing permits and pending applications for development for fish farming and hydropower.	126 cfs
Niagara Springs	Developed for fish farming and irrigation. Other pending applications propose development for fish farming and hydropower.	45-264 cfs - pending
Clear Lakes Springs	Developed for fish farming, fish processing, irrigation, and hydropower. Pending applications and undeveloped permits propose further development for fish farming, hydropower, irrigation, and aesthetics.	
Briggs Springs	Developed for irrigation, fish farming, and hydropower. Pending applications propose further development for fish farming.	56 cfs - pending
Banbury Springs	A large spring complex which is only partly diverted. Existing diversions are for irrigation, domestic use, recreation 9a commercial swimming pool resort), and a small private hydro plant. Other pending applications propose development of existing diversions and flows not now diverted for fish farming and hydropower.	97 cfs - pending
Blind Canyon	Developed for fish farming.	8 cfs
Box Canyon Springs	Developed for fish farming and hydropower.	75-162 cfs
Blue Heart Springs	Undeveloped; This large spring emerges in the bed of the Snake River below the water level, and is a popular scuba diving area.	66.57 cfs
Sand Springs	Developed for hydropower.	34 cfs
Minnie Miller Springs	Developed for irrigation, stock, domestic, and commercial uses.	200-450 cfs
Magic or Bickel Springs	Developed for fish farming, irrigation, and a small private hydro plant. Pending applications propose expansion of the existing fish farm and commercial hydro development.	
Billingsley & Riley Creek systems	Extensively developed for irrigation, fish, stock, domestic, hydropower & municipal uses.	
White Springs	Developed for fish farming.	11 cfs - pending
Birch Creek	Developed for irrigation under decreed rights & irrigation, fish & power under permits and licensed rights.	

Lower Malad River	Developed primarily for hydropower. Undiverted water is subject to a number of MSF rights covering various reaches.	
Springs in the Malad River to Bliss reach	Numerous springs this reach are developed for irrigation, fish farming, hydropower, and other uses.	
Bancroft Springs	Undeveloped.	17 cfs

Appendix E-2
Species composition in the "Mid" Snake River (Milner to King Hill)
From EPA, (draft 2000)-Ecological Risk Assessment

Molluscans found in the Middle Snake River (from Frest and Bowler 1992, Dey and Minshall 1992).

Class Gastrioida (Snails)	
Ancylidae	
Ferrissia parallelus	
Ferrissia rivularis	
Hydrobiidae	
Fluminicola columbiana [1]	Columbia River spire snail
Fluminicola hindsi	
Potamopyrgus antipodarum	
Pyrgulopisis idahoensis [2]	Idaho springsnail
Taylorchoncha serpenticola [3]	Bliss Rapids snail
Potamopyrgus antipodarum [4]	New Zealand mudsnail
Lancidae	
Fisherola nuttalli [1]	Giant Columbia River limpet
Lanx sp. [2]	Banbury Springs lanx (undescribed)
Fossaria bulimoides	
Fossaria dalli	
Fossaria exigua	
Fossaria modicella	
Lancidae (continued)	
Fossaria parva	
Fossaria obrussa	
Stagnicola caperata	
Stagnicola catascopium	
Stagnicola hinkleyi	
Radix auricularia [4]	
Physidae	
Physa natricina [2]	Snake River physa
Physa mexicana	
Physella gyrina	
Physella integra	
Planorbidae	
Gyraulus parvus	
Planorbella subcrenatum	
Promenetus exacuous	
Vorticifex effusus	
Valvatidae	
Valvata utahensis [2]	Utah valvata snail
Valvata humeralis	

Class Pelecypoda (Clams)

Corbiculidae	
Corbicula fluminea [4]	Asian clam
Margaritiferidae	
Margaritifera falcata [5]	
Sphaeriidae	
Musculium lacustre	
Musculium securis	
Pisidium compressum	
Pisidium caesertanum	
Pisidium insigne	
Pisidium nitidum	
Pisidium pauperculum	
Pisidium punctatum	
Pisipium variabile	
Sphaerium nitidum	
Sphaerium patella	
Sphaerium striatinum	
Unionidae	
Anodonta californiensis [1]	California floater
Gonidea angulata	

Notes for molluscan species:

1. Species of concern. Conclusive data not currently available for listing under the Endangered Species Act
2. Listed as an endangered species under the Endangered Species Act
3. Listed as a threatened species under the Endangered Species Act
4. Non-native species
5. Extirpated from the Middle Snake River

Wetland and shoreline plants found in the Snake River (from Stanford 1942, Dey and Minshall 1992). Dey and Minshall species are marked with an asterisk. The names are in accordance with Hitchcock and Cronquist (1981).

Scientific Name	Common Name
Salix lasiandra	Willow
Populus trichocarpa	Cottonwood
Nepeta cataria	Catnip
Solanum triflorum	Nightshade
Veronica americana	American brooklime
Solidago missouriensis	Goldenrod
Rumex persicarioides	Dock
Vicia americana	Vetch
Glycyrrhiza lepidota	Licorice
Apocynum cannabinum	Dogbane
Verbena hastata	Verbena
Mentha arvensis lanta	Mint
Helenium autumnale	Sneezeweed
Xanthium pensylvanicum	Cocklebar
Bidens cernua	Beggar-ticks
Artemisia sp.	Mugwort
Sarcobatus sp.	Greasewood
Phragmites communis	Reed
Paspalum distichum	Knotgrass
Polypogon monspeliensis	Beard-grass
Cyperus strigosus	Flatsedge
Eleocharis palustris	Spike-rush
Scirpus validus	Soft-stem bulrush
Typha latifolia	Cat-tail
Polygonum natans	Doorweed
Polygonum lapathifolium	Doorweed
Sagittaria sp.	Arrowhead
Potamogeton epihydrus	Pondweed
Potamegeton pectinatus	Pondweed
Ceratophyllum demersum	Hornwort
Rorippa nasturtium	Cress
Lemna minor	Duckweed
Azolla sp.	Water-fern
Toxicodendron diversiloba	Sumac
*Potamogeton crispus**	Pondweed
*Potamogeton foliosus**	Pondweed
*Elodea nuttallii**	Waterweed
*Elodea canadensis**	Waterweed
*Ranunculus spp.**	Buttercup
*Myriophyllum spicatum**	Water-milfoil

Fish species found in Middle Snake River between King Hill and Milner Dam (personal communication with Idaho Department of Fish and Game 1993, Idaho Division of Environmental Quality 1995, Maret 1995).

Scientific Name	Common Name
Family: Acipenseridae - Sturgeons	
Acipenser transmontanus [1,2,4,5]	White sturgeon
Family: Salmonidae - Trouts	
Oncorhynchus clarki [1]	Cutthroat trout
Oncorhynchus mykiss [1,5]	Rainbow trout
Oncorhynchus mykiss gairdneri [6]	Redband trout
Prosopium williamsoni [1,5]	Mountain whitefish
Salmo trutta [3,5]	Brown trout
Family: Cyprinidae - Carps and Minnows	
Cyprinus carpio [3,5]	Common carp
Ptychocheilus oregonensis [5]	Northern pikeminnow
Mylocheilus caurinus [5]	Peamouth
Acrocheilus alutaceus [5]	Chiselmouth
Richardsonius balteatus [5]	Redside shiner
Rhinichthys osculus [5]	Speckled dace
Gila atraria [3]	Utah chub
Rhinichthys cataractae [5]	Longnose dace
Rhinichthys falcatus [5]	Leopard dace
Family: Catostomidae - Suckers	
Catostomus columbianus [5]	Bridgelip sucker
Catostomus macrocheilus [5]	Largescale sucker
Catostomus platyrhynchus [5]	Mountain sucker
Catostomus ardens [7]	Utah sucker
Family: Ictaluridae - Bullhead catfish	
Ictalurus punctatus [1,2,3,5]	Channel catfish
Ameiurus nebulosus [3,5]	Brown bullhead
Ameiurus melas [3,5]	Black bullhead
Family: Centrarchidae - Sunfishes	
Micropterus dolomieu [1,2,3,5]	Smallmouth bass
Micropterus salmoides [1,3,5]	Largemouth bass
Lepomis gibbosus [3,5]	Pumpkinseed
Pomoxis nigromaculatus [3,5]	Black crappie
Lepomis macrochirus [3,5]	Bluegill
Family: Percidae - Perches	
Perca flavescens [1,3,5]	Yellow perch
Stizostedion vitreum [3,5]	Walleye
Family: Cottidae - Sculpins	
Cottus bairdi [5]	Mottled sculpin
Cottus greenei [4,5]	Shoshone sculpin
Cottus beldingi [5]	Paiute sculpin
Cottus confusus [5]	Shorthead sculpin
Cottus rhotheus [5]	Torrent sculpin
Family: Sciaenidae - Drums	
Aplodinotus grunniens [3,5]	Freshwater drum

Native fish species extirpated from the Middle Snake River

Onchorhynchus tshawytscha	Chinook salmon
O. *kisutch*	Coho salmon (possible inhabitant)
O. mykiss	Steelhead trout
Lampetra tridentata	Pacific lamprey

Notes for fish species:

[1] Game fish in the Middle Snake River (IDEQ 1995)

[2] Spawning fish (IDEQ 1995)

[3] Non-native species. Five additional non-native species likely present are:

Tilapia mossambica	Mozambique tilapia
T. zelli	Redbelly tilapia
T. nilotica	Nile tilapia
Lepomis cyanellus	Green sunfish
L. microlophus	Redear sunfish

[4] Considered a Species of Special Concern by the State of Idaho

[5] Fish fauna of the Snake River drainage below Shoshone Falls (Bowler et al. 1992, Bowler, personal communication 1992)

[6] The only pure surviving population of redband trout is believed to be in King Hill Creek, hybrids are found in other tributaries

[7] Federal Energy Regulatory Commission (1990)