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Defining Gila Watershed Hydrologic, Aquatic, and Riparian Baseline Conditions



Photo by Jeffery Sampson

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In cooperation with the
University of New Mexico



*Summary of Existing and Relevant
Aquatic Biological and Ecological Data*

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1.0 Introduction

This report provides an overview of the the existing and relevant biological and ecological data compiled for the Gila Watershed in southwestern New Mexico. It is the second deliverable of a larger effort with the overall objective to produce key elements of an ecohydrological baseline analysis. It is also intended to support the New Mexico Interstate Stream Commission (NMISC) in future project evaluations and administrative responsibilities associated with Arizona Water Settlement Act of 2004 (AWSA, P.L. 108-451).

As introduced in our previous report (Tetra Tech 2013), this project is driven, to a large part, by the intent to enhance the general understanding of ecohydrologic relationships within the Gila River system potentially affected by the development of new projects under the AWSA. Our report explained that ecohydrology is generally defined as the functional relationships between the hydrology and ecology of an aquatic system; a flow-ecology relationship. Changes in hydrologic or hydraulic conditions, beyond the the range of the natural adaptations of the resident organisms in the system, often have consequences on their growth, reproduction, abundance, sustainability, and biodiversity. Alteration of flow regimes is regarded by many to be the single greatest and persistent threat to ecological integrity in rivers and streams (Poff et al. 2007, Bunn and Arthington 2002, Naiman et al. 2002, Ward et al. 1999, Lundqvist 1998, Poff et al. 2007, Sparks 1995, and Naiman et al.1995). Avoiding or mitigating degradation to aquatic and riparian systems requires a clear understanding of how potential flow alterations can affect ecological structure and function in the altered river.

This second subtask report provides an overview of our work to assemble, format, organize, and assess the quality for existing data identified during this project for the Gila River's biological resources. This includes data and literature information for a number of individual species accounts, reports, and biological survey information from a variety of sources including the University of New Mexico, Museum of Southwestern Biology (MSB), museum collections held at Western New Mexico University (WNMU), the New Mexico Environment Department (NMED), the U.S. Fish and Wildlife Service (USFWS), and the New Mexico Department of Game and Fish (NMDGF). We also include information on special status species that are considered to occur within areas that may be affected by potential projects developed in NM under AWSA, particularly focusing on the Gila River within the Cliff-Gila Valley. We provide an assessment of whether species listed as endangered or threatened under Federal and State legislation for southwestern New Mexico may or may not be found within areas potentially affected by yet undefined, but potentially diverse AWSA activities.

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Datasets and literature compiled and initially reviewed through this project include information for fishes, macroinvertebrates, periphyton, water quality, and wetlands. We describe the information compiled and the measures taken to organize, format, and assess the quality these datasets. Ultimately, in combination with the previous task that compiled data on the physical environment (Task 1a; Tetra Tech 2013), these data provide the basis for potential future ecohydrological analyses and other assessment efforts.

As more fully described in our previous report (Tetra Tech 2013), our quality control assessment of the compiled data includes, as possible, documenting and delimiting the sources of the data, methods of data collection (or derivation), spatial and temporal relevance, and the potential need of certain datasets for future analyses (research, compliance, etc.). Often the diversity in the data compiled are not suitable for quantitative quality assessment procedures, but, at this time, only qualitative (e.g., best professional judgement) approaches. The results of the overall review and quality control process identifies datasets suitable for future analysis. Data gaps, identified through our work, will be characterized in our next report.

As also described in our previous report, the reviewed data obtained from Tasks 1a and 1b (this task) form the basis of a final data standard, a concept that is primarily applied to geospatial data, but which can apply to non-geospatial data as well. It has been used in our project to format data for future analysis and delivery to the NMISC. Our previous report provides examples of the data standards and the data dictionaries that document the data standards (Tetra Tech 2013). As additional data may be compiled from various sources, it continues to be important to make logical yet pragmatic decisions on the data standards, considering the audience and likely future uses of the data. It is prudent to establish complete data standards after all or most of the compiled data are fully reviewed.

The following sections summarize the datasets we have assembled under this project and the measures taken to organize and format these data. While we have attempted to obtain as many datasets as possible, at this time some remain incomplete or unobtainable. We therefore present each dataset we have assembled and describe the current state of the dataset. All data compiled to date are provided on the accompanying digital media. Reviews, summaries, and data gaps related to these compiled data are included in a separate Task 1c report.

2.0 Principal Databases Accessed

2.1 Museum of Southwestern Biology, University of New Mexico & Western New Mexico University

A number of datasets have been acquired from the Museum of Southwestern Biology (MSB) at the University of New Mexico. The MSB on-line database (Arctos) allows for access to data pertaining to museum collections (<http://arctos.database.museum/>), not including fishes data at MSB. In order to obtain these fisheries data, we contacted Dr. Tom Turner, Curator of Fishes and he agreed to provide MSB fisheries data for the Gila River and its main tributaries (T. Turner pers. comm.). In addition, Arctos allows access to a multi-institution museum database including the following:

- University of Alaska Museum
- MSB, Division of Genomic Research
- The Museum of Vertebrate Zoology at Berkeley
- Western New Mexico University
- Moore Laboratory of Zoology
- Denver Museum of Nature and Science
- University of Wyoming Museum of Vertebrates

Queries (spatial, by taxa, accession number, etc.) were submitted to the database with results becoming available for download. These data have location, date of collection, and other information – some records are more complete than others. To date, we have obtained information from the MSB (and Western New Mexico University [WNMU] via Arctos) for birds, mammals, and fishes. We have been unable to assess other taxa (reptiles, amphibians, etc.) from Arctos.

For potential future analyses, we have added Taxonomic Serial Number (TSN) information referenced by the Interagency Taxonomic Information System (ITIS; <http://www.itis.gov/>) to each record. This will provide unique species identifiers when analyzing the biodiversity and distribution of various species and help standardize across synonymous taxonomic classifications. We also added a common name field and a notes field for our purposes.

2.2 New Mexico Department of Game and Fish – BISON-M Database

Additional species lists (fishes, amphibians, reptiles, birds, mammals, mollusks, and numerous invertebrate taxa) were also downloaded from BISON-M on Jan. 10, 2013 for future analysis. These lists are for general reference, species occurrences documented by the State of New Mexico, and cross-referencing/validation with special status species, museum collections, and NMED sampling data. The database search criteria are as follows:

Taxa

- Fishes
- Amphibians
- Reptiles
- Birds
- Mammals
- Mollusks
- Crustaceans
- Miscellaneous Invertebrates
 - Ephemeroptera; mayflies
 - Odonta; dragonflies
 - Orthoptera; grasshoppers and crickets
 - Plecoptera; stoneflies
 - Heteroptera; true bugs
 - Homoptera; cicadas, leafhoppers, etc
 - Hymenoptera; ants, bees, wasps
 - Coleoptera; beetles
 - Tricoptera; caddisflies

- Lepidoptera; moths and butterflies
- Diptera; two winged flies

Habitat Categories

- Select all Gap Vegetation types
- Select all Habitat types
- Select all Land Use

Occurrence Type (state)

- Select all State (Extant, Accidental, etc.)

Records retrieved, by county, are as follows:

- Catron County = 720 records
- Grant County = 812 records
- Hidalgo County = 741 records
- Sierra County = 655 records

As these lists are exceedingly large, we provide them in spreadsheet format (.xlsx) on the accompanying digital media. These data were compiled and initially processed under the original intent to develop related information to aid in the assessment of potential AWSA projects over the watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since most of these data, except those for aquatic species, do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued for most of these species, except as noted in other sections.

3.0 Threatened and Endangered Species

The U.S. Fish and Wildlife Service (USFWS; Dec. 12, 2012) sent the NMISC a comprehensive list of Threatened, Endangered, and Candidate Species included under the Endangered Species Act of 1973 that potentially occur in areas of southwestern New Mexico that may be affected by implementation of the AWSA. The USFWS letter stated that including a species in their letter only indicated that the species occurs in the region

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and would need to be considered relative to any actions that may be implemented as part of the AWSA. That letter was supplied by NMISC to Tetra Tech to include in our project's assessments.

Species listed in Table 2.1 come from the list supplied by the USFWS letter and for species listed as *Endangered* under the New Mexico Wildlife Conservation Act (Sections 17-2-37 through 17-2-46 NMSA 1978). Table 2.1 includes USFWS and NMDGF online compilations for listed species within the New Mexico counties overlapping the Gila Watershed (Grant, Hidalgo, Catron, and Sierra). This table also shows which of those species having federally defined Critical Habitat in the Gila Watershed.

Although a species is cited by the USFWS or listed by the NMDGF as occurring in these counties, it does not mean that each species necessarily occurs within the Gila Watershed or other areas that may be affected by a potential AWSA developments in New Mexico. To address these relations, our next report will present a review and assessment of ecological and distributional information for each listed species relative to potential considerations that may arise regarding potential AWSA developments and projects in New Mexico. Information compiled to address this assessment for each species includes the initial published listing information, recovery plans, critical habitat listing, as well as other relevant information for the Gila River watershed.

Various other special status categories are applied to these and other species, including as New Mexico species of full protection, sensitive taxa, taxa of greatest conservation needs, and species covered under falconry laws and regulations. Additional federal statuses include species with conservation agreements, U.S. Forest Service or Bureau of Reclamation species of concern, and those covered under the Migratory Bird Treaty Act. Later sections below include a brief introduction to some of the other species classifications; however, further consideration of these classification are not included as part of this project.

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Table 2.1. Listed species from Grant, Hidalgo, Catron, and Sierra Counties, New Mexico.

Common Name	Scientific Name	Federal Listed				NM Listed	
		Endangered	Threatened	Candidate	Critical Habitat in AWRA Project Area	Endangered	Threatened
Fish							
Chihuahua chub	<i>Gila nigrescens</i>	X			No	X	
Gila chub	<i>Gila intermedia</i>	X			Yes	X	
Gila topminnow	<i>Poeciliopsis occidentalis occidentalis</i>	X			No		X
Loach minnow	<i>Tiaroga cobitis</i>	X			Yes	X	
Spikedace	<i>Meda fulgida</i>	X			Yes	X	
Gila trout	<i>Oncorhynchus gilae</i>		X		No		X
Headwater chub	<i>Gila nigra</i>			X	No	X	
Roundtail chub	<i>Gila robusta</i>			X	No	X	
White sands pupfish	<i>Cyprinodon tularosa</i>				No		X
Amphibians							
Chiricahua leopard frog	<i>Lithobates chiricahuensis</i>		X		Yes		
Lowland leopard frog	<i>Lithobates yavapaiensis</i>				No	X	
Sonoran desert toad	<i>Ollotis alvaria</i>				No		X
Reptiles							
New Mexico ridgenose rattlesnake	<i>Crotalus willardi obscurus</i>		X		No	X	
Brown (Mexican) gartersnake	<i>Thamnophis eques megalop</i>			X	No	X	
Reticulate gila monster	<i>Heloderma suspectum suspectum</i>				No	X	
Gray-checked whiptail	<i>Aspidoscelis dixonii</i>				No	X	
Slevin's bunchgrass lizard	<i>Sceloporus slevini</i>				No		X
Mottled rock rattlesnake	<i>Crotalus lepidus lepidus</i>				No		X
Mountain skink	<i>Plestiodon callicephalus</i>				No		X
Narrowhead garter snake	<i>Thamnophis rufipunctatus rufipunctatus</i>				No		X
Green rat snake	<i>Senticolis triaspis intermedia</i>				No		X
Canyon spotted whiptail	<i>Aspidoscelis burti stictogrammus</i>				No		X
Birds							
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	X			Yes	X	
Least tern	<i>Sternula antillarum athalassos</i>	X			No		
Aplomado falcon	<i>Falco femoralis septentrionalis</i>	X			No	X	
Whooping crane	<i>Grus americana</i>	X			No		
Mexican spotted owl	<i>Strix occidentalis lucida</i>		X		Yes		
Yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>			X	No		
Northern beardless tyrannulet	<i>Camptostoma imberbe ridgwayi</i>				No		
Common ground-dove	<i>Columbina passerina pallescens</i>				No	X	
Thick-billed kingbird	<i>Tyrannus crassirostris</i>				No	X	
Buff-collared nightjar	<i>Caprimulgus ridgwayi ridgwayi</i>				No	X	
Brown pelican	<i>Pelecanus occidentalis carolinensis</i>				No	X	
Arizona grasshopper sparrow	<i>Ammodramus savannarum ammoregus</i>				No	X	
Elegant trogon	<i>Trogon elegans canescens</i>				No	X	
Common black hawk	<i>Buteogallus anthracinus anthracinus</i>				No		X
Varied bunting	<i>Passerina versicolor versicolor</i>				No		X
Neotropic cormorant	<i>Phalacrocorax brasilianus</i>				No		X
Bald eagle	<i>Haliaeetus leucocephalus alascanus</i>				No		X
Peregrine falcon	<i>Falco peregrinus anatum</i>				No		X
Arctic peregrine falcon	<i>Falco peregrinus tundrius</i>				No		X
Broad-billed hummingbird	<i>Cynanthus latirostris magicus</i>				No		X
Costa's hummingbird	<i>Calypte costae</i>				No		X
Lucifer hummingbird	<i>Colothorax Lucifer</i>				No		X
Violet-crowned hummingbird	<i>Amazilia violiceps ellioti</i>				No		X
White-eared hummingbird	<i>Hylocharis leucotis borealis</i>				No		X
Yellow-eyed junco	<i>Junco phaeonotus palliatus</i>				No		X
Whiskered screech-owl	<i>Megascops trichopsis asperus</i>				No		X
Baird's sparrow	<i>Ammodramus bairdii</i>				No		X
Abert's towhee	<i>Melospiza aberti aberti</i>				No		X
Gould's wild turkey	<i>Meleagris gallopavo mexicana</i>				No		X
Bell's vireo	<i>Vireo bellii arizonae; medius</i>				No		X
Gray vireo	<i>Vireo vicinior</i>				No		X
Gila woodpecker	<i>Melanerpes uropygialis uropygialis</i>				No		X
Mammals							
Black-footed ferret	<i>Mustela nigripes</i>	X			No		
Mexican gray wolf	<i>Canis lupus baileyi</i>	X			No	X	
Mexican long-nosed bat	<i>Leptonycteris nivalis</i>	X			No	X	
Lesser long-nosed bat	<i>Leptonycteris curasoae yerbabuena</i>	X			No		X
Jaguar	<i>Panthera onca arizonensis</i>	X			No		
Arizona shrew	<i>Sorex arizonae</i>				No	X	
Arizona montane vole	<i>Microtus montanus arizonensis</i>				No	X	
Spotted bat	<i>Euderma maculatum</i>				No		X
Western yellow bat	<i>Lasiurus xanthinus</i>				No		X
Southern pocket gopher	<i>Thomomys umbrinus emotus</i>				No		X
White-sided jack rabbit	<i>Lepus callotis gaillardi</i>				No		X
Invertebrates							
Hacheta Grande woodland snail	<i>Ashmunella hebardi</i>				No		X
Shortneck snaggletooth snail	<i>Gastrocopta dalliana dalliana</i>				No		X
Mineral Creek mountainsnail	<i>Oreohelix pilsbryi</i>				No		X
New Mexico hot springsnail	<i>Pyrgulopsis thermalis</i>				No		X
Gila Springsnail	<i>Pyrgulopsis gilae</i>				No		X
Plants							
Todsen's pennyroyal	<i>Hedeoma todsenii Irving</i>	X			No		
Zuni fleabane	<i>Erigeron rhizomatus</i>		X		No		

The USFWS Critical Habitat Portal (<http://criticalhabitat.fws.gov/crithab/>) was accessed on January 10, 2013 to obtain geospatial data on federally designated critical habitat areas in Grant, Hidalgo, Catron, and Sierra Counties, New Mexico. The geospatial data that was obtained is not yet clipped to the above counties but rather depicts the entirety of the critical habitat designated areas for the following species and are provided in several coordinate systems and datums:

- Gila chub (*Gila intermedia*)
- Loach minnow (*Tiaroga cobitis*)
- New Mexico ridgenose rattlesnake (*Crotalus willardi obscurus*)
- Spikedace (*Meda fulgida*)
- Mexican spotted owl (*Strix occidentalis lucida*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Todsens's pennyroyal (*Hedeoma todsenii*)

Data Quality – Data, assessments, and conclusions are based solely on the work of the staff of the USFWS and NMDFG. The information presented for these species have legal status under the respective federal and state legislation authorizing these agencies to list species. As such, we have not assessed the quality of the information presented in the various reports and data sources.

4.0 Fishes

Tetra Tech obtained MSB fisheries data through the courtesy of Dr. Tom Turner, Curator of Fishes. Other fisheries data came via Arctos for the WNMU collection database, plus data were obtained from USFWS field studies as included within the NMED database, and from various reports from the New Mexico Department of Game and Fish (Propst et al. 2008, Propst et al. 2009, Paroz et al. 2010). Although a formal request has been submitted, fisheries collection data from the NMDGF have not been obtained. In addition to these key sources, supplemental information on life history and spawning habitats for select fish species came from Sublette et al. (1990), as well as from the literature on listed fish species noted in the previous sections.

For the combined datasets, there are 38 species of fish (1,957 records) with sample dates ranging from 1943-2010. The MSB database includes fish counts for the included sampling events whereas WNMU did not – ostensibly the WNMU database includes voucher species collections only. Paroz et al. (2010) contains information from NMDGF fish studies, including number of fish collected by species from specific sampling

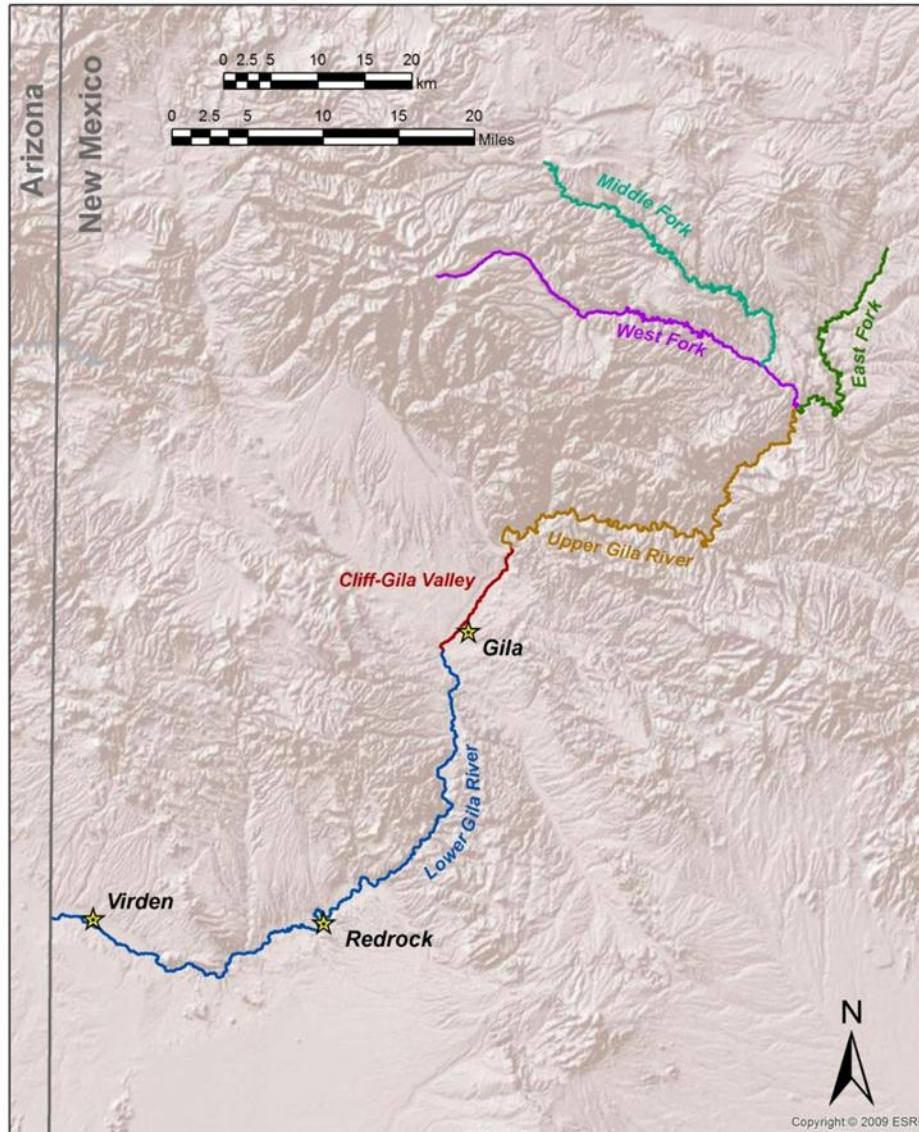
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locations and dates from 2005 to 2008 for the West, Middle, and East Forks of the Gila River. The USFWS dataset includes information on number of fish collected by species and sampling date, and Gila trout stocking records during 2011, all at geospatially defined locations. Propst et al. (2009) present additional summary information from NMDGF on whether individual fish species were captured (i.e., presence/absence information) from 1988 to 2008 at five locations along the Gila River system; they also provide summary information by year for the five locations on total fish captured, area sampled, percent and density of both native and nonnative fish in the collections, as well as other summary information. In addition, most of the data summarized in that report was additionally analyzed in a separate report (Propst et. al. 2008).

The compiled data have particular value for assessing historic distributions and abundances. This is based on the fact that fish are relatively mobile animals and their abundances are heavily influenced by environmental conditions. Considering general river reaches, rather than specific locations where fish are captured provides adequate and key information because, due to their mobility, fish assemblages captured at a site or short river reach at one time may not accurately represent the assemblage there the next day, season, or year. Instead, captures from multiple locations within a definable reach over time provide often a more reasonable, if not more accurate, representation of the dynamic fish assemblage that could be expected for that reach, when habitat conditions in the reach remain relatively similar across the sampling intervals considered. As such, based on the data available for this study, we have compiled the data in a manner to assess if or how fish assemblages, their distributions and relative abundances, in larger reaches of the Gila River system might have changed over time. Even presence/absence style data, such as represented in the WNMU dataset, can be valuable for such assessments. Using this approach should define trends in the fish assemblages and later studies could focus on comparing these trend differences in relation to physical conditions in the reach, especially hydrographic, hydraulic, and other potentially available habitat information, to define why the trend differences occurred in the data for the fish community.

In compiling the data we assigned the collection locations (represented as coordinates and/or narrative locations in the original data) from each source a code for one of the five major subreaches (e.g., West Fork Gila River, Cliff-Gila Valley, etc.) to indicate capture location (Fig. 4.1). This allows summarization by subreach to help produce a framework for better understanding the spatial distribution of fish species over time. Data were then compiled from all datasets into a single table showing whether the species had been collected from the reach within the last ten years. This provides general indicators of the historical distribution of the species within the Gila River system, how this distribution

changed into the most recent decade, and relative abundance of the species through periods of sampling (Table 4.1).



Designated Subreaches of the Gila River System

Figure 4.1 Designated subreaches of the Gila River system.

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Table 4.1. Summary of fish collected from the Gila Watershed*

Scientific Name	Common Name	TSN	West Fork Gila River & Tributaries	Middle Fork Gila River & Tributaries	East Fork Gila River & Tributaries	Upper Gila River & Tributaries	Gila River, Cliff-Gila Valley & Tributaries	Lower Gila River & Tributaries	Total Count MSB	Total Count Paroz et al. 2010
NATIVE SPECIES										
Federal & NM Endangered Listings										
<i>Gila intermedia</i>	Gila Chub	163560		2					2	
<i>Meda fulgida</i>	Spike dace	163583	<u>541//119/18x/878</u>	366//0/8x	452//0/6x	258	<u>1114/ 2x</u>	<u>6092/ 26x//19x</u>	8823	119
<i>Rhinichthys cobitis</i>	Loach Minnow	163388	<u>121/12x/99</u>	238//11x	105	30/ 1x	<u>314/ 4x</u>	<u>858/ 15x//19x</u>	1666	
<i>(synonym: Tiaroga cobitis)</i>										
Federal & NM Threatened Listings										
<i>Oncorhynchus gilae</i>	Gila Trout	161985	<u>31///223</u>		<u>///616</u>			15	46	
Federal Candidate & NM Endangered Listings										
<i>Gila nigra</i>	Headwater Chub	689138	<u>//161/10x/105</u>	<u>34//51/16x</u>	<u>//12/18x</u>				34	224
<i>Gila robusta</i>	Roundtail Chub	163558	10	64	49	84	18	70//1x	295	
Other Native Species										
<i>Agosia chrysogaster</i>	Longfin Dace	163533	<u>957//4/19x/>2000</u>	<u>659//0/10x</u>	<u>703//0/14x/>500</u>	78/ 2x	<u>968/ 9x</u>	<u>14750/ 31x//20x</u>	18115	4
<i>Catostomus insignis</i>	Sonora Sucker	163905	<u>1083/ 1x/592/19x/1590</u>	<u>568//452/17x</u>	<u>1564/ 1x/186/20x/156</u>	<u>393/ 2x</u>	<u>2428/ 11x</u>	<u>9804/ 28x//20x</u>	15840	1230
<i>(synonym: Pantosteus insignis)</i>										
<i>Catostomus clarkii</i>	Desert Sucker	163901	<u>828//310/20x/805</u>	<u>387//215/20x</u>	<u>2120/ 1x/72/20x</u>	97	<u>2017/ 7x</u>	<u>5616/ 17x//20x</u>	11065	597
<i>(synonym: Pantosteus clarkii)</i>										
<i>Rhinichthys osculus</i>	Speckled Dace	163387	<u>2029//605/20x/941</u>	<u>1217//43610x</u>	<u>48//0/4x/>700</u>	3/ 1x	2	4/ 1x	3303	1041
NON-NATIVE SPECIES										
<i>Ameiurus melas</i>	Black Bullhead	164039	4//0	40//7	14//0	24	<u>1x</u>	7//1x	89	7
<i>Ameiurus natalis</i>	Yellow Bullhead	164041	<u>100//56/24/4x/142</u>	<u>259/ 1x/11/21x</u>	<u>40//21/6x</u>	26	<u>12/ 4x</u>	<u>44/ 5x//1x</u>	481	56
<i>Catostomidae Family</i>										
<i>Catostomus commersonii</i>	White Sucker	163892			323				323	
<i>Cottus bairdii</i>	Mottled Sculpin	553273			16			16	32	
<i>Cyprinella lutrensis</i>	Red Shiner	167237			1			1	1	
<i>Cyprinus carpio</i>	Common Carp	163792	1			70/ 1x	<u>2/ 6x</u>	<u>10931/ 7x//10x</u>	11004	
<i>Dorosoma cepedianum</i>	Gizzard Shad	163344					<u>1/ 6x</u>	80/ 5x//2x	81	
<i>Fundulus grandis</i>	Gulf Killifish	161737			147				147	
<i>Gambusia affinis</i>	Western Mosquito Fish	165651			1				1	
<i>Ictalurus chihuahuensis</i>	Chihuahuensis Catfish	165878	<u>42//0/3x/6</u>	<u>187//0/11x</u>	<u>635//3/18x</u>	7/ 1x	<u>1643/ 10x</u>	<u>2268/ 8x//15x</u>	4782	3
<i>Ictalurus lupus</i>	Headwater Catfish	163996			<u>14//1/0x</u>				14	
<i>Ictalurus punctatus</i>	Channel Catfish	164001			1		1		2	
<i>Ictalurus sp.</i>	Catfish	163998			<u>36//2x</u>	<u>16</u>	<u>2/3x</u>	<u>1078</u>	1132	
<i>Lepomis cyanellus</i>	Green Sunfish	163996			9				9	
<i>Lepomis macrochirus</i>	Bluegill	168132	<u>3//0/3</u>	<u>2//23/4x</u>	<u>9//4/4x</u>	<u>2/ 2x</u>	<u>25/ 6x</u>	26/ 1x/2x	67	27
<i>Lepomis megalobis</i>	Longear Sunfish	168141		<u>///1x</u>		8		156/ 2x	164	
<i>Menidia beryllina</i>	Inland Silverside	168153				5			5	
<i>Micropterus dolomieu</i>	Smallmouth Bass	165993			39	127			166	
<i>Micropterus punctulatus</i>	Spotted Bass	550562	<u>12//16/7x/37</u>	<u>128/ 1x/3/21x</u>	<u>80//2/16x</u>	18	<u>7/ 8x</u>	<u>32/ 3x//5x</u>	277	58
<i>Micropterus salmoides</i>	Largemouth Bass	168161			6		<u>3x</u>		6	
<i>Nattemigonus crysoleucas</i>	Golden Shiner	168160	3	1	<u>5//3x</u>	7	8	77//3x	101	
<i>Oncorhynchus gilae X mykiss</i>	Gila-Rainbow Trout Hybrid	163368						1x	0	
<i>Oncorhynchus mykiss</i>	Rainbow Trout		<u>///533</u>							
<i>Oncorhynchus sp.</i>	Trout	161989	<u>55//96/15x/51</u>	<u>9//85</u>	<u>1//2</u>	<u>1x</u>	1		66	183
<i>Pimephales promelas</i>	Fathead Minnow	161974	14	<u>///6x</u>					14	
<i>Pylodictis olivaris</i>	Flathead Catfish	163517	<u>9//1</u>	<u>8//0/3x</u>	45//0/4x	2x	115	<u>462/ 1x//3x</u>	639	1
<i>Salmo trutta</i>	Brown Trout	164029			<u>//4</u>	3	<u>2/ 6x</u>	<u>63/ 2x//3x</u>	68	4
		161997	<u>17//134/15x</u>	<u>10//46/6x</u>	<u>3//5//164</u>				30	185
Total Number of Species Collected			21	20	26	23	21	22		
Total Count Paroz et al. 2010			2062	1329	348					3396
Total Count MSB			5860	4179	6458	1262	8680	52450	78890	

* Includes data from one to three sources separated by one or two slashes (/): The number before the first slash, or if only one number, represents the number of individuals for the species in the reach included in the Museum of Southwestern Biology database from collections completed from 1943 through 2009; number after the first slash and followed by an "x" represents the number of times this species was collected in the reach from 1962 through 2010 as indicated in the Western New Mexico University database; and number of after the second slash is the number of individuals collected in the reach by Paroz et al. (2010) Gila River headwater tributary study from 2005 through 2008; number after third slash with "x" is the number of years between 1988 and 2008 individuals were captures within the reach as reported by Propst et al. (2009); number after fourth slash is the number of captures in 2011 included in the USFWS capture records for 2011 (excluding their Upper and Lower Box sites for the Gila River; and number cells having entries in bold with underlining indicate the species was captured in the reach after 2003 in any of three datasets.

Date Quality - For most of the fish collection data compiled we have only general information on collection location and information on collection methods is lacking. Some available data lack abundance information. We do assume that the fish data were collected by or under the direction of qualified and experienced fisheries biologists. We must also assume that the collections were completed primarily using seines and/or electroshocking; while the technologies for electroshocking has changed over the years, the influences of these changes have not changed the fundamental collection techniques nor markedly altered relative capture efficiencies for this fishing gear. Seining techniques have had minimal technological and procedural changes. As such, we do not consider information gaps on collection methods to be a critical limitation preventing the combined assessment of these data to obtain valuable information on the historic distribution of fish species in the Gila River System or changes in their relative abundances over time. Data collected especially over the past 10 years also have an added value regarding the estimation of ecohydrological relationships.

5.0 Mammals

The combined MSB and WNMU list for mammals contains 225 species contained in 12,889 separate records, collected from 1912-2012 (Appendix Table A-1). Many of these records do not have coordinate data (only having narrative locational descriptions). These data were compiled and initially processed under the original intent to develop geodatabases to aid in the assessment of potential AWSA projects over the Gila River watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since these data do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued.

6.0 Avifauna

The combined MSB and WNMU list for birds contains 339 species contained in 2,498 separate records, collected from 1875-2011. As above, a substantial number of records do not have coordinate data. Table A-2 in the appendix provides a list of these species. These data were compiled and initially processed under the original intent to develop related information to aid in the assessment of potential AWSA projects over the watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since these data do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued.

7.0 Vegetation Communities

Only limited data is available on vegetation communities for the Gila River watershed, as summarized in the following.

7.1 Wetland and Riparian Vegetation

Currently, the compiled data includes information from Dr. Kelly Kindscher, Senior Scientist, Kansas Biological Survey, that provides locations of some wetland and riparian vegetation surveys performed in 2006 and a short publication (Kindscher et al. 2010) on wetlands along the Gila River. The 2006 data has no information on species present during the surveys. Kindscher et al. (2010) does have summary information of the 2007 surveys and is summarized by average percent cover over a number of sites (divided into upstream and downstream reaches) but no spatial account on a site-by-site basis.

Course-resolution geospatial vegetation data has been obtained from the New Mexico Resource Geographic Information System Program (RGIS; <http://rgis.unm.edu/>). These data, however, are general associations (montane grassland, coniferous woodland, juniper savannah, etc.). This dataset includes only the State of New Mexico and is provided in GCS WGS84. RGIS has other datasets that may be useful but are also course resolution and have not been downloaded. Other course-level data exists (e.g. USEPA Ecoregions) but these too do not add detail beyond that included in the RGIS dataset(s).

These data were compiled and initially processed under the original intent to develop related information to aid in the assessment of potential AWSA projects over the watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since these data do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued.

7.2 Noxious Weeds and Invasive Plants

The USDA NRCS Plants Database (<http://plants.usda.gov/java/>) was accessed on Jan. 10, 2013 for a listing of noxious and invasive plants for New Mexico. Unfortunately, there is no way to limit the search by county. The list returned 32 species as follows:

- Russian knapweed (*Acroptilon repens*)
- Jointed goatgrass (*Aegilops cylindrical*)
- Camelthorn (*Alhagi maurorum*)
- Onionweed (*Asphodelus fistulosus*)

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- Hoary cress (*Cardaria draba*)
- Musk thistle (*Carduus nutans*)
- Purple starthistle (*Centaurea calcitrapa*)
- Diffuse knapweed (*Centaurea diffusa*)
- Malta starthistle (*Centaurea melitensis*)
- Yellow starthistle (*Centaurea solstitialis*)
- Spotted knapweed (*Centaurea stoebe*)
- Canada thistle (*Cirsium arvense*)
- Bull thistle (*Cirsium vulgare*)
- Poison hemlock (*Conium maculatum*)
- Field bindweed (*Convolvulus arvensis*)
- Teasel (*Dipsacus fullonum*)
- Alfombrilla (*Drymaria arenarioides*)
- Russian olive (*Elaeagnus angustifolia*)
- Leafy spurge (*Euphorbia esula*)
- Halogeton (*Halogeton glomeratus*)
- Waterhyme (*Hydrilla verticillata*)
- Black henbane (*Hyoscyamus niger*)
- Dyer's woad (*Isatis tinctoria*)
- Perennial pepperweed (*Lepidium latifolium*)
- Dalmatian toadflax (*Linaria dalmatica*)
- Yellow toadflax (*Linaria vulgaris*)
- Purple loosestrife (*Lythrum salicaria*)
- Eurasian watermilfoil (*Myriophyllum spicatum*)
- Scotch thistle (*Onopordum acanthium*)
- African rue (*Peganum harmala*)
- Saltcedar (*Tamarix spp.*)

- Siberian elm (*Ulmus pumila*)

These data were compiled and initially processed under the original intent to develop related to aid in the assessment of potential AWSA projects over the watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since these data do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued.

8.0 New Mexico Environment Department

We obtained a variety of data from the New Mexico Environment Department for the Gila Watershed for future analysis and establishing certain ecohydrology relationships. These data include:

- Fisheries data originating from the USFWS (these data are included and characterized in Section 4.0)
- Macroinvertebrate survey data (1990-2007)
- Periphyton (a complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus; 2005-2008)
- Diatoms (a major group of algae – largely unicellular but can exist as colonies; 2004-2008)
- Water quality and chemical data (Gila River, Lake Roberts, and Snow Lake; some early data from the National Park Service in 1976, most of these data are from the early 1990s-2011)

Data Quality – In particular, besides the fish data discussed above, the macroinvertebrate, periphyton, and water quality data appear to be well suited to aid in the characterization of fundamental aquatic processes within a stream. Further, certain indices (e.g. derived from macroinvertebrates) are useful for assessing stream health and function, and can provide a foundation for establishing ecohydrological for this group in the Gila River system. Lastly, these organisms and physical characteristics typically display rapid responses to environmental change and are thus key indicators – knowledge about the natural abundance, distribution, and temporal/seasonal fluctuations can readily indicate alterations in aquatic ecosystem form and function and responses to positive or negative disturbance regimes.

As similarly characterized for the fish data, we assume that the samples and data for macroinvertebrates, periphyton, and water quality described below were collected by or

under the direct supervision of staff qualified to undertake collection of these data. We also assume that the analyses of these samples were completed using the appropriate standards for collection and analysis, as well as for the processing and managing of the data. As such, we assume the quality of the data is appropriate for additional analyses to define ecohydrological relationships in the Gila River system. We anticipate, however, that additional quality control measures will be necessary when investigations of the Gila River ecohydrology are begun.

8.1 Macroinvertebrates, Diatoms, and Periphyton

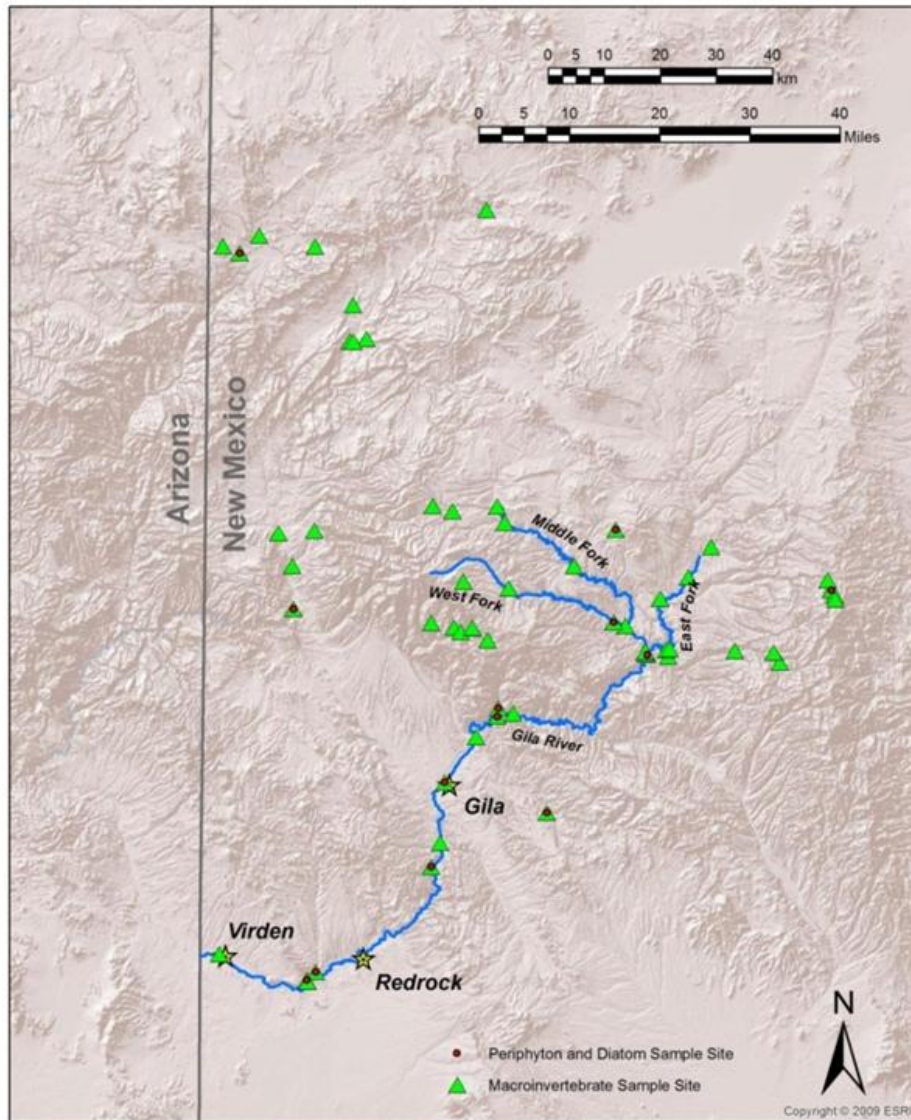
Macroinvertebrates, diatoms and periphyton are all important indicators of environmental conditions. NMED data for these groups were acquired for potential ecohydrological analyses.

Figure 8.1 shows all periphyton/diatom and macroinvertebrate sample sites. NMED sampling site information and species lists are provided in Appendix A:

- Table A-3 – Macroinvertebrate sampling dates for each sampling station
- Table A-4 – Macroinvertebrate taxon list from NMED – 1990-2007
- Table A-5 – NMED periphyton and diatom sampling locations and dates
- Table A-6 – Diatom taxon list – 2004-2008
- Table A-7 – Periphyton taxon list – 2005-2008

Data Quality – Macroinvertebrate sample collection locations are generally well represented spatially (Table A-3). Collection sites included the East, Middle, and West Forks of the Gila River; the confluence areas below the East, Middle, and West Forks; the Gila mainstem above the Cliff-Gila Valley, near Mogollon and Turkey Creeks; and downstream of the Cliff-Gila Valley from the Bird Area to the NM-AZ state line.

Temporally, the data are less resolved. Three East Fork stations (77EFkGil000.1, 77EFkGil000.2, and 77EFkGil000.5) can all be considered a single sample station, giving the East Fork Gila River fairly good temporal coverage near the confluence with the mainstem Gila River; one year includes spring, summer, and fall samples, one year includes spring and fall samples, one year includes summer and fall samples, and two years that include only spring samples. Unfortunately, all of years that include multiple seasons were in the 1990s and there are two years from the 2000s with samples collected in the fall. Upstream stations on the East Fork Gila River reflect the same general temporal distribution as the lower East Fork stations, with data representing multiple seasons being from the 1990s and collections from the 2000s being fall data only.



Periphyton, Diatom, and Macroinvertebrate Sampling Sites

Figure 8.1 Periphyton, diatom, and macroinvertebrate sample sites (Gila and San Francisco Basins).

Stations in the Middle Fork Gila River (77MFkGil000.5, 77MFkGil028.3, 77MFkGil054.8, and 77MFkGil055.0) have seasonal data that are much sparser. All sampling occurred in the late summer and fall with the most recent collection being made in 2000 and the most recent collection in the area near the confluence with the mainstem Gila River being made in 1999.

The stations in the West Fork Gila River (77WFkGil000.3, 77WFkGil010.0, and 77WFkGil038.1) share the pattern of the East Fork Gila River with all data being collected in late summer and fall. One station (77WFkGil010.0) includes a series of data collections from the fall of 2004, 2005, 2006, and 2007. Unfortunately, the most recent collection in the area near the confluence was made in the summer of 1992.

Gila River stations have data that were collected in the fall of 2004 and 2005 (77GilaRi088.0) and the fall of 2000 (77GilaRi092.0). Most lower mainstem Gila River stations (78GilaRi003.5, 78GilaRi025.5, 78GilaRi026.1, 78GilaRi052.6, 78GilaRi069.2, 78GilaRi074.8, and 78GilaR087.7) all have data collected during more recent years. One of these, however, (78GilaRi003.5) was most recently sampled in the summer of 1992. The rest of the lower mainstem Gila River stations were sampled in either the summer or fall but not multiple seasons during the 2000s.

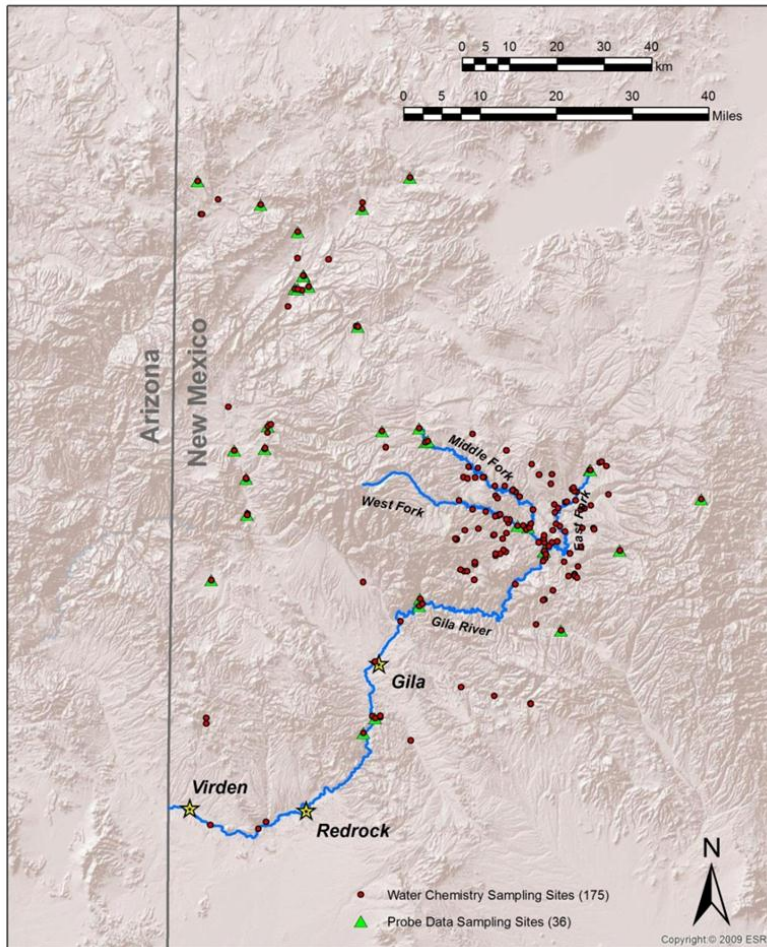
A number of minor tributary streams have also been sampled, with some having better temporal resolution than others. The spatial distribution of the tributary sampling sites is fair and provides some basis for understanding headwater macroinvertebrate populations. Table 3.7 also contains data for the San Francisco Basin.

Collection locations having periphyton data are listed in Table A-7 (Appendix A). The East and West Fork Gila River each have one station where periphyton was collected; the East Fork station (77EFkGil000.2) was sampled only in the of Fall 2004 and the West Fork site (77WFkGil010.0) was sampled in the Fall of 2004-2007. A single station in the upper Gila River mainstem (77GilaRi088.0) was sampled in the Fall of 2004 and 2005. One station in the Cliff-Gila Valley at the Hwy 211 bridge crossing (78GilaR087.7) was sampled in 2007. The two lower mainstem Gila River stations (78GilaRi025.5 and 78GilaRi069.2) were sampled in 2007 and 2004-2007, respectively. In all, periphyton sampling lacks spatial and temporal resolution.

Diatom data are not summarized here, as we do not intend to use these data in any future analyses.

8.2 Water Quality

Tetra Tech obtained water chemistry sampling and analysis data from NMED for the Gila and San Francisco River basins at 175 sites from 1976 to 2011 (Fig. 8.2). Ninety-seven water quality quality monitoring sites were located around the confluence of the East, Middle, and West Forks with the mainstem of the Gila River were sampled by the National Park Service from April to June 1976 and are included within many of the red points shown in Figure 8.2. Water chemistry sampling by the NMED started again in 1998 and continued through 2011. Water quality probe and field data were also obtained from NMED at 36 sites within the Gila and San Francisco Watersheds from March to October 2011 (Fig. 8.2). The measurements taken were discharge, dissolved oxygen, dissolved oxygen saturation, flow condition, pH, salinity specific conductance, temperature, and turbidity.



Water Quality, Nutrient, and Contaminant Sampling Sites

Figure 8.2 Water quality, nutrient, and contaminant sampling sites (Gila and San Francisco Basins).

Two lakes in the Gila Watershed, Lake Roberts and Snow Lake, were also sampled from March to October 2011. Water quality data has both chemical (i.e. nutrients, metals, VOCs, and other contaminants) analyzed through laboratory analysis and some field data (chlorophyll, turbidity, etc.). The chemical constituents that were sampled in 2011 at each location are listed in Table A-11. Additionally, probe and field data included chlorine, chlorophyll, cloud cover, depth to bottom, secchi depth, Forel Ule Color, integrated sample surface, light attenuation depth at 99%, reservoir volume, surface area, turbidity, wind direction, and wind velocity. This information can provide potential insight, if necessary, regarding expected water quality conditions for any retention reservoirs that may be proposed or developed on consideration of AWSA alternatives.

These water quality data are compiled and provided on the digital media included with this report. Four Appendix tables at the end of this report summarize the nature of the data included with these data sets:

- Table A-8 – Number of sample events by site for the Gila and San Francisco Watersheds
- Table A-9 – Years that samples were collected at the Gila and San Francisco river sampling sites
- Table A-10 – Analytes assessed and number of times sampled for the Gila and San Francisco rivers
- Table A-11 – Analytes assessed for Lake Roberts and Snow Lake

9.0 National Wetlands Inventory

Geospatial data for the 2012 USFWS National Wetlands Inventory (NWI) was downloaded from the NWI website (<http://www.fws.gov/wetlands/>) and mosaicked into two seamless datasets (wetlands and riparian areas) for the southwest New Mexico region. These data are provided in New Mexico State Plane West, NAD83. NWI metadata describes the dataset as follows:

The present goal of the Service is to provide the citizens of the United States and its Trust Territories with current geospatially referenced information on the status, extent, characteristics and functions of wetlands, riparian, deepwater and related aquatic habitats in priority areas to promote the understanding and conservation of these resources.

This data set represents the extent, approximate location and type of wetlands and deepwater habitats in the conterminous United States. These data delineate the areal extent of wetlands and surface waters as defined by Cowardin et al. (1979).... By policy, the Service also excludes certain types of "farmed wetlands" as may be defined by the Food Security Act or that do not coincide with the Cowardin et al. definition.

These data were compiled and initially processed under the original intent to develop related information to aid in the assessment of potential AWSA projects over the watershed related to any potential AWSA project, not just those within the Cliff-Gila Valley. Since these data do not directly relate to the establishment of ecohydrological relationships, processing, and consideration of these data has not continued.

10.0 References

- Arctos Database, University of New Mexico, Museum of Southwestern Biology:
<http://arctos.database.museum/SpecimenSearch.cfm>; accessed on Jan. - Apr., 2013.
- BISON-M, New Mexico Department of Game and Fish: <http://www.bison-m.org/>;
accessed Jan. 10, 2013.
- Bunn, S.E., and A.H. Arthington. 2002. Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. *Environmental Management* 30:492-507.
- Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page:
<http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm> (Version 04DEC98).
- Interagency Taxonomic Information System. <http://www.itis.gov/info.html>. Accessed Mar.-Apr., 2013.
- Kindscher, K, Q. Long, and H. Loring. 2010. Wetlands along the Gila River in Southwestern New Mexico. *The New Mexico Botanist*, Special Issue no. 2; 116-121.
- Lundqvist, J. 1998. Avert looming hydrocide. *Ambio* 27:428– 433.
- Naiman, R. J., J. J. Magnuson, D. M. McKnight, and J. A. Stanford. 1995. *The freshwater imperative: A research agenda*. Island Press, Washington, DC, 165 pp.
- Naiman, R. J., S. E. Bunn, C. Nilsson, G. E. Petts, G. Pinay, and L. C. Thompson. 2002. Legitimizing fluvial ecosystems as users of water: an overview. *Environmental Management* 30:455–467.
- Paroz, Y., J. Monzingo, and D. Propst. 2010. Ichthyofaunal inventory of the East, Middle, and West Forks Gila River. New Mexico Department of Game and Fish and Gila National Forest. Gila River Basin Native Fishes Conservation Program, Report No. 1, 33 pp.
- Poff, N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The natural flow regime. *BioScience* 47:769-784.

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- Poff, N.L., J.D. Olden, D.M. Merritt, and D.M. Pepin. 2007. Homogenization of regional river dynamics by dams and global biodiversity implications. *Proceedings of the National Academy of Sciences* 104 (14):5732-5737.
- Propst, D.L., K.B. Gido, and J.A. Stefferud. 2008. Natural flow regimes, nonnative fishes, and native fish persistence in arid-land river systems. *Ecological Applications* 18(5):1236-12-52.
- Propst, D.L., Y.M. Paroz, S.M. Carman, and N.D. Zymonas. 2009. Systematic Investigations of Warmwater Fish Communities. FW-17-R_36. Performance Report, 1 July 2008 - 30 June 2009. Conservation Services Diversion, New Mexico Department of Game and Fish, Santa Fe, New Mexico.
- RGIS. Earth Data Analysis Center, New Mexico Resource Geographic Information System Program: <http://rgis.unm.edu/>; accessed Dec. 2012 and Jan. 2013.
- Sparks, R. E. 1995. Need for ecosystem management of large rivers and floodplains. *BioScience* 45:168–182.
- Sublette, J.E., M.D. Hatch, and M. Sublette. 1990. *The Fishes of New Mexico*. University of New Mexico Press, Albuquerque, New Mexico.
- Tetra Tech. 2013. Defining Gila Watershed hydrologic, aquatic, and riparian baseline conditions, summary of existing and relevant watershed data. Prepared for the New Mexico Interstate Stream Commission, Task 1a under Contract No. 14061, Work Order GR-13-1, 40 pp.
- Turner, T. Personal communication. Dec. 18, 2012.
- Ward, J. V., K. Tockner, and F. Schiemer. 1999. Biodiversity of floodplain ecosystems: Ecotones and connectivity. *Regulated Rivers: Research and Management* 15:125–139.
- USDA NRCS. U.S. Department of Agriculture, Natural Resource Conservation Service, Plants Database: <http://plants.usda.gov/java/>; accessed Jan. 10, 2013.

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Appendix Tables

Table A-1. MSB and WNMU species list for mammals.

Albert's Squirrel

Sciurus aberti

Albert's Squirrel (subspecies)

Sciurus aberti aberti

Allan's Big-eared Bat

Idionycteris phyllotis

Alpine Ibex

Capra ibex

American Badger

Taxidea taxus

American Beaver

Castor canadensis

American Black Bear

Ursus americanus

American Hog-nosed Skunk

Conepatus leuconotus

American Hog-nosed Skunk (subspecies)

Conepatus leuconotus leuconotus

Animas Southern Pocket Gopher

Thomomys umbrinus emtous

Apache Pocket Mouse

Perognathus flavescens melanotis

Arizona Cotton Rat (subspecies)

Sigmodon arizonae cienegae

Arizona Black-tailed Prairie Dog

Cynomys ludovicianus

Arizona Gray Squirrel

Sciurus arizonensis

Arizona Grey Squirrel

Sciurus arizonensis arizonensis

Arizona Montane Vole

Microtus montanus arizonensis

Arizona Myotis

Myotis occultus

Arizona Shrew

Sorex arizonae

Bailey's Pocket Mouse

Chaetodipus baileyi

Table A-1. (cont.)

Bailey's Pocket Mouse (subspecies)

Chaetodipus baileyi baileyi

Banner-tailed Kangaroo Rat

Dipodomys spectabilis

Banner-tailed Kangaroo Rat (subspecies)

Dipodomys spectabilis baileyi

Dipodomys spectabilis spectabilis

Bear sp.

Ursus sp.

Big Brown Bat

Eptesicus fuscus

Big Brown Bat (subspecies)

Eptesicus fuscus fuscus

Eptesicus fuscus pallidus

Big Brown Bat sp.

Eptesicus sp.

Big Free-tailed Bat

Nyctinomops macrotis

Bighorn Sheep

Ovis canadensis

Black-tailed Jackrabbit

Lepus californicus

Black-tailed Jackrabbit (subspecies)

Lepus californicus texianus

Bobcat

Lynx rufus

Bobcat (subspecies)

Lynx rufus baileyi

Botta's Pocket Gopher

Thomomys bottae

Botta's Pocket Gopher (subspecies)

Thomomys bottae alienus

Thomomys bottae fulvus

Brazilian Free-tailed Bat

Tadarida brasiliensis

Brazilian Free-tailed Bat (subspecies Mexican Free

Tadarida brasiliensis mexicana

Brush Mouse

Peromyscus boylii

Table A-1. (cont.)

Brush Mouse (subspecies)

Peromyscus boylii rowleyi

Cactus Mouse

Peromyscus eremicus

Cactus Mouse (subspecies)

Peromyscus eremicus anthonyi

California Myotis

Myotis californicus

California Myotis (subspecies)

Myotis californicus californicus

Cave Myotis

Myotis velifer

Cave Myotis (subspecies)

Myotis velifer brevis

Chihuahuan Pocket Mouse

Chaetodipus eremicus

Chipmunk sp.

Tamias

Tamias sp.

Cliff Chipmunk

Tamias dorsalis

Cliff Chipmunk (subspecies)

Tamias dorsalis dorsalis

Collared Peccary

Pecari tajacu

Tayassu tajacu

Collared Peccary (subspecies)

Pecari tajacu sonoriensis

Common Gray Fox

Urocyon cinereoargenteus

Common Gray Fox (subspecies)

Urocyon cinereoargenteus scottii

Common Porcupine

Erethizon dorsatum

Common Porcupine (subspecies)

Erethizon dorsatum couesi

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Table A-1. (cont.)

Cotton Rat sp.

Sigmodon

Sigmodon sp.

Cottontail Rabbit

Sylvilagus

Cottontail Rabbit sp.

Sylvilagus sp.

Coues' White-tailed Deer

Odocoileus virginianus couesi

Coyote

Canis latrans

Coyote (subspecies)

Canis latrans mearnsi

Coypu

Myocastor coypus

Deer Mouse

Peromyscus maniculatus

Deer Mouse (subspecies)

Peromyscus maniculatus blandus

Peromyscus maniculatus gambelli

Peromyscus maniculatus rufinus

Peromyscus maniculatus sonoriensis

Deer Mouse sp.

Peromyscus sp.

Deer Mouse/White-footed Mouse sp.

Peromyscus

Desert Bighorn Sheep

Ovis canadensis mexicana

Desert Cottontail

Sylvilagus audubonii

Desert Cottontail (subspecies)

Sylvilagus audubonii cedrophilus

Sylvilagus audubonii minor

Sylvilagus audubonii warreni

Desert Pocket Mouse

Chaetodipus penicillatus

Desert Pocket Mouse (subspecies)

Chaetodipus penicillatus eremicus

Chaetodipus penicillatus pricei

Table A-1. (cont.)

Desert Shrew sp.

Notiosorex sp.

Eastern Cottontail

Sylvilagus floridanus

Eastern Cottontail (subspecies)

Sylvilagus floridanus holzneri

Eastern Red Bat

Lasiurus borealis

Eastern Spotted Skunk

Spilogale putorius

Elk

Cervus elaphus

Cervus sp.

Fringed Myotis

Myotis thysanodes

Fringed Myotis (subspecies)

Myotis thysanodes thysanodes

Fringed Myotis (subspecies)

Myotis thysanodes thysanodes

Fulvous Harvest Mouse

Reithrodontomys fulvescens

Fulvous Harvest Mouse (subspecies)

Reithrodontomys fulvescens canus

Golden-mantled Ground Squirrel

Spermophilus lateralis

Golden-mantled Ground Squirrel (subspecies)

Spermophilus lateralis arizonensis

Grasshopper Mouse sp.

Onychomys

Onychomys sp.

Gray Shrew

Notiosorex crawfordi

Gray Wolf (subspecies)

Canis lupus baileyi

Gray-collared Chipmunk

Tamias cinereicollis

Table A-1. (cont.)

Grey Shrew (subspecies)

Notiosorex crawfordi crawfordi

Guinea Pig sp.

Cavia sp.

Gunnison's Prairie Dog

Cynomys gunnisoni

Harris' Antelope Squirrel

Ammospermophilus harrisi

Ammospermophilus harrisi harrisi

Harvest Mouse sp.

Reithrodontomys sp.

Hispid Cotton Rat

Sigmodon hispidus

Hispid Cotton Rat (subspecies)

Sigmodon hispidus berlandieri

Hispid Pocket Mouse

Chaetodipus hispidus

Hispid Pocket Mouse (subspecies)

Chaetodipus hispidus paradoxus

Hoary Bat

Lasiurus cinereus

Hoary Bat (subspecies)

Lasiurus cinereus cinereus

Hooded Skunk

Mephitis macroura

Hooded Skunk (subspecies)

Mephitis macroura milleri

Hooded Skunk/Striped Skunk sp.

Mephitis sp.

House Mouse

Mus musculus

Jird sp.

Meriones sp.

Kangaroo Rat sp.

Dipodomys sp.

Kit Fox

Vulpes macrotis

Vulpes macrotis neomexicana

Table A-1. (cont.)

Least Chipmunk

Tamias minimus

Little Brown Myotis

Myotis lucifugus

Long-eared Chipmunk

Tamias quadrivittatus

Long-eared Myotis

Myotis evotis

Long-legged Myotis

Myotis volans

Long-legged Myotis (subspecies)

Myotis volans interior

Long-tailed Vole

Microtus longicaudus

Long-tailed Vole (subspecies)

Microtus longicaudus longicaudus

Long-tailed Weasel

Mustela frenata

Long-tailed Weasel (subspecies)

Mustela frenata neomexicana

Meadow Mice/Voles sp.

Microtus

Microtus sp.

Mearns' grasshopper Mouse

Onychomys arenicola

Mearns' grasshopper Mouse (subspecies)

Onychomys arenicola arenicola

Mearns' Southern Pocket Gopher

Thomomys bottae mearnsi

Merriam's Kangaroo Rat

Dipodomys merriami

Merriam's Kangaroo Rat (subspecies)

Dipodomys merriami merriami

Dipodomys merriami olivaceus

Merriam's Pinyon Mouse

Peromyscus gratus

Merriam's Shrew

Sorex merriami

Table A-1. (cont.)

Mexican Long-Tongued Bat

Choeronycteris mexicana

Mexican Vole

Microtus mexicanus

Mexican Woodrat

Neotoma mexicana

Mexican Woodrat (subspecies)

Neotoma mexicana mexicana

Neotoma mexicana pinetorum

Mogollon Vole

Microtus mexicanus mogollonensis

Microtus mogollonensis

Montane Shrew

Sorex monticolus

Montane Shrew (subspecies)

Sorex monticolus monticolus

Mount Graham Red Squirrel

Tamiasciurus hudsonicus grahamensis

Mountain Lion

Puma concolor

Mountain Lion (subspecies Mexican Cougar)

Puma concolor azteca

Mountain Vole

Microtus montanus

Mouse-eared Bat sp.

Myotis

Mule Deer

Odocoileus hemionus

Muskrat

Ondatra zibethicus

Myotis

Myotis sp.

Northern Pygmy Mouse

Baiomys taylori

Northern Pygmy Mouse (subspecies)

Baiomys taylori ater

Northern Rock Mouse

Peromyscus nasutus

Northern Grasshopper Mouse

Onychomys leucogaster

Table A-1. (cont.)

Nothern Grasshopper Mouse (subspecies)

Onychomys leucogaster ruidosae

Ord's Kangaroo Rat

Dipodomys ordii

Ord's Kangaroo Rat (subspecies)

Dipodomys ordii longipes

Dipodomys ordii ordii

Packrats/Woodrats sp.

Neotoma

Neotoma sp.

Palid Bat

Antrozous pallidus

Palid Bat (subspecies)

Antrozous pallidus pallidus

Pinyon Mouse

Peromyscus truei

Pinyon Mouse (subspecies)

Peromyscus truei gentilis

Peromyscus truei truei

Plains Harvest Mouse

Reithrodontomys montanus

Plains Pocket Gopher

Geomys bursarius

Pocket Mouse/Silky Pocket Mouse sp.

Perognathus sp.

Pocketed Free-tailed Bat

Nyctinomops femorosaccus

Pronghorn

Antilocapra americana

Pronghorn (subspecies)

Antilocapra americana mexicana

Pygmy Mouse sp.

Baiomys sp.

Raccoon

Procyon lotor

Raccoon (subspecies Mexican Raccoon)

Procyon lotor mexicanus

Red Squirrel

Tamiasciurus hudsonicus

Table A-1. (cont.)

Ringtail

Bassariscus astutus

Ringtail (subspecies)

Bassariscus astutus flavus

Rock Pocket Mouse

Chaetodipus intermedius

Rock Pocket Mouse (subspecies)

Chaetodipus intermedius intermedius

Rock Squirrel

Otospermophilus variegatus

Spermophilus variegatus

Rock Squirrel (subspecies)

Spermophilus variegatus grammurus

Silky Pocket Mouse (subspecies)

Perognathus flavus flavus

Silver-haired Bat

Lasionycteris noctivagans

Silver-haired Bat sp.

Lasionycteris sp.

Sliky Pocket Mouse

Perognathus flavus

Small-footed Myotis

Myotis leibii

Smooth-toothed Pocket Gopher sp.

Thomomys

Smoot-toothed Pocket Gopher sp.

Thomomys sp.

South American Coati

Nasua nasua

Southern Grasshopper Mouse

Onychomys torridus

Southern Grasshopper Mouse (subspecies)

Onychomys torridus torridus

Southern Long-nosed Bat (subspecies)

Leptonycteris curasoae sanborni

Southern Plains Woodrat

Neotoma micropus

Southern Pocket Gopher

Thomomys umbrinus

Table A-1. (cont.)

Southern Pocket Gopher (subspecies)

Thomomys umbrinus toltecus

Southern Red-backed Vole

Clethrionomys gapperi

Myodes gapperi

Southern Red-backed Vole (subspecies)

Myodes gapperi limitis

Southern Yellow Bat

Lasiurus ega

Lasiurus xanthinus

Southwestern Myotis

Myotis auriculus

Southwestern Myotis (subspecies)

Myotis auriculus apache

Southwestern Otter

Lontra canadensis sonora

Spotted Bat

Euderma maculatum

Spotted Ground Squirrel

Spermophilus spilosoma

Spotted Ground Squirrel (subspecies)

Spermophilus spilosoma canescens

Spermophilus spilosoma marginatus

Stephens' Woodrat

Neotoma stephensi

Stephens' Woodrat (subspecies)

Neotoma stephensi stephensi

Striped Skunk

Mephitis mephitis

Striped Skunk (subspecies)

Mephitis mephitis estor

Swift Fox

Vulpes velox

Tawny-bellied Cotton Rat

Sigmodon fulviventer

Tawny-bellied Cotton Rat (subspecies)

Sigmodon fulviventer minimus

Thirteen-lined Ground Squirrel

Spermophilus tridecemlineatus

Table A-1. (cont.)

Thirteen-lined Ground Squirrel (subspecies)

Spermophilus tridecemlineatus blanca

Townsend's Big-eared Bat

Corynorhinus townsendii

Plecotus townsendii

Townsend's Big-eared Bat (subspecies)

Corynorhinus townsendii pallescens

Wandering Shrew

Sorex vagrans

Western Small-footed Myotis (subspecies)

Myotis ciliolabrum melanorhinus

Western Bonneted Bat

Eumops perotis

Western Harvest Mouse

Reithrodontomys megalotis

Western Harvest Mouse (subspecies)

Reithrodontomys megalotis aztecus

Reithrodontomys megalotis megalotis

Western Hog-nosed Skunk

Conepatus mesoleucus

Western Pipistrelle

Parastrellus hesperus

Pipistrellus hesperus

Western Pipistrelle (subspecies)

Parastrellus hesperus hesperus

Parastrellus hesperus maximus

Western Red Bat

Lasiurus blossevillii

Western Small-footed Myotis

Myotis ciliolabrum

Myotis subulatus

Western Spotted Skunk (subspecies)

Spilogale gracilis leucoparia

White-footed Mouse

Peromyscus leucopus

White-footed Mouse (subspecies)

Peromyscus leucopus arizonae

Peromyscus leucopus tornillo

White-nosed Coati

Nasua narica

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Table A-1. (cont.)

White-sided Jackrabbit

Lepus callotis

Lepus callotis gaillardi

White-tailed Antelope squirrel

Ammospermophilus leucurus pennipes

White-tailed Deer

Odocoileus virginianus

White-throated Woodrat

Neotoma albigula

White-throated Woodrat (subspecies)

Neotoma albigula albigula

White-toothed woodrat

Neotoma leucodon

Wild Boar

Sus scrofa

Yellow-nosed Cotton Rat

Sigmodon ochrognathus

Yuma Myotis

Myotis yumanensis

Yuma Myotis (subspecies)

Myotis yumanensis yumanensis

Zacatecan Deer Mouse

Peromyscus difficilis

Table A-2. MSB and WNMU species list for birds.

Acorn Woodpecker

Melanerpes formicivorus

Albert's Towhee

Pipilo aberti

American Avocet

Recurvirostra americana

American Bushtit

Psaltriparus minimus

American Cliff Swallow

Petrochelidon pyrrhonota

American Coot

Fulica americana

American Crow

Corvus brachyrhynchos

American Dipper

Cinclus mexicanus

American Goldfinch

Carduelis tristis

American Kestrel

Falco sparverius

American Pipit

Anthus rubescens

American Robin

Turdus migratorius

American Robin (subspecies)

Turdus migratorius propinquus

American Wigeon

Anas americana

Aplomado Falcon

Falco femoralis

Arizona Woodpecker

Picoides arizonae

Ash-throated Flycatcher

Myiarchus cinerascens

Azure-crowned Hummingbird

Amazilia verticalis

Baird's Sandpiper

Calidris bairdii

Baird's Sparrow

Ammodramus bairdii

Table A-2. (cont.)

Bald Eagle

Haliaeetus leucocephalus

Baltimore Oriole

Icterus galbula

Band-tailed Pigeon

Columba fasciata

Patagioenas fasciata

Band-tailed Pigeon (subspecies)

Columba fasciata fasciata

Barn Owl

Tyto alba

Barn Swallow

Hirundo rustica

Bay-breasted Warbler

Dendroica castanea

Bell's Vireo

Vireo bellii

Bell's Vireo (hybrid)

Vireo bellii medius / *Vireo bellii arizonae intergrade*

Bell's Vireo (subspecies)

Vireo bellii arizonae

Bendire's Thrasher

Toxostoma bendirei

Bewick's Wren

Thryomanes bewickii

Black Phoebe

Sayornis nigricans

Black Skimmer

Rynchops niger

Black-and-white Warbler

Mniotilta varia

Black-billed Cockoo

Coccyzus erythrophthalmus

Black-chinned Hummingbird

Archilochus alexandri

Black-chinned Sparrow

Spizella atrogularis

Black-crowned Night Heron

Nycticorax nycticorax

Table A-2. (cont.)

Black-headed Grosbeak

Pheucticus melanocephalus

Blackpoll Warbler

Dendroica striata

Black-tailed Gnatcatcher

Polioptila melanura

Black-throated Gray Warbler

Dendroica nigrescens

Black-throated Sparrow

Amphispiza bilineata

Blue Grosbeak

Guiraca caerulea

Passerina caerulea

Blue Grouse

Dendragapus obscurus

Blue-gray Gnatcatcher

Polioptila caerulea

Blue-headed Vireo

Vireo solitarius

Blue-headed Vireo (subspecies)

Vireo solitarius cassinii

Vireo solitarius plumbeus

Vireo solitarius solitarius

Blue-winged Teal

Anas discors

Blue-winged Warbler

Vermivora pinus

Bobolink

Dolichonyx oryzivorus

Brewer's Blackbird

Euphagus cyanocephalus

Brewer's Sparrow

Spizella breweri

Bridled Titmouse

Baeolophus wollweberi

Broad-billed Hummingbird

Cynanthus latirostris

Broad-tailed Hummingbird

Selasphorus platycercus

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Table A-2. (cont.)

Bronzed Cowbird

Molothrus aeneus

Brown Creeper

Certhia americana

Brown Creeper (subspecies)

Certhia americana albescens

Brown Towhee

Pipilo fuscus

Brown-crested Flycatcher

Myiarchus tyrannulus

Brown-headed Cowbird

Molothrus ater

Buff-breasted Flycatcher

Empidonax fulvifrons

Bufflehead

Bucephala albeola

Bullock's Oriole

Icterus bullockii

Burrowing Owl

Athene cunicularia

Speotyto cunicularia

Cactus Wren

Campylorhynchus brunneicapillus

California Quail

Callipepla californica

Calliope Hummingbird

Stellula calliope

Canada Goose

Branta canadensis

Canyon Wren

Catherpes mexicanus

Cape May Warbler

Dendroica tigrina

Cassin's Finch

Carpodacus cassinii

Carpodacus cassinii cassinii

Cassin's Kingbird

Tyrannus vociferans

Cassin's Sparrow

Aimophila cassinii

Table A-2. (cont.)

Cedar Waxwing

Bombycilla cedrorum

Chestnut-collared Longspur

Calcarius ornatus

Chestnut-sided Warbler

Dendroica pensylvanica

Chihuahuan Raven

Corvus cryptoleucus

Chipping Sparrow

Spizella passerina

Spizella passerina pallida

Chukar Partridge

Alectoris chukar

Clark's Nutcracker

Nucifraga columbiana

Clay-colored Sparrow

Spizella pallida

Cliff Swallow

Hirundo pyrrhonota

Collared Falconet

Microhierax caerulescens

Common Black Hawk

Buteogallus anthracinus

Common Ground Dove

Columbina passerina

Common Merganser

Mergus merganser

Common Nighthawk

Chordeiles minor

Common Poorwill

Phalaenoptilus nuttallii

Common Raven

Corvus corax

Common Snipe

Gallinago gallinago

Common Yellowthroat

Geothlypis trichas

Common Loon

Gavia immer

Table A-2. (cont.)

Cooper's Hawk

Accipiter cooperii

Cordilleran Flycatcher

Empidonax occidentalis

Crissal Thrasher

Toxostoma crissale

Curve-billed Thrasher

Toxostoma curvirostre

Dark-eyed Junco

Junco hyemalis

Dark-eyed Junco (subspecies)

Junco hyemalis caniceps

Junco hyemalis dorsalis

Junco hyemalis hyemalis

Junco hyemalis mearnsi

Junco hyemalis mearnsi x *Junco hyemalis oregonus*

Junco hyemalis oregonus

Junco hyemalis simillimus

Dickcissel

Spiza americana

Double-crested Cormorant

Phalacrocorax auritus

Downy Woodpecker

Picoides pubescens

Dusky Flycatcher

Empidonax oberholseri

Dusky-capped Flycatcher

Myiarchus tuberculifer

Eared Grebe

Podiceps nigricollis

Eastern Bluebird

Sialia sialis

Eastern Bluebird (subspecies)

Sialia sialis fulva

Sialia sialis sialis

Eastern Meadowlark

Sturnella magna

Eastern Meadowlark (subspecies)

Sturnella magna lilianae

Table A-2. (cont.)

Eastern Phoebe

Sayornis phoebe

Elegant Trogon

Trogon elegans

Elf Owl

Micrathene whitneyi

European Starling

Sturnus vulgaris

Evening Grosbeak

Coccothraustes vespertinus

Evening Grosbeak (subspecies)

Coccothraustes vespertinus brooksi

Coccothraustes vespertinus californicus

Coccothraustes vespertinus vespertinus

Ferruginous Hawk

Buteo regalis

Flammulated Owl

Otus flammeolus

Florida Scrub-Jay

Aphelocoma coerulescens

Fox Sparrow

Passerella iliaca

Gambel's Quail

Callipepla gambelii

Gila Woodpecker

Melanerpes uropygialis

Golden Eagle

Aquila chrysaetos

Golden-crowned Kinglet

Regulus satrapa

Golden-crowned Kinglet (subspecies)

Regulus satrapa aztecus

Grace's Warbler

Dendroica graciae

Grasshopper Sparrow

Ammodramus savannarum

Grasshopper Sparrow (subspecies)

Ammodramus savannarum ammolegus

Gray Flycatcher

Empidonax wrightii

Table A-2. (cont.)

Gray Vireo

Vireo vicinior

Gray-breasted Jay

Aphelocoma ultramarina

Great Blue Heron

Ardea herodias

Great Horned Owl

Bubo virginianus

Great Horned Owl (subspecies hybrid)

Bubo virginianus subarcticus x *Bubo virginianus lagophonus*

Great Horned Owl (subspecies)

Bubo virginianus lagophonus

Bubo virginianus pallescens

Bubo virginianus pinorum

Greater Pewee

Contopus pertinax

Greater Roadrunner

Geococcyx californianus

Great-tailed Grackle

Quiscalus mexicanus

Green Heron

Butorides virescens

Green-backed Heron

Butorides striatus

Green-tailed Towhee

Pipilo chlorurus

Green-winged Teal

Anas crecca

Groove-billed Ani

Crotophaga sulcirostris

Hairy Woodpecker

Picoides villosus

Hammond's Flycatcher

Empidonax hammondii

Harris' Sparrow

Zonotrichia querula

Hepatic Tanager

Piranga flava

Table A-2. (cont.)

Hermit Thrush

Catharus guttatus

Hermit Thrush (subspecies)

Catharus guttatus auduboni

Hooded Merganser

Lophodytes cucullatus

Hooded Oriole

Icterus cucullatus

Hooded Oriole (subspecies)

Icterus cucullatus nelsoni

Hooded Warbler

Wilsonia citrina

Horned Lark

Eremophila alpestris

House Finch

Carpodacus mexicanus

House Finch (subspecies)

Carpodacus mexicanus frontalis

House Sparrow

Passer domesticus

House Wren

Troglodytes aedon

Hutton's Vireo

Vireo huttoni

Hutton's Vireo (subspecies)

Vireo huttoni stephensi

Inca Dove

Columbina inca

Indigo Bunting

Passerina cyanea

Juniper Titmouse

Baeolophus griseus

Baeolophus ridgwayi

Kentucky Warbler

Oporornis formosus

Killdeer

Charadrius vociferus

La Conte's Sparrow

Ammodramus leconteii

Table A-2. (cont.)

Ladder-backed Woodpecker

Picoides scalaris

Lark Bunting

Calamospiza melanocorys

Lark Sparrow

Chondestes grammacus

Lark Sparrow (subspecies)

Chondestes grammacus strigatus

Lawrence's Goldfinch

Carduelis lawrencei

Lazuli Bunting

Passerina amoena

Least Sandpiper

Calidris minutilla

Least Storm Petrel

Oceanodroma microsoma

Lesser Goldfinch

Carduelis psaltria

Lesser Nighthawk

Chordeiles acutipennis

Lewis' Woodpecker

Melanerpes lewis

Lincoln's Sparrow

Melospiza lincolnii

Loggerhead Shrike

Lanius ludovicianus

Long-billed Curlew

Numenius americanus

Long-eared Owl

Asio otus

Lucifer Hummingbird

Calothorax lucifer

Lucy's Warbler

Vermivora luciae

MacGillivray's Warbler

Oporornis tolmiei

Magnificent Frigatebird

Fregata magnificens

Magnificent Hummingbird

Eugenes fulgens

Table A-2. (cont.)

Mallard

Anas platyrhynchos

Mallard (subspecies)

Anas platyrhynchos diazi

Marsh Wren

Cistothorus palustris

McCown's Longspur

Calcarius mccownii

Merlin

Falco columbarius

Mexican Chickadee

Poecile sclateri

Montezuma Quail

Cyrtonyx montezumae

Mountain Bluebird

Sialia currucoides

Mountain Chickadee

Poecile gambeli

Mourning Dove

Zenaida macroura

Nashville Warbler

Vermivora ruficapilla

Neotropic Cormorant (subspecies)

Phalacrocorax olivaceus

Northern Beardless Tyrannulet

Camptostoma imberbe

Northern Cardinal

Cardinalis cardinalis

Northern Flicker

Colaptes auratus

Northern Flicker (subspecies)

Colaptes auratus cafer

Colaptes cafer

Northern Goshawk

Accipiter gentilis

Northern Harrier

Circus cyaneus

Northern Mockingbird

Mimus polyglottos

Table A-2. (cont.)

Northern Pintail

Anas acuta

Northern Pygmy Owl

Glaucidium gnoma

Northern Rough-winged Swallow

Stelgidopteryx serripennis

Northern Saw-whet Owl

Aegolius acadicus

Northern Waterthrush

Seiurus noveboracensis

Oak Titmouse

Baeolophus inornatus

Oldsquaw

Clangula hyemalis

Olive Warbler

Peucedramus taeniatus

Olive-sided Flycatcher

Contopus borealis

Contopus cooperi

Orange-crowned Warbler

Vermivora celata

Osprey

Pandion haliaetus

Ovenbird

Seiurus aurocapillus

Painted Redstart

Myioborus pictus

Peregrine Falcon

Falco peregrinus

Phainopepla

Phainopepla nitens

Pied-billed Grebe

Podilymbus podiceps

Pine Siskin

Carduelis pinus

Pine Siskin (subspecies)

Carduelis pinus macroptera

Carduelis pinus pinus

Pinyon Jay

Gymnorhinus cyanocephalus

Table A-2. (cont.)

Plumbeous Vireo

Vireo plumbeus

Prairie Falcon

Falco mexicanus

Purple Finch

Carpodacus purpureus

Purple Martin

Progne subis

Pygmy Nuthatch

Sitta pygmaea

Pyrrhuloxia

Cardinalis sinuatus

Red Crossbill

Loxia curvirostra

Red Crossbill (subspecies)

Loxia curvirostra stricklandi

Red-breasted Nuthatch

Sitta canadensis

Red-breasted Sapsucker

Sphyrapicus ruber

Reddish Egret

Egretta rufescens

Red-faced Warbler

Cardellina rubrifrons

Red-naped Sapsucker

Sphyrapicus nuchalis

Red-tailed Hawk

Buteo jamaicensis

Red-tailed Hawk (subspecies)

Buteo jamaicensis borealis

Buteo jamaicensis fuertesi

Red-winged Blackbird

Agelaius phoeniceus

Ring-billed Gull

Larus delawarensis

Ring-necked Duck

Aythya collaris

Ring-necked Pheasant

Phasianus colchicus

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Table A-2. (cont.)

Rock Dove

Columba livia

Rock Wren

Salpinctes obsoletus

Rose-breasted Grosbeak

Pheucticus ludovicianus

Rough-legged Hawk

Buteo lagopus

Rough-legged Hawk (subspecies)

Buteo lagopus sanctijohannis

Ruby-crowned Kinglet

Regulus calendula

Ruby-throated Hummingbird

Archilochus colubris

Rufous Hummingbird

Selasphorus rufus

Rufous-sided Towhee

Pipilo erythrophthalmus

Rufus-crowned Sparrow

Aimophila ruficeps

Sage Sparrow

Amphispiza belli

Sage Thrasher

Oreoscoptes montanus

Sandhill Crane

Grus canadensis

Savannah Sparrow

Passerculus sandwichensis

Say's Phoebe

Sayornis saya

Scaled Quail

Callipepla squamata

Scaled Quail (hybrid)

Callipepla squamata pallida x *Callipepla squamata*
hargravei

Scaled Quail (subspecies)

Callipepla squamata pallida

Scissor-tailed Flycatcher

Tyrannus forficatus

Table A-2. (cont.)

Scott's Oriole

Icterus parisorum

Sharp-shinned Hawk

Accipiter striatus

Sharp-shinned Hawk (subspecies)

Accipiter striatus velox

Short-eared Owl

Asio flammeus

Solitary Sandpiper

Tringa solitaria

Song Sparrow

Melospiza melodia

Song Sparrow (subspecies)

Melospiza melodia fallax

Melospiza melodia fisherella

Melospiza melodia montana

Sora

Porzana carolina

Southwestern Willow Flycatcher

Empidonax traillii extimus

Spotted Owl

Strix occidentalis

Spotted Sandpiper

Actitis macularia

Spotted Towhee

Pipilo maculatus

Sprague's Pipit

Anthus spragueii

Steller's Jay

Cyanocitta stelleri

Strickland's Woodpecker

Picoides stricklandi

Sulphur-bellied Flycatcher

Myiodynastes luteiventris

Summer Tanager

Piranga rubra

Swainson's Hawk

Buteo swainsoni

Swainson's Thrush

Catharus ustulatus

Table A-2. (cont.)

Swamp Sparrow

Melospiza georgiana

Tennessee Warbler

Vermivora peregrina

Thick-billed Kingbird

Tyrannus crassirostris

Three-toed Woodpecker

Picoides tridactylus

Timberline Sparrow

Spizella breweri taverneri

Townsend's Solitaire

Myadestes townsendi

Townsend's Warbler

Dendroica townsendi

Trumpeter Swan

Cygnus buccinator

Tundra Swan

Cygnus columbianus

Turkey Vulture

Cathartes aura

Varied Bunting (subspecies)

Passerina versicolor dickeyae

Vaux's Swift

Chaetura vauxi

Verdin

Auriparus flaviceps

Vermilion Flycatcher

Pyrocephalus rubinus

Vesper Sparrow

Pooecetes gramineus

Vesper Sparrow (subspecies)

Pooecetes gramineus altus

Pooecetes gramineus confinis

Violet-crowned Hummingbird

Amazilia violiceps

Violet-green Swallow

Tachycineta thalassina

Virginia Rail

Rallus limicola

Table A-2. (cont.)

Virginia's Warbler

Vermivora virginiae

Warbling Vireo

Vireo gilvus

Western Bluebird

Sialia mexicana

Western Flycatcher

Empidonax difficilis

Western Kingbird

Tyrannus verticalis

Western Meadowlark

Sturnella neglecta

Western Screech-Owl

Otus kennicottii

Western Scretch-Owl

Megascops kennicottii

Western Scrub-Jay

Aphelocoma californica

Western Tanager

Piranga ludoviciana

Western Wood Pewee

Contopus sordidulus

Western Wood Pewee (subspecies)

Contopus sordidulus veliei

Whip-poor-will

Caprimulgus vociferus

Whiskered Screech-Owl

Otus trichopsis

White-breasted Nuthatch

Sitta carolinensis

White-crowned Sparrow

Zonotrichia leucophrys

White-crowned Sparrow (subspecies)

Zonotrichia leucophrys gambelii

Zonotrichia leucophrys oriantha

White-eyed Vireo

Vireo griseus

White-faced Ibis

Plegadis chihi

Table A-2. (cont.)

White-tailed Kite

Elanus leucurus

White-throated Sparrow

Zonotrichia albicollis

White-throated Swift

Aeronautes saxatalis

White-winged Dove

Zenaida asiatica

Wild Turkey

Meleagris gallopavo

Williamson's Sapsucker

Sphyrapicus thyroideus

Wilson's Phalarope

Phalaropus tricolor

Wilson's Warbler

Wilsonia pusilla

Wood Duck

Aix sponsa

Yellow Warbler

Dendroica petechia

Yellow-bellied Sapsucker

Sphyrapicus varius

Yellow-billed Cuckoo

Coccyzus americanus

Yellow-breasted Chat

Icteria virens

Yellow-crowned Night Heron

Nyctanassa violacea

Yellow-eyed Junco

Junco phaeonotus

Yellow-headed Blackbird

Xanthocephalus xanthocephalus

Yellow-rumped Warbler

Dendroica coronata

Yellow-rumped Warbler (subspecies)

Dendroica coronata auduboni

Dendroica coronata coronata

Zone-tailed Hawk

Buteo albonotatus

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Table A-3 Macroinvertebrate sampling dates for each sampling station (data provided by NMED).

Stations	Macroinvertebrate Sample Dates								
77BlackC000.1	5/21/1992	3/26/1993	5/20/1997	10/7/1997					
77BlackC016.8	11/6/2001								
77BlackC028.3	7/29/2000	9/13/2000	11/6/2001	7/29/2000					
77Bobcat000.8	7/22/2000								
77Bonner002.4	7/6/2000								
77CubCre005.6	8/8/2000								
77Diamon033.2	10/8/2004	10/19/2004							
77Diamon038.1	9/13/1997								
77Diamon038.2	8/2/1994								
77Diamon039.3	9/13/1997								
77Diamon040.1	9/13/1997								
77EFkGil000.1	5/21/1992	8/4/1992	10/7/1992	3/26/1993	6/5/1995	10/3/1995	5/7/1996	5/20/1997	10/7/1997
77EFkGil000.2	9/18/2007								
77EFkGil000.5	11/8/2001								
77EFkGil010.0	7/20/2000	9/21/2000	11/8/2001						
77EFkGil012.1	7/31/2000								
77EFkGil035.4	5/21/1992	10/7/1992	4/7/1993	6/2/1995	10/3/1995	5/7/1996	5/20/1997	10/7/1997	
77GilaRi088.0	10/19/2004	11/7/2005							
77GilaRi092.0	9/16/2000								
77Gilita000.1	8/3/1992								
77IronCr000.1	8/3/1992								
77IronCr009.7	10/7/2004	9/29/2005							
77MFkGil000.5	9/15/1999								
77MFkGil028.3	8/12/2000								
77MFkGil054.8	8/3/1992								
77MFkGil055.0	7/30/1992								

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Stations	Macroinvertebrate Sample Dates								
77Mogoll029.9	6/1/1986								
77Mogoll037.2	5/30/1986								
77Mogoll038.8	5/29/1986	7/24/1987	9/15/1987						
77Mogoll042.0	5/31/1986	7/22/1987							
77Taylor004.2	8/4/1992								
77TrailC000.1	5/29/1986	10/7/1986	10/8/1986	9/15/1987					
77Turkey001.8	8/5/1992	10/19/2004							
77WFkGil000.3	8/15/1992								
77WFkGil010.0	8/15/1991	10/20/2004	9/28/2005	10/25/2006	9/19/2007				
77WFkGil038.1	8/9/2000								
77Willow000.6	7/30/1992	8/15/2000	9/12/2000	11/5/2001	8/15/2000				
78BearCr027.0	11/10/2005	1/14/2006							
78BlueCr000.9	11/15/2006	11/9/2005	11/7/2007						
78GilaR087.7	10/16/2007								
78GilaRi003.5	7/28/1992								
78GilaRi025.5	11/9/2004	11/8/2005	11/6/2007						
78GilaRi026.1	9/18/2000	11/9/2001	9/19/2000						
78GilaRi052.6	9/22/2000								
78GilaRi069.2	11/8/2007								
78GilaRi074.8	8/16/1991	7/18/2000	9/12/2000	9/15/2000	1/7/2001				
80Center000.1	7/15/1992								
80Negrit000.1	7/12/1990	9/29/1998							
80SanFra028.6	6/16/1991	9/11/1995	9/24/1998	10/17/2007					
80SanFra049.1	7/7/1987								
80SanFra105.7	7/7/1987,	7/14/1992	9/11/1995						
80SanFra115.7	7/7/1987	7/14/1992	9/11/1995						
80SanFra154.1	7/7/1987	7/15/1992	9/11/1995	10/18/2007					

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Stations	Macroinvertebrate Sample Dates								
80SanFra159.3	7/15/1992								
80TroutC002.1	9/22/1992								
80Tularo001.3	7/12/1990								
80Tularo029.6	6/2/1987	8/13/1997							
80Tularo050.8	7/12/1990								
80Whitew000.5	7/7/1987								
80WhiteW008.8	9/1/1998	10/6/2004							

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Table A-4. Macroinvertebrate taxon list from NMED – 1990-2007 (for abbreviations see page A-54 at the end of this table)

Final ID	Total Value	Functional Feeding Group	Functional Feeding Group Secondary	Habit	Habit Secondary	Habitat Primary	Habitat Secondary
<i>Abedus</i>	8	Predator		Climber	Swimmer	LT-dp	
<i>Ablabesmyia</i>	8	Predator	PR	Sprawler		LN-li	LT-er
<i>Acarina</i>							
<i>Acentrella</i>	4			Swimmer	Clinger	LT-er	
<i>Acentrella insignificans</i>	4	Collector		Swimmer			
<i>Acentrella insignificans</i>	4	Collector		Swimmer			
<i>Aeshnidae</i>	3	Predator		Climber		LN-li	LN-vh
<i>Agapetus</i>	0	Scraper		Clinger			
<i>Agraylea</i>	8			Clinger			
<i>Alloperla severa</i>	1	Predator					
<i>Ambrysus</i>		Predator		Clinger	Swimmer	LT-er	LN-er
<i>Ambrysus mormon</i>	5	Predator					
<i>Ambrysus mormon</i>	5	Predator					
<i>Ameletus</i>	0	Collector	SC	Swimmer	Climber	LT-er	LT-dp
<i>Ameletus</i>	0	Collector	SC	Swimmer	Climber	LT-er	LT-dp
<i>Amphinemura</i>	2	Shredder	GC	Sprawler	Clinger	LT-er	LT-dp
<i>Amphinemura</i>	2	Shredder	GC	Sprawler	Clinger	LT-er	LT-dp
<i>Amphinemura banksi</i>	2	Shredder					
<i>Anagapetus</i>	0	Scraper		Clinger		LT-er	
<i>Ancylidae</i>	6	Scraper					
<i>Anopholes</i>				Swimmer		LN-li	LT-dp
<i>Antocha</i>	3			Clinger		LT-er	
<i>Antocha monticola</i>	3	Collector					
<i>Antocha monticola</i>	3	Collector					

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Final ID	Total Value	Functional Feeding Group	Functional Feeding Group Secondary	Habit	Habit Secondary	Habitat Primary	Habitat Secondary
<i>Apedilum</i>						LN	LT
<i>Argia</i>	7	Predator		Clinger	Climber	LT-er	LN-er
<i>Argia</i>	7	Predator		Clinger	Climber	LT-er	LN-er
<i>Atherix pachypus</i>	4	Predator					
<i>Atopsyche</i>	0	Predator		Clinger		LT-er	
<i>Atopsyche</i>	0	Predator		Clinger		LT-er	
<i>Atractides</i>							
<i>Atrichopogon</i>	6	Predator	GC	Sprawler	Clinger	LT-er	LN-li
<i>Baetidae</i>	4			Swimmer	Clinger	LT-er	LT-dp
<i>Baetis</i>	5	Collector		Swimmer	Climber	LT-er	LT-dp
<i>Baetis adonis</i>							
<i>Baetis bicaudatus</i>	4	Collector		Climber			
<i>Baetis magnus</i>							
<i>Baetis notos</i>	4		SC				
<i>Baetis tricaudatus</i>	4	Collector		Swimmer	Climber		
<i>Baetodes</i>		Scraper		Clinger		LT-er	
<i>Baetodes edmundsi</i>							
<i>Belostoma</i>	10	Predator		Climber	Swimmer	LT-dp	LN-li
<i>Belostomatidae</i>				Climber		LT-dp	LT-vh
<i>Bezzia</i>	6	Predator	PR	Burrower	Swimmer	LN-li	LT
<i>Boyeria</i>	5	Predator		Climber		LT-er	LT-dp
<i>Boyeria</i>	5	Predator		Climber		LT-er	LT-dp
<i>Brachycentrus (Oligoplectrodes) americanus</i>	1	Filterer					

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<i>Brachycentrus (Sphinctogaster) occidentalis</i>	1	Filterer		Clinger	Sprawler		
<i>Branchiobdellida</i>							
<i>Brechmorhoga</i>		Predator		Sprawler		LT-dp	
<i>Brechmorhoga mendax</i>							
<i>Brillia</i>	5	Shredder	GC	Burrower	Sprawler	LT-er	LT-dp
<i>Brillia</i>	5	Shredder	GC	Burrower	Sprawler	LT-er	LT-dp
<i>Caenis</i>	7	Collector	SC	Sprawler	cb	LT-dp	LN-li
<i>Caenis bajaensis</i>							
<i>Callibaetis</i>	9			Swimmer	Clinger	LN-vh	
<i>Caloparyphus</i>	7			Sprawler		LN-vh	LT-er
<i>Calopterygidae</i>		Predator		Climber		LT-er	LT-dp
<i>Camelobaetidius</i>				Swimmer	Clinger	LT-er	LT-dp
<i>Camelobaetidius musseri</i>							
<i>Camelobaetidius warreni</i>							
<i>Capniidae</i>	1	Shredder		Sprawler	cn	LT-er	LT-dp
<i>Capniidae</i>	1	Shredder		Sprawler	cn	LT-er	LT-dp
<i>Cardiocladius</i>	5	Predator		Clinger	Burrower	LT-er	
<i>Cardiocladius</i>	5	Predator		Clinger	Burrower	LT-er	
<i>Centroptilum</i>	2	Collector		Clinger			
<i>Ceraclea</i>	5	Shredder	SH	Sprawler	Climber	LT	LN
<i>Ceraclea</i>	5	Shredder	SH	Sprawler	Climber	LT	LN
<i>Ceratopogonidae</i>	6	Predator	GC	Sprawler	Burrower	LN-li	LT-dp
<i>Ceratopogonidae</i>	6	Predator	GC	Sprawler	Burrower	LN-li	LT-dp
<i>Ceratopogoninae</i>							

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Final ID	Total Value	Functional Feeding Group	Functional Feeding Group Secondary	Habit	Habit Secondary	Habitat Primary	Habitat Secondary
<i>Ceratopsyche cockerelli</i>	5	Filterer					
<i>Ceratopsyche oslari</i>	4	Filterer					
<i>Ceratopsyche venada</i>	5	Filterer					
<i>Cernotina</i>							
<i>Chelifera</i>	6	Predator		Sprawler	Burrower	LT-dp	LN-li
<i>Cheumatopsyche</i>	5	Filterer		Clinger		LT-er	
<i>Cheumatopsyche</i>	5	Filterer		Clinger		LT-er	
<i>Chimarra</i>	4	Filterer		Clinger		LT-er	
<i>Chimarra</i>	4	Filterer		Clinger		LT-er	
<i>Chironomidae</i>	6	Collector		Burrower			
<i>Chironominae</i>	6	Collector					
<i>Chironomini</i>	6						
<i>Chironomus</i>	10	Collector	SH	Burrower		LN-li	LT-dp
<i>Chloroperlidae</i>	1	Predator		Clinger			
<i>Choroterpes</i>			SC	Clinger	Sprawler	LT-er	LT-dp
<i>Chrysops</i>	6	Predator		Sprawler	Burrower	LN-li	LT-dp
<i>Cicadellidae</i>							
<i>Cinygmula</i>	4	Scraper	GC	Clinger		LT-er	
<i>Cladotanytarsus</i>	7	Filterer	FC	Climber	Sprawler	LN-vh	LT-dp
<i>Cladotanytarsus</i>	7	Filterer	FC	Climber	Sprawler	LN-vh	LT-dp
<i>Clinocera</i>	6	Predator		Clinger		LT-er	LN-li
<i>Coenagrionidae</i>							
<i>Corbicula</i>	6	Filterer					
<i>Cordulegaster</i>	0	Predator		Burrower		LT-dp	
<i>Corixidae</i>	10	Predator		Swimmer		LN-vh	LT-dp
<i>Corticacarus</i>							

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<i>Corydalus</i>		Piercer-Predator		Clinger	Climber	LT-er	LT-dp
<i>Corydalus cornutus</i>	3	Predator		Clinger	Climber		
<i>Corydalus cornutus</i>	3	Predator		Clinger	Climber		
<i>Corynoneura</i>	7	Collector		Sprawler		LT-dp	LN-li
<i>Corynoneura</i>	7	Collector		Sprawler		LT-dp	LN-li
<i>Cricotopus</i>	7	Shredder	GC	Clinger	Burrower	LN-vh	LT-er
<i>Cricotopus</i>	7	Shredder	GC	Clinger	Burrower	LN-vh	LT-er
<i>Cricotopus (Cricotopus) bicinctus</i>							
<i>Cricotopus (Cricotopus) trifascia</i>	7						
<i>Cricotopus (Nostococladus) nostocicola</i>	7	Shredder					
<i>Cricotopus (Nostococladus) nostocicola</i>	7	Shredder					
<i>Cryptochironomus</i>	8	Predator		Sprawler	Burrower	LN-li	LT-dp
<i>Cryptolabis</i>	3	Predator		Burrower			
<i>Culoptila</i>	1	Scraper		Clinger		LT-er	
<i>Culoptila</i>	1	Scraper		Clinger		LT-er	
<i>Cultus aestivalis</i>	2	Predator					
<i>Curculionidae</i>	6	Collector		Clinger	Climber	LN-vh	
<i>Cylloepus</i>							

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<i>Dasyhelea</i>							
<i>Diamesa</i>	5	Collector	SC	Sprawler		LT-er	
<i>Diamesa</i>	5	Collector	SC	Sprawler		LT-er	
<i>Dicranota</i>	3	Predator		Sprawler	Burrower	LT-er	LT-dp
<i>Dicrotendipes</i>	8	Filterer	FC	Burrower		LN	LT
<i>Dineutus</i>	4	Predator		Swimmer	Divers	LN	LT
<i>Diptera</i>							
<i>Dixa</i>	1	Filterer		Swimmer	Climber	LT-er	LT-dp
<i>Dixella</i>	8	Filterer		Swimmer	Climber	LN	
<i>Dixidae</i>	1	Filterer		Swimmer	Climber	LT-er	LT-dp
<i>Djalmabatista</i>		Predator		Sprawler		LT	
<i>Dolichopodidae</i>	4	Predator		Sprawler	Burrower	LN	LT
<i>Dolophilodes</i>	1	Filterer	GC	Clinger		LT-er	
<i>Drunella coloradensis</i>	1	Scraper		Clinger			
<i>Drunella doddsi</i>	1	Scraper		Clinger			
<i>Drunella grandis</i>	1	Scraper		Clinger			
<i>Dubiraphia</i>	4	Collector	SC	Clinger	Climber	LN-er	LT-er
<i>Dytiscidae</i>	5	Predator		Climber			
<i>Dytiscidae</i>	5	Predator		Climber			
<i>Elmidae</i>	4	Collector	SC	Clinger	cb	LT-er	LN-er
<i>Empididae</i>	6	Predator		Sprawler	Burrower	LT-er	LT-dp
<i>Enallagma</i>	9	Predator		Climber		LN-vh	LT-dp
<i>Enallagma</i>	9	Predator		Climber		LN-vh	LT-dp
<i>Enchytraeidae</i>							
<i>Epeorus</i>	0	Scraper	GC	Clinger		LT-er	
<i>Epeorus longimanus</i>	0	Scraper		Clinger			

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<i>Epeorus margarita</i>							
<i>Ephemerella</i>	1	Scraper	SC	Clinger	Swimmer	LT-er	LT-dp
<i>Ephemerella altana</i>	1	Scraper					
<i>Ephemerella inermis</i>	1	Shredder		Clinger			
<i>Ephemerella infrequens</i>	1	Shredder		Clinger			
<i>Ephemerellidae</i>	1	Collector		Clinger	Sprawler	LT-er	LT-dp
<i>Ephydriidae</i>	6	Collector		Burrower			
<i>Erpetogomphus</i>	4	Predator		Burrower		LT-dp	
<i>Erpetogomphus designatus</i>							
<i>Erpobdella</i>	10	Predator					
<i>Estelloxus</i>							
<i>Eukiefferiella</i>	8	Collector	SC	Sprawler		LT-er	LN-li
<i>Eukiefferiella brehmi</i>							
<i>Eukiefferiella claripennis</i>							
<i>Eukiefferiella devonica</i>							
<i>Eukiefferiella gracei</i>							
<i>Eukiefferiella pseudomontana</i>							
<i>Euparyphus</i>	5	Scraper	SC	Sprawler		LT-er	LT-dp
<i>Fallceon</i>	5			Swimmer	Clinger	LT-er	LT-dp
<i>Fallceon</i>							
<i>Ferrissia</i>	6	Scraper		Clinger			
<i>Gerridae</i>	5	Predator		Skater		LN-lm	LT-su
<i>Gerris</i>	6	Predator		Skater		LT-dp	LN-lm
<i>Glossosoma</i>	0	Scraper		Clinger		LT-er	

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<i>Glossosomatidae</i>	0	Scraper		Clinger		LT-er	
<i>Gomphidae</i>	1	Predator		Burrower		LT-dp	LN-li
<i>Gomphus</i>	5	Predator		Burrower		LT-dp	LN-li
<i>Gordius</i>	8	Predator					
<i>Graptocorixa</i>		Predator		Swimmer			
<i>Gumaga</i>	3	Shredder		Sprawler		LT-er	
<i>Gyraulus</i>	8	Scraper					
<i>Helichus</i>	5	Shredder	GC	Clinger		LT-er	
<i>Helicopsyche (Feropsyche) borealis</i>	3	Scraper					
<i>Helicopsyche (Feropsyche) borealis</i>	3	Scraper					
<i>Hemerodromia</i>	6	Predator	GC	Sprawler	Burrower	LT-er	LT-dp
<i>Heptagenia</i>	4	Scraper	GC	Clinger	Swimmer	LT-er	
<i>Hesperoconopa</i>	1	Shredder		Burrower		LT-dp	
<i>Hetaerina</i>	6	Predator		Climber		LT-er	LT-dp
<i>Heterlimnius corpulentus</i>	4	Collector		Clinger	Burrower		
<i>Hexatoma</i>	2	Predator		Burrower	Sprawler	LT-er	LT-dp
<i>Hyalella azteca</i>	8	Collector					
<i>Hydrachnidae</i>	8	Predator					
<i>Hydrobiosidae</i>	0	Predator					
<i>Hydropsyche</i>	4	Filterer		Clinger		LT-er	
<i>Hydropsyche occidentalis</i>	4	Filterer					
<i>Hydroptila</i>	6	Scraper	SC	Clinger		LT-er	LT-dp
<i>Hydroptila</i>	6	Scraper	SC	Clinger		LT-er	LT-dp
<i>Isogenoides</i>	2	Predator				LT-er	LT-dp

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<i>Isonychia</i>	2	Filterer		Swimmer	Clinger	LT-er	
<i>Isonychia</i>	2	Filterer		Swimmer	Clinger	LT-er	
<i>Isoperla</i>	2	Predator	GC	Clinger	Sprawler	LT-er	LT-dp
<i>Isoperla</i>	2	Predator	GC	Clinger	Sprawler	LT-er	LT-dp
<i>Ithytrichia</i>	4	Scraper		Clinger		LT-er	
<i>Labrundinia</i>		Predator		Sprawler		LT-er	LN-li
<i>Laccobius</i>		Predator					
<i>Laccophilus</i>	5	Predator		Swimmer	Diver	LT-dp	LN-vh
<i>Laccophilus</i>	5	Predator		Swimmer	Diver	LT-dp	LN-vh
<i>Lachlania</i>	2	Filterer		Clinger		LT-er	LT-dp
<i>Larsia</i>	6	Predator		Sprawler		LT-er	LN-li
<i>Lauterborniella agrayloides</i>							
<i>Lebertia lebertiidae</i>							
<i>Lepidostoma</i>	1	Shredder		Climber	Sprawler	LT-er	LT-dp
<i>Leptoceridae</i>	4	Collector	SH	Climber	Swimmer	LT	LN
<i>Leptohyphes</i>	4	Collector		Clinger		LT-dp	
<i>Leptohyphes</i>	4	Collector		Clinger		LT-dp	
<i>Leptohyphidae</i>	4	Collector				LT-dp	LN-li
<i>Leptophlebiidae</i>	2		SC	Swimmer	Clinger	LT-er	
<i>Leucorrhinia</i>	9	Predator		Climber		LN-vh	
<i>Leucorrhinia</i>	9	Predator		Climber		LN-vh	
<i>Leucotrichia</i>	6	Scraper	GC	Clinger		LT-er	
<i>Leucotrichia notosa</i>							
<i>Leuctridae</i>	0	Shredder		Sprawler	Clinger	LT-er	LT-dp

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<i>Libellula</i>	9	Predator		Sprawler		LN-li	LT-dp
<i>Libellulidae</i>	9	Predator		Sprawler		LN-vh	
<i>Libellulidae</i>	9	Predator		Sprawler		LN-vh	
<i>Limnephilidae</i>	4	Shredder	GC	Climber	Sprawler	LT	LN
<i>Limnodrilus</i>	8	Collector					
<i>Limnophila</i>	4	Predator		Burrower		LT-dp	LN
<i>Limnophila</i>	4	Predator		Burrower		LT-dp	LN
<i>Limnophora</i>	6	Predator		Burrower		LT-er	
<i>Limnophyes</i>	8	Collector		Sprawler		LN-li	LT-dp
<i>Limonia</i>	6	Shredder		Burrower	Sprawler	LT	LN
<i>Limonia</i>	6	Shredder		Burrower	Sprawler	LT	LN
<i>Lopescladius</i>	6	Shredder		Sprawler	Burrower	LT	hy
<i>Lumbriculidae</i>	8	Collector		Burrower			
<i>Lumbriculidae</i>	8	Collector		Burrower			
<i>Lymnaea</i>	8	Scraper					
<i>Lymnaea</i>	8	Scraper					
<i>Macropelopia</i>	6	Predator		Sprawler		LT-er	LN-li
<i>Marilia</i>		Shredder		Sprawler		LT	
<i>Maruina</i>	1	Scraper	GC	Clinger		LT-er	
<i>Mayatrichia</i>	4	Scraper		Clinger			
<i>Megarcys signata</i>	2	Predator					
<i>Mesocapnia</i>							
<i>Mesocapnia frisoni</i>	1	Shredder					
<i>Metrichia</i>	4	Scraper					
<i>Metriocnemus</i>	8	Collector	PR	Burrower	Sprawler	LT-er	LT-dp
<i>Micrasema</i>	1	Shredder	GC	Clinger	Sprawler	LT-er	LT-vh

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<i>Micrasema</i>	1	Shredder	GC	Clinger	Sprawler	LT-er	LT-vh
<i>Microcyloopus</i>	4	Scraper	SC	Clinger	Climber	LT-er	LT-dp
<i>Microcyloopus</i>	4	Scraper	SC	Clinger	Climber	LT-er	LT-dp
<i>Micropsectra</i>	7	Collector		Climber	Sprawler	LN-li	LT-dp
<i>Micropsectra</i>	7	Collector		Climber	Sprawler	LN-li	LT-dp
<i>Microtendipes</i>	6	Collector	GC	Clinger		LN-li	LT-dp
<i>Microtendipes</i>	6	Collector	GC	Clinger		LN-li	LT-dp
<i>Microtendipes pedellus</i>							
<i>Microtendipes rydalensis</i>							
<i>Microvelia</i>	6	Predator		Skater		LN-lm	LT-dp
<i>Microvelia</i>	6	Predator		Skater		LN-lm	LT-dp
<i>Molophilus</i>	3	Shredder		Burrower			
<i>Muscidae</i>	6	Predator		Sprawler		LN-li	LT-dp
<i>Naididae</i>	8	Collector		Burrower			
<i>Naididae</i>	8	Collector		Burrower			
<i>Nanocladius</i>	3	Collector		Sprawler		LT-er	LN-li
<i>Nanocladius</i>	3	Collector		Sprawler		LT-er	LN-li
<i>Narpus</i>	4	Shredder		Clinger		LT-er	
<i>Narpus</i>	4	Shredder		Clinger		LT-er	
<i>Nectopsyche</i>	3	Shredder	GC	Climber	Swimmer	LN-vh	LT-er
<i>Nectopsyche</i>	3	Shredder	GC	Climber	Swimmer	LN-vh	LT-er
<i>Nemata</i>	8	Predator					
<i>Neochoroterpes oklahoma</i>							
<i>Neohermes</i>	3	Predator		Clinger	Climber	LT-er	
<i>Neohermes</i>	3	Predator		Clinger	Climber	LT-er	
<i>Neoplasta</i>							

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<i>Neotrichia</i>	2	Scraper		Clinger			
<i>Nilotanytus</i>	6	Predator		Sprawler		LT-er	
<i>Nixe</i>	4	Scraper	GC	Clinger		LT-er	LT-dp
<i>Nixe</i>	4	Scraper	GC	Clinger		LT-er	LT-dp
<i>Noteridae</i>	7	Predator		Climber			
<i>Ochrotrichia</i>	4	Collector	GC	Clinger		LT-er	LT-dp
<i>Ochrotrichia</i>	4	Collector	GC	Clinger		LT-er	LT-dp
<i>Oecetis</i>	8	Predator	SH	Clinger	Sprawler	LT-er	LT-dp
<i>Oecetis avara</i>							
<i>Oligochaeta</i>	5	Collector					
<i>Oligophlebodes</i>	1	Scraper	GC	Clinger		LT-er	
<i>Oliveiriella</i>							
<i>Onconeura simifimbriata</i>							
<i>Ophiogomphus</i>	1	Predator		Burrower		LT-er	LT-dp
<i>Ophiogomphus</i>	1	Predator		Burrower		LT-er	LT-dp
<i>Oplonaeschna</i>	5	Predator					
<i>Oplonaeschna armata</i>							
<i>Optioservus</i>	4	Scraper	GC	Clinger		LT-er	LT-dp
<i>Optioservus</i>	4	Scraper	GC	Clinger		LT-er	LT-dp
<i>Orconectes</i>							
<i>Orconectes virilis</i>	6	Collector					
<i>Oreodytes</i>	5	Predator		Swimmer	Climber	LT-er	LT-dp
<i>Oribatida</i>							
<i>Ormosia</i>	3	Predator		Burrower		LT	LN
<i>Orthoclaadiinae</i>	5	Collector		Burrower			
<i>Orthoclaadiinae</i>	5	Collector		Burrower			

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<i>Orthocladius</i>	6	Collector		Sprawler	Burrower	LN-li	LT-er
<i>Orthocladius</i>	6	Collector		Sprawler	Burrower	LN-li	LT-er
<i>Orthocladius</i> (<i>Euorthocladius</i>)	6						
<i>Orthocladius</i> (<i>Euorthocladius</i>) <i>rivicola</i>							
<i>Ostracoda</i>	8	Filterer					
<i>Oxyethira</i>	3			Clinger			
<i>Pagastia</i>	1	Collector				LT	
<i>Pagastia</i>	1	Collector				LT	
<i>Palpomyiini</i>							
<i>Paracladopelma</i>	7	Collector		Sprawler		LN-li	LT-dp
<i>Parakiefferiella</i>	6	Collector		Sprawler		LT-er	LN-li
<i>Paraleptophlebia</i>	1	Collector	SH	Swimmer	Clinger	LT-er	
<i>Paraleptophlebia</i>	1	Collector	SH	Swimmer	Clinger	LT-er	
<i>Parametriocnemus</i>	5	Collector		Sprawler		LT-er	LT-dp
<i>Paraphaenocladus</i>	5	Collector		Sprawler		LT-er	LT-dp
<i>Paraphaenopsectra</i>							
<i>Paratendipes</i>	8	Collector		Burrower	Clinger	LT-dp	LN-li
<i>Paratrissocladius</i>	8	Collector		Sprawler			
<i>Peltodytes</i>	8	Shredder	SH	Climber	Clinger	LN-vh	LT-er
<i>Pentaneura</i>	6	Predator	GC	Sprawler		LN-li	LT-er
<i>Pentaneura</i>	6	Predator	GC	Sprawler		LN-li	LT-er
<i>Pentaneurini</i>	6	Predator					
<i>Pericoma</i>	4	Collector		Burrower		LT-dp	LN-li
<i>Perlodidae</i>	2	Predator		Clinger	Sprawler	LT-er	LN-er

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<i>Perlodinae</i>	2	Predator					
<i>Perlomyia</i>	0	Shredder		Sprawler	cn		
<i>Petrophila</i>							
<i>Petrophilia</i>	5	Scraper		Clinger		LT-er	LN-er
<i>Petrophilia</i>	5	Scraper		Clinger		LT-er	LN-er
<i>Phaenopsectra</i>	7	Scraper	GC	Burrower	Clinger	LN-li	
<i>Phaenopsectra</i>	7	Scraper	GC	Burrower	Clinger	LN-li	
<i>Phylloicus aeneus</i>	4	Shredder					
<i>Phylloicus aeneus</i>	4	Shredder					
<i>Physa</i>	8	Scraper					
<i>Physella</i>	8	Scraper					
<i>Physella</i>	8	Scraper					
<i>Physella virgata</i>	8	Scraper					
<i>Pisidiidae</i>	8	Scraper					
<i>Pisidium</i>	8	Scraper					
<i>Planorbidae</i>	7	Scraper					
<i>Poduridae</i>	8	Collector					
<i>Polycentropodidae</i>			PR	Clinger		LT-er	
<i>Polycentropus</i>	6	Predator	FC	Clinger		LT-er	
<i>Polycentropus</i>	6	Predator	FC	Clinger		LT-er	
<i>Polypedilum</i>	6	Shredder	GC	Climber	Clinger	LN-vh	
<i>Polypedilum</i>	6	Shredder	GC	Climber	Clinger	LN-vh	
<i>Polyplectropus</i>	6	Predator					
<i>Postelichus</i>				Clinger		LT-er	
<i>Postelichus immsi</i>		Shredder					
<i>Potthastia</i>	2	Collector	SC	Sprawler		LT-er	

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<i>Potthastia gaedii</i>	6			Sprawler			
<i>Potthastia longimana</i>	2	Collector		Sprawler			
<i>Probezzia</i>							
<i>Procladius</i>	9	Predator	GC	Sprawler		LN	LT-dp
<i>Procladius</i>	9	Predator	GC	Sprawler		LN	LT-dp
<i>Progomphus</i>	3	Predator		Burrower		LT-er	LT-dp
<i>Progomphus</i>	3	Predator		Burrower		LT-er	LT-dp
<i>Prostoma</i>							
<i>Protoptila</i>	1	Scraper		Clinger		LT-er	
<i>Protzia</i>							
<i>Psephenidae</i>	4	Scraper		Clinger		LT-er	LN-er
<i>Psephenus</i>							
<i>Pseudochironomus</i>	5	Collector		Burrower		LN-er	LT-er
<i>Pseudochironomus</i>	5	Collector		Burrower		LN-er	LT-er
<i>Psphenus</i>	4	Scraper				LT-er	
<i>Psphenus</i>	4	Scraper				LT-er	
<i>Psychodinae</i>							
<i>Psychoglypha</i>	0	Collector		Clinger			
<i>Psychomyia</i>	2	Collector	SC	Clinger		LT-er	
<i>Pteronarcella badia</i>	0	Shredder		Clinger	Sprawler		
<i>Pteronarcys californica</i>	0	Shredder		Clinger			
<i>Radotanypus</i>	1	Predator				LT	
<i>Rhagovelia</i>	6	Predator		Skater		LT-er	
<i>Rhantus</i>		Predator		Swimmer	Diver	LN-vh	LT-dp
<i>Rheocricotopus</i>	6	Collector	SH	Sprawler		LT-er	
<i>Rheocricotopus</i>	6	Collector	SH	Sprawler		LT-er	

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<i>Rheosmittia</i>							
<i>Rheotanytarsus</i>	6	Collector		Clinger	Burrower	LT-er	
<i>Rheotanytarsus</i>	6	Collector		Clinger	Burrower	LT-er	
<i>Rhithrogena</i>	0	Scraper	GC	Clinger		LT-er	
<i>Rhithrogena hageni</i>	0	Collector					
<i>Rhyacophila</i>	0	Predator	SC	Clinger		LT-er	
<i>Rhyacophila brunnea</i>	0	Predator					
<i>Rhyacophila valuma</i>	1	Predator					
<i>Rhyacophilidae</i>	0	Predator		Clinger		LT-er	
<i>Saetheria</i>	8	Collector		Burrower			
<i>Saetheria tylus</i>							
<i>Serratella tibialis</i>	1	Collector		Clinger			
<i>Sigara</i>	9	Predator		Swimmer	Climber	LT-dp	
<i>Sigara</i>	9	Predator		Swimmer	Climber	LT-dp	
<i>Simuliidae</i>	6	Collector		Clinger		LT-er	
<i>Simulium</i>	6	Collector		Clinger		LT-er	LN-er
<i>Simulium</i>	6	Collector		Clinger		LT-er	LN-er
<i>Skwala</i>	2	Predator					
<i>Skwala americana</i>	2	Predator					
<i>Skwala americana</i>	2	Predator					
<i>Smicridea</i>	4	Filterer		Clinger		LT-er	
<i>Sperchon</i>							
<i>Sperchonopsis</i>							
<i>Stactobiella</i>	4	Collector		Climber	Sprawler	LT-er	LT-dp
<i>Stactobiella</i>	4	Collector		Climber	Sprawler	LT-er	LT-dp
<i>Stempellina</i>	2	Collector		Climber	Sprawler	LT-er	LN-li

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<i>Stempellinella</i>	2	Collector		Clinger			
<i>Stenochironomus</i>							
<i>Stictochironomus</i>	8	Collector	GC	Burrower		LT-dp	
<i>Stictotarsus</i>		Predator		Swimmer	Climber	LT-er	LT-dp
<i>Stilobezzia</i>							
<i>Stilocladius</i>	8	Collector		Sprawler		LT	
<i>Stratiomyidae</i>	8	Collector		Sprawler	Swimmer	LN-li	
<i>Sublettea</i>	8	Collector				LT	
<i>Suwallia</i>	1	Predator		Clinger			
<i>Sweltsa</i>	1	Predator		Clinger			
<i>Sweltsa</i>	1	Predator		Clinger			
<i>Synorthocladius</i>	2	Collector	SC				
<i>Tabanidae</i>	8	Predator		Sprawler	Burrower	LT-dp	LN-li
<i>Tabanini</i>							
<i>Tabanus</i>	5	Predator		Sprawler	Burrower	LN-li	LT-er
<i>Tabanus</i>	5	Predator		Sprawler	Burrower	LN-li	LT-er
<i>Taenionema</i>	2	Scraper		Sprawler	Clinger		
<i>Taeniopterygidae</i>	2	Scraper		Sprawler	cn	LT-er	LT-dp
<i>Tanypodinae</i>	7	Predator		Burrower			
<i>Tanypodinae</i>	7	Predator		Burrower			
<i>Tanytarsini</i>	6						
<i>Tanytarsus</i>	6	Collector	GC	Climber	Clinger	LN-vh	LT-er
<i>Tanytarsus</i>	6	Collector	GC	Climber	Clinger	LN-vh	LT-er
<i>Testudacarus</i>							
<i>Thienemanniella</i>	6	Collector		Sprawler		LT-er	LT-dp
<i>Thienemanniella</i>	6	Collector		Sprawler		LT-er	LT-dp

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<i>Thienemannimyia</i>	6	Predator		Sprawler		LT-er	LN-li
<i>Thienemannimyia</i>	6	Predator		Sprawler		LT-er	LN-li
<i>Thraulodes</i>	2	Collector		Clinger	Sprawler	LT-er	
<i>Thraulodes</i>	2	Collector		Clinger	Sprawler	LT-er	
<i>Thraulodes brunneus</i>							
<i>Thraulodes gonzalesi</i>							
<i>Tipula</i>	4	Shredder	GC	Burrower		LT-er	LT-dp
<i>Tipula</i>	4	Shredder	GC	Burrower		LT-er	LT-dp
<i>Tipulidae</i>	3	Shredder	GC	Burrower	Sprawler	LN-li	LT-er
<i>Torrenticola</i>							
<i>Torrenticolidae</i>							
<i>Traverella</i>	4	Filterer		Clinger		LT-er	LT-dp
<i>Traverella</i>	4	Filterer		Clinger		LT-er	LT-dp
<i>Traverella albertana</i>							
<i>Trepobates</i>	10	Predator		Skater		LN-lm	LT-dp
<i>Trichocorixa</i>	5	Predator		Swimmer			
<i>Trichoptera</i>							
<i>Tricorythodes</i>	5	Collector		Sprawler	Clinger	LT-dp	LN-li
<i>Tricorythodes</i>	5	Collector		Sprawler	Clinger	LT-dp	LN-li
<i>Tropisternus</i>	5	Collector	GC	Climber	sw	LN-li	LT-dp
<i>Tubificidae</i>	10	Collector		Burrower			
<i>Tubificidae</i>	10	Collector		Burrower			
<i>Turbellaria</i>	4	Predator					
<i>Turbellaria</i>	4	Predator					
<i>Tvetenia</i>	5	Collector		Sprawler		LT	

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<i>Tvetenia bavarica</i>							
<i>Xestochironomus</i>						LT	LN
<i>Zaitzevia</i>	4			Clinger		LT-er	
<i>Zaitzevia parvulus</i>	4	Scraper					
<i>Zaitzevia parvulus</i>	4	Scraper					
<i>Zapada</i>	2	Shredder		Sprawler	Clinger	LT-er	
<i>Zapada cinctipes</i>	2	Shredder		Clinger			
<i>Zavreliomyia</i>	8	Collector		Sprawler			

- Ln Lentic
- Ln - er Lentic - erosional
- Ln - li Lentic - littoral
- Ln - lm Lentic - limnetic
- Ln - lt Lentic - littoral
- Ln - vh Lentic - vascular hydrophytes
- LT Lotic
- LT - dp Lotic - depositional
- LT - er Lotic - erosional



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Table A-5 NMED periphyton and diatom sampling locations and dates

Stations	Sample Dates			
77Diamon033.2	10/8/2004			
77EFkGil000.2	9/18/2007			
77GilaRi088.0	10/19/2004	11/7/2005		
77IronCr009.7	10/7/2004	9/29/2005	10/26/2006	
77Turkey001.8	10/19/2004			
77WFkGil010.0	10/20/2004	9/28/2005	10/25/2006	9/19/2007
78BearCr027.0	11/15/2006			
78BlueCr000.9	11/9/2005	11/16/2006	11/7/2007	11/6/2008
78GilaR087.7	10/16/2007			
78GilaRi025.5	11/9/2004	11/8/2005	11/6/2007	11/5/2008
78GilaRi069.2	8/8/2007			
80SanFra028.6	10/17/2007			
80SanFra154.1	10/18/2007			

Table A-6. Diatom taxon list from NMED (2004-2008).

Achnantheidium deflexum (Reimer) Kingston
Achnantheidium deflexum (Reimer) Kingston
Achnantheidium eutrophilum (Lange-Bertalot) Lange-Bertalot
Achnantheidium exiguum (Grunow) Czarnecki
Achnantheidium exiguum (Grunow) Czarnecki
Achnantheidium exilis (Kützing) Round et Bukhtiyarova
Achnantheidium minutissimum (Kützing) Czarnecki
Achnantheidium minutissimum (Kützing) Czarnecki
Achnantheidium rivulare Potapova et Ponader
Achnantheidium strictum Reichardt
Adlafia bryophila (Petersen) Lange-Bertalot
Adlafia minuscula (Grunow) Lange-Bertalot
Amphipleura pellucida (Kützing) Kützing
Amphora copulata (Kützing) Schoeman et Archibald
Amphora holsatica Hustedt
Amphora inariensis Krammer
Amphora montana Krasske
Amphora pediculus (Kützing) Grunow
Amphora pediculus (Kützing) Grunow
Amphora veneta Kützing
Aulacoseira italica (Ehrenberg) Simonsen
Bacillaria paradoxa Gmelin
Biremis circumtexta (Meister ex Hustedt) Lange-Bertalot et Witkowski
Brachysira microcephala (Grunow) Compère
Caloneis bacillum (Grunow) Cleve
Caloneis bacillum (Grunow) Cleve
Caloneis schumanniana (Grunow) Cleve
Caloneis silicula (Ehrenberg) Cleve
Caloneis silicula (Ehrenberg) Cleve
Chamaepinnularia bremensis (Hustedt) Lange-Bertalot
Chamaepinnularia soehrensensis var. *muscolola* (Petersen) Lange-Bertalot et Krammer
Cocconeis pediculus Ehrenberg
Cocconeis pediculus Ehrenberg
Cocconeis placentula Ehrenberg
Cocconeis placentula var. *euglypta* (Ehrenberg) Grunow
Cocconeis placentula var. *euglypta* (Ehrenberg) Grunow
Cocconeis placentula var. *lineata* (Ehrenberg) Van Heurck
Cocconeis placentula var. *lineata* (Ehrenberg) Van Heurck
Craticula ambigua (Ehrenberg) Mann
Craticula cuspidata (Kützing) Mann

Table A-6. (cont.)

Craticula halophiliodes (Hustedt) Lange-Bertalot
Craticula molestiformis (Hustedt) Lange-Bertalot
Craticula submolesta (Hustedt) Lange-Bertalot
Cyclotella meneghiniana Kützing
Cymbella affinis Kützing
Cymbella affinis Kützing
Cymbella cuspidata Kützing
Cymbella laevis Nägeli ex Kützing
Cymbella sp. 4 MP
Cymbella subturgidula Krammer
Cymbella tumida (Brébisson ex Kützing) Van Heurck
Cymbella tumida (Brébisson ex Kützing) Van Heurck
Cymbellonitzschia diluviana Hustedt
Denticula kuetzingii Grunow
Denticula kuetzingii Grunow
Diatoma mesodon (Ehrenberg) Kützing
Diatoma moniliformis Kützing
Diatoma moniliformis Kützing
Diatoma vulgare Bory
Diatoma vulgare Bory
Diatoma vulgare var. *linearis* Grunow
Diploneis oblongella (Nägeli ex Kützing) Ross
Encyonema prostratum (Berkeley) Kützing
Encyonema silesiacum (Bleisch) Mann
Encyonema silesiacum (Bleisch) Mann
Encyonopsis evergladianum Krammer
Encyonopsis microcephala (Grunow) Krammer
Epithemia adnata (Kützing) Brébisson
Epithemia sorex Kützing
Epithemia sorex Kützing
Epithemia turgida (Ehrenberg) Kützing
Epithemia turgida (Ehrenberg) Kützing
Epithemia turgida var. *granulata* (Ehrenberg) Hustedt
Epithemia turgida var. *westermanni* (Ehrenberg) Grunow
Eunotia implicata Nörpel, Lange-Bertalot et Alles
Eunotia rhynchocephala var. *satelles* Nörpel et Lange-Bertalot
Fallacia lenzii (Hustedt) Lange-Bertalot
Fallacia monoculata (Hustedt) Mann
Fragilaria capucina Desmazières

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Table A-6. (cont.)

Fragilaria capucina var. *gracilis* (Østrup) Hustedt
Fragilaria capucina var. *gracilis* (Østrup) Hustedt
Fragilaria nitzschioides Grunow
Fragilaria vaucheriae (Kützing) Petersen
Fragilaria vaucheriae (Kützing) Petersen
Frustulia vulgaris (Thwaites) deToni
Frustulia vulgaris (Thwaites) deToni
Geissleria acceptata (Hustedt) Lange-Bertalot et Metzeltin
Geissleria acceptata (Hustedt) Lange-Bertalot et Metzeltin
Geissleria decussis (Hustedt) Lange-Bertalot et Metzeltin
Geissleria decussis (Hustedt) Lange-Bertalot et Metzeltin
Gomphoneis erienne var. *variabilis* Kociolek et Stoermer
Gomphoneis minuta Kociolek et Stoermer
Gomphonema acuminatum Ehrenberg
Gomphonema aff. *kobayasii* Idaho DW Kociolek et Kingston
Gomphonema aff. *minutum* ANS NAWQA EAM (Agardh) Agardh
Gomphonema americobtusatum Reichardt et Lange-Bertalot
Gomphonema angustatum (Kützing) Rabenhorst
Gomphonema angustatum (Kützing) Rabenhorst
Gomphonema intricatum Kützing
Gomphonema kobayasii Kociolek et Kingston
Gomphonema kobayasii Kociolek et Kingston
Gomphonema lagenula Kützing
Gomphonema lagenula Kützing
Gomphonema mexicanum Grunow ex Van Heurck
Gomphonema micropus Kützing
Gomphonema minutum (Agardh) Agardh
Gomphonema minutum (Agardh) Agardh
Gomphonema olivaceoides Hustedt
Gomphonema olivaceum (Lyngbye) Kützing
Gomphonema parvulum (Kützing) Kützing
Gomphonema pseudoaugur Lange-Bertalot
Gomphonema pumilum (Grunow) Reich. et Lange-Bertalot
Gomphonema pumilum (Grunow) Reichardt et Lange-Bertalot
Gomphonema pumilum var. *elegans* Reichardt et Lange-Bertalot
Gomphonema pumilum var. *rigidum* Reichardt et Lange-Bertalot
Gomphonema rhombicum Fricke
Gomphonema rhombicum Fricke
Gomphonema sp. 1 NEW MEXICO HAMSHER
Gomphonema sp. 1?

Table A-6. (cont.)

Gomphonema sp. 2 NEW MEXICO HAMSHER
Gomphonema sp. 4 IDAHO LLB
Gomphonema subclavatum (Grunow) Grunow
Gomphonema truncatum Ehrenberg
Gomphosphenia aff. *minutissimum* Idaho DW
Gyrosigma acuminatum (Kützing) Rabenhorst
Gyrosigma scalproides (Rabenhorst) Cleve
Hannaea arcus (Ehrenberg) Patrick
Hantzschia amphioxys (Ehrenberg) Grunow
Hantzschia amphioxys (Ehrenberg) Grunow
Hantzschia vivax (Smith) Peragallo
Hippodonta capitata (Ehrenberg) Lange-Bertalot, Metzeltin et Witkowski
Karayevia laterostrata (Hantzsch) Bukhtiyarova
Luticola cohnii (Hilse) Mann
Luticola goeppertiana (Bleisch) Mann
Luticola mutica (Kützing) Mann
Mastogloia smithii Thwaites
Mayamaea agrestis (Hustedt) Lange-Bertalot
Mayamaea atomus (Kützing) Lange-Bertalot
Mayamaea atomus (Kützing) Lange-Bertalot
Melosira varians Agardh
Melosira varians Agardh
Meridion circulare (Greville) Agardh
Meridion circulare var. *constrictum* (Ralfs) Van Heurck
Navicula angusta Grunow
Navicula antonii Lange-Bertalot
Navicula antonii Lange-Bertalot
Navicula canalis Patrick
Navicula capitatoradiata Germain
Navicula caterva Hohn et Hellermann
Navicula claytonii (Carter) Kelly
Navicula cryptocephala Kützing
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot
Navicula cryptotenella Lange-Bertalot ex Krammer et Lange-Bertalot
Navicula cryptotenella Lange-Bertalot in Krammer et Lange-Bertalot
Navicula cryptotenelloides Lange-Bertalot
Navicula cryptotenelloides Lange-Bertalot
Navicula erifuga Lange-Bertalot
Navicula erifuga Lange-Bertalot
Navicula germainii Wallace

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Table A-6. (cont.)

Navicula gregaria Donkin
Navicula gregaria Donkin
Navicula libonensis Schoeman
Navicula libonensis Schoeman
Navicula menisculus Schumann
Navicula minima Grunow
Navicula minima Grunow
Navicula perminuta Grunow
Navicula reichardtiana Lange-Bertalot
Navicula reichardtiana Lange-Bertalot
Navicula rostellata Kützing
Navicula schroeteri var. *escambia* Patrick
Navicula schroeterii Meister
Navicula sp. 2 ANS NX LR
Navicula sp. 3 NAWQA MP
Navicula subminuscula Manguin
Navicula subminuscula Manguin
Navicula symmetrica Patrick
Navicula tenelloides Hustedt
Navicula tripunctata (Müller) Bory
Navicula veneta Kützing
Navicula veneta Kützing
Navicula vilaplani (Lange-Bertalot et Sabater) Lange-Bertalot et Sabater
Neidium binodis (Ehrenberg) Hustedt
Nitzschia acicularioides Hustedt
Nitzschia acicularis (Kützing) Smith
Nitzschia acidoclinata Lange-Bertalot
Nitzschia agnita Hustedt
Nitzschia amphibia fo. *frauenfeldii* (Grunow) Lange-Bertalot
Nitzschia amphibia Grunow
Nitzschia amphibia Grunow
Nitzschia amphibioides Hustedt
Nitzschia angustatula Lange-Bertalot
Nitzschia archibaldii Lange-Bertalot
Nitzschia archibaldii Lange-Bertalot
Nitzschia capitellata Hustedt
Nitzschia communis Rabenhorst
Nitzschia desertorum Hustedt
Nitzschia dissipata (Kützing) Grunow
Nitzschia dissipata (Kützing) Grunow

Table A-6. (cont.)

Nitzschia dissipata var. *media* (Hantzsch) Grunow
Nitzschia elegantula Grunow
Nitzschia filiformis (Smith) Van Heurck
Nitzschia fonticola Grunow
Nitzschia fonticola Grunow
Nitzschia frustulum (Kützing) Grunow
Nitzschia frustulum (Kützing) Grunow
Nitzschia hantzschiana Rabenhorst
Nitzschia heufleriana Grunow
Nitzschia incognita Legler et Krasske
Nitzschia inconspicua Grunow
Nitzschia inconspicua Grunow
Nitzschia intermedia Hantzsch ex Cleve et Grunow
Nitzschia intermedia Hantzsch ex Cleve et Grunow
Nitzschia lacuum Lange-Bertalot
Nitzschia liebetruthii Rabenhorst
Nitzschia liebetruthii var. *major* Grunow
Nitzschia linearis (Agardh ex Smith) Smith
Nitzschia linearis (Agardh ex Wm. Smith) Wm. Smith
Nitzschia microcephala Grunow
Nitzschia palea (Kützing) Smith
Nitzschia palea (Kützing) Smith
Nitzschia palea var. *debilis* (Kützing) Grunow
Nitzschia palea var. *debilis* (Kützing) Grunow
Nitzschia paleacea Grunow ex Van Heurck
Nitzschia pseudofonticola Hustedt
Nitzschia pusilla Grunow
Nitzschia recta Hantzsch ex Rabenhorst
Nitzschia sigma (Kützing) Smith
Nitzschia sigmaidea (Nitzsch) Ehrenberg
Nitzschia sigmaidea (Nitzsch) Ehrenberg
Nitzschia sociabilis Hustedt
Nitzschia solita Hustedt
Nitzschia sp. 1?
Nitzschia sp. 1?
Nitzschia subacicularis Hustedt
Nitzschia subtilis Grunow
Nitzschia subtilis Grunow
Nitzschia thermaloides Hustedt
Nitzschia tropica Hustedt

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Table A-6. (cont.)

Nitzschia umbonata Lange-Bertalot
Nitzschia valdestriata Aleem et Hustedt
Nitzschia vermicularis (Kützing) Hantzsch ex Rabenhorst
Pinnularia borealis Ehrenberg
Placoneis elginensis (Gregory) Cox
Planothidium frequentissimum (Lange-Bertalot) Lange-Bertalot
Planothidium frequentissimum (Lange-Bertalot) Lange-Bertalot
Planothidium lanceolatum
Planothidium lanceolatum
Planothidium lanceolatum (Brébisson ex Kützing) Lange-Bertalot
Planothidium rostratum (Østrup) Lange-Bertalot
Planothidium rostratum (Østrup) Lange-Bertalot
Platessa conspicua (Mayer) Lange-Bertalot
Pleurosira laevis (Ehrenberg) Compère
Psammothidium grischunum fo. *daonensis* (Lange-Bertalot ex Lange-Bertalot et Krammer) Bukhtiyarova et Round
Pseudostaurosira parasitica (Smith) Morales
Pseudostaurosira parasitica var. *subconstricta* (Grunow) Morales
Pseudostaurosira pseudoconstruens (Marciniak) Williams et Round
Pseudostaurosira trainorii Morales
Pseudostaurosiroopsis sp. 1 NAWQA HAGAN
Reimeria sinuata (Gregory) Kociolek et Stoermer
Reimeria sinuata (Gregory) Kociolek et Stoermer
Reimeria uniseriata Sala, Guerrero & Ferrario
Reimeria uniseriata Sala, Guerrero et Ferrario
Rhoicosphenia abbreviata (Agardh) Lange-Bertalot
Rhoicosphenia abbreviata (Agardh) Lange-Bertalot
Rhopalodia brebissonii Krammer
Rhopalodia gibba (Ehrenberg) Müller
Rhopalodia sp. 1?
Sellaphora pupula (Kützing) Meresckowsky
Sellaphora pupula (Kützing) Meresckowsky
Sellaphora seminulum (Grunow) Mann
Sellaphora seminulum (Grunow) Mann
Simonsenia delognei (Grunow) Lange-Bertalot
Simonsenia delognei (Grunow) Lange-Bertalot
Stauroneis borrichii (Petersen) Lund
Stauroneis kriegeri Patrick
Staurosira construens var. *binodis* (Ehrenberg) Hamilton
Staurosira construens var. *venter* (Ehrenberg) Hamilton
Staurosirella leptostauron var. *dubia* (Grunow) Edlund

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Table A-6. (cont.)

Staurosirella pinnata (Ehrenberg) Williams et Round
Staurosirella pinnata var. *intercedens* (Grunow) Hamilton
Surirella angusta Kützing
Surirella angusta Kützing
Surirella brebissonii var. *kuetzingii* Krammer et Lange-Bertalot
Synedra acus Kützing
Synedra acus Kützing
Synedra mazamaensis Sovereign
Synedra sp. 1 NEW MEXICO HAMSHER
Synedra ulna (Nitzsch) Ehrenberg
Synedra ulna var. *contracta* Østrup
Synedra ulna var. *ramesi* (Héribaud) Hustedt
Tabularia sp. 1 NAWQA UMICH CZAB
Tryblionella apiculata Gregory

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Table A-7. Periphyton taxon list from NMED (2005-2008)

Actinastrum hantzschii Lagerheim
Actinotaenium diplosporum (Lundell) Teiling
Calothrix sp.
Chamaesiphon confervicolus Braun
Chlamydomonas sp.
Chlorogloea sp.
Cladophora glomerata (Linnaeus) Kützing
Cladophora glomerata (Linnaeus) Kützing
Closterium lunula (Möller) Nitzsch
Closterium lunula (Müller) Nitzsch
Closterium moniliferum Ehrenberg
Cosmarium formosulum Hoffman
Cosmarium granatum Brébisson ex Ralfs
Cosmarium sp.
Cyanosarcina sp. 1 ?
Cylindrocystis brebissonii var. *minor* West et West
Draparnaldia plumosa (Vaucher) C. A. Agardh
Gloeocystis sp.
Gongrosira sp.
Heteroleibleinia sp.
Homoeothrix janthina (Bornet et Flahault) Starmach
Homoeothrix janthina (Bornet et Flahault) Starmach
Homoeothrix juliana (Meneghini) Kirchner
Homoeothrix margalefii Komárek et Kalina
Homoeothrix varians Geitler
Homoeothrix varians Geitler
Leptolyngbya cf. *terebrans* NX LR (Bornet et Flahault ex Gomont) Anagnostidis et Komárek
Microspora sp. 1 ANS NMEX FWA
Mougeotia sp.
Nodularia harveyana (Thwaites) Thuret
Nostoc sp.
Nostoc sp. 1 ANS NMEX FWA
Pediastrum boryanum (Turpin) Meneghini
Phormidium autumnale (Agardh) Gomont
Phormidium autumnale (Agardh) Gomont
Phormidium granulatum (Gardner) Anagnostidis
Phormidium sp.
Phormidium sp. 1 ANS DNREC
Pleurocapsa minor Hansgirg
Pleurocapsa minor Hansgirg

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Table A-7. (cont.)

Rivularia sp

Scenedesmus obliquus (Turpin) Kützing

Staurastrum punctulatum Brébisson

Stigeoclonium lubricum (Dillwyn) Kützing

Stigeoclonium sp.

Tolypothrix sp.

Ulothrix zonata (Weber et Mohr) Kützing

Unknown Rhodophyte Florideophycidae (chantransia)

Unknown Rhodophyte Florideophycidae (chantransia)

Zygnema sp.

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Table A-8 Number of water quality sample events by site for the Gila and San Francisco Watersheds

Station ID	Number of sample events	Station ID	Number of sample events
Gila River Basin		National Park Service 1976 (cont)	
77Beaver000.1	66	GICL_NURE_0008	35
77Canyon007.5	36	GICL_NURE_0010	40
77Diamon013.8	118	GICL_NURE_0011	35
77Diamon033.2	45	GICL_NURE_0012	35
77EFkGil000.2	923	GICL_NURE_0013	36
77Gilari088.0	21	GICL_NURE_0014	35
77GilaRi101.4	836	GICL_NURE_0015	35
77GilaRi113.2	72	GICL_NURE_0016	35
77Gilita000.2	439	GICL_NURE_0017	35
77HoytCr001.7	103	GICL_NURE_0018	69
77IronCr000.1	159	GICL_NURE_0019	35
77IronCr009.7	40	GICL_NURE_0020	35
77MFkGil000.1	722	GICL_NURE_0021	69
77MFkGil049.0	177	GICL_NURE_0022	69
77Mogoll013.7	204	GICL_NURE_0023	69
77Sapill012.0	433	GICL_NURE_0024	35
77Sapill018.0	197	GICL_NURE_0025	69
77SnowCa000.2	337	GICL_NURE_0026	69
77Taylor000.1	66	GICL_NURE_0027	69
77Taylor004.2	322	GICL_NURE_0028	68
77Taylor004.4	338	GICL_NURE_0029	69
77Turkey001.8	229	GICL_NURE_0030	69
77WFkGil000.1	294	GICL_NURE_0031	69
77WFkGil008.0	138	GICL_NURE_0032	69
77WFkGil010.0	815	GICL_NURE_0033	35
77Willow000.1	265	GICL_NURE_0034	35
78BearCr027.0	1256	GICL_NURE_0035	69
78BearCr037.3	301	GICL_NURE_0036	35
78BearCr047.0	172	GICL_NURE_0037	69
78BearCr047.1	170	GICL_NURE_0038	35
78BillEvansDP	556	GICL_NURE_0039	35

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Station ID	Number of sample events	Station ID	Number of sample events
78BillEvansSH	88	GICL_NURE_0040	69
78BlueCr000.9	110	GICL_NURE_0041	35
78Carlis022.3	212	GICL_NURE_0042	69
78Carlis023.5	86	GICL_NURE_0043	35
78GilaR087.7	674	GICL_NURE_0044	35
78GilaRi011.5	1183	GICL_NURE_0045	35
78GilaRi025.5	1608	GICL_NURE_0046	35
78GilaRi069.2	1119	GICL_NURE_0047	69
78GilaRi073.5	138	GICL_NURE_0048	35
78Mangas000.7	1051	GICL_NURE_0049	35
78Mangas013.3	413	GICL_NURE_0050	69
OWW04440-NM07	32	GICL_NURE_0051	35
San Francisco River		GICL_NURE_0052	35
80APACHE001.5	217	GICL_NURE_0053	69
80Center002.1	65	GICL_NURE_0054	35
80Minera008.6	91	GICL_NURE_0055	69
80MINERA009.4	343	GICL_NURE_0056	69
80MULECR015.5	463	GICL_NURE_0057	35
80Negrit000.1	24	GICL_NURE_0058	35
80NEGRIT020.0	679	GICL_NURE_0059	35
80NNegri000.1	88	GICL_NURE_0060	69
80SANFRA028.6	2531	GICL_NURE_0061	35
80SanFra048.8	623	GICL_NURE_0062	35
80SANFRA061.0	366	GICL_NURE_0063	35
80SANFRA105.7	1037	GICL_NURE_0064	35
80SanFra109.6	64	GICL_NURE_0065	68
80SanFra109.7	56	GICL_NURE_0066	35
80SANFRA115.7	353	GICL_NURE_0067	69
80SanFra124.2	864	GICL_NURE_0068	35
80SANFRA154.1	1747	GICL_NURE_0069	35
80SILVER001.6	265	GICL_NURE_0070	35
80SNegri000.1	111	GICL_NURE_0071	69
80TROUTC002.1	310	GICL_NURE_0072	69
80TroutC009.4	53	GICL_NURE_0073	35
80TULARO001.3	1276	GICL_NURE_0074	35

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Station ID	Number of sample events	Station ID	Number of sample events
80TULARO017.4	365	GICL_NURE_0075	35
80Tularo035.8	121	GICL_NURE_0076	35
80TULARO050.8	504	GICL_NURE_0077	35
80WHITEW000.5	706	GICL_NURE_0078	35
80WHITEW008.8	699	GICL_NURE_0079	69
NM0024163	70	GICL_NURE_0080	35
OWW04440-1037	67	GICL_NURE_0081	35
Carrizo Wash		GICL_NURE_0082	69
74QUEMADO@D	2	GICL_NURE_0083	35
74ZUNISALTLK1	1	GICL_NURE_0084	35
74ZUNISALTLK2	2	GICL_NURE_0085	35
Animas Valley		GICL_NURE_0086	69
NM0020109	70	GICL_NURE_0087	35
National Park Service 1976		GICL_NURE_0088	35
ELMA_NURE_0231	5	GICL_NURE_0089	35
GICL_NURE_0001	35	GICL_NURE_0090	35
GICL_NURE_0002	4	GICL_NURE_0091	69
GICL_NURE_0003	4	GICL_NURE_0092	69
GICL_NURE_0004	4	GICL_NURE_0093	69
GICL_NURE_0005	4	GICL_NURE_0094	69
GICL_NURE_0006	35	GICL_NURE_0095	69
GICL_NURE_0007	35	GICL_NURE_0096	69
		GICL_NURE_0097	69

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Table A-9 Years that water quality samples were collected at the Gila and San Francisco river sampling sites

Station ID	Years Sampled (not all analytes)	Station ID	Date Sampled (not all analytes)
Gila River Basin		National Park Service 1976 (cont)	
77Beaver000.1	2011	GICL_NURE_0008	4/10/1976
77BlackC016.5	1999, 2000, 2011	GICL_NURE_0009	4/10/1976
77Canyon007.5	1999	GICL_NURE_0010	4/10/1976
77Diamon013.8	1999	GICL_NURE_0011	4/10/1976
77Diamon033.2	2004, 2011	GICL_NURE_0012	4/10/1976
77EFkGil000.2	1999, 2000, 2007, 2011	GICL_NURE_0013	4/10/1976
77Gilari088.0	2004, 2005	GICL_NURE_0014	4/10/1976
77GilaRi101.4	1999, 2000, 2007	GICL_NURE_0015	4/10/1976
77GilaRi113.2	2011	GICL_NURE_0016	4/10/1976
77Gilita000.2	1999, 2000, 2011	GICL_NURE_0017	4/30/1976
77HoytCr001.7	1999, 2000	GICL_NURE_0018	4/26/1976
77IronCr000.1	1999, 2000, 2011	GICL_NURE_0019	4/26/1976
77IronCr009.7	2004, 2005, 2006	GICL_NURE_0020	4/26/1976
77MFkGil000.1	1999, 2000, 2007, 2011	GICL_NURE_0021	4/26/1976
77MFkGil049.0	1999, 2000, 2011	GICL_NURE_0022	4/26/1976
77Mogoll013.7	1999	GICL_NURE_0023	4/26/1976
77Sapill012.0	1999, 2000, 2007	GICL_NURE_0024	4/27/1976
77Sapill018.0	1999, 2000, 2011	GICL_NURE_0025	4/27/1976
77SnowCa000.2	1999, 2000	GICL_NURE_0026	4/27/1976
77Taylor000.1	2011	GICL_NURE_0027	4/27/1976
77Taylor004.2	1999, 2000	GICL_NURE_0028	4/27/1976
77Taylor004.4	1999, 2000	GICL_NURE_0029	4/27/1976
77Turkey001.8	1999, 2000, 2004, 2011	GICL_NURE_0030	4/27/1976
77WFkGil000.1	1999, 2000, 2011	GICL_NURE_0031	4/28/1976
77WFkGil008.0	1999, 2000	GICL_NURE_0032	4/28/1976
77WFkGil010.0	2004-2007, 2011	GICL_NURE_0033	4/28/1976
77Willow000.1	2011	GICL_NURE_0034	4/28/1976
78BearCr027.0	2005, 2006	GICL_NURE_0035	4/28/1976
78BearCr037.3	2006	GICL_NURE_0036	4/28/1976
78BearCr047.0	1999-2000	GICL_NURE_0037	4/28/1976
78BearCr047.1	1999-2000	GICL_NURE_0038	4/28/1976
78BillEvansDP	2007	GICL_NURE_0039	4/28/1976
78BillEvansSH	2007	GICL_NURE_0040	5/7/1976

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Station ID	Years Sampled (not all analytes)	Station ID	Date Sampled (not all analytes)
78BlueCr000.9	2005-2008	GICL_NURE_0041	5/7/1976
78Carlis022.3	1999, 2000	GICL_NURE_0042	5/7/1976
78Carlis023.5	1999	GICL_NURE_0043	5/7/1976
78GilaR087.7	2007	GICL_NURE_0044	5/3/1976
78GilaRi011.5	1999, 2000, 2007	GICL_NURE_0045	5/3/1976
78GilaRi025.5	2004, 2005, 2007, 2008	GICL_NURE_0046	5/3/1976
78GilaRi069.2	2011, 2007	GICL_NURE_0047	5/3/1976
78GilaRi073.5	1999, 2000	GICL_NURE_0048	5/3/1976
78Mangas000.7	1999, 2000, 2007, 2011	GICL_NURE_0049	5/3/1976
78Mangas013.3	1999, 2000	GICL_NURE_0050	5/3/1976
OWW04440-NM07	2004	GICL_NURE_0051	5/7/1976
San Francisco River		GICL_NURE_0052	5/10/1976
80APACHE001.5	1998, 1999	GICL_NURE_0053	5/10/1976
80Center002.1	2011	GICL_NURE_0054	5/10/1976
80Minera008.6	2009	GICL_NURE_0055	5/10/1976
80MINERA009.4	1998, 1999	GICL_NURE_0056	5/11/1976
80MULECRO15.5	1998, 1999, 2011	GICL_NURE_0057	5/11/1976
80Negrit000.1	2011	GICL_NURE_0058	5/11/1976
80NEGRIT020.0	1998, 1999	GICL_NURE_0059	5/11/1976
80NNegri000.1	2011	GICL_NURE_0060	5/11/1976
80SANFRA028.6	1998, 1999, 2007, 2011	GICL_NURE_0061	5/11/1976
80SanFra048.8	2011	GICL_NURE_0062	5/12/1976
80SANFRA061.0	1998, 1999	GICL_NURE_0063	5/12/1976
80SANFRA105.7	1998, 1999, 2011	GICL_NURE_0064	5/12/1976
80SanFra109.6	2011	GICL_NURE_0065	5/12/1976
80SanFra109.7	2011	GICL_NURE_0066	6/1/1976
80SANFRA115.7	1998, 1999	GICL_NURE_0067	5/22/1976
80SanFra124.2	2011	GICL_NURE_0068	5/23/1976
80SANFRA154.1	1998, 1999, 2007	GICL_NURE_0069	5/23/1976
80SILVER001.6	1998	GICL_NURE_0070	5/23/1976
80SNegri000.1	2011	GICL_NURE_0071	5/23/1976
80TROUTC002.1	1998, 1999	GICL_NURE_0072	5/25/1976
80TroutC009.4	2011	GICL_NURE_0073	5/25/1976
80TULARO001.3	1998, 1999, 2011, 2007	GICL_NURE_0074	5/25/1976
80TULARO017.4	1998, 1999	GICL_NURE_0075	6/1/1976

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Station ID	Years Sampled (not all analytes)	Station ID	Date Sampled (not all analytes)
80Tularo035.8	2011	GICL_NURE_0076	6/2/1976
80TULARO050.8	1998, 1999, 2011	GICL_NURE_0077	6/2/1976
80WHITEW000.5	1998, 1999, 2011	GICL_NURE_0078	6/2/1976
80WHITEW008.8	1998, 1999, 2004, 2007, 2011	GICL_NURE_0079	6/2/1976
NM0024163	2011	GICL_NURE_0080	6/2/1976
OWW04440-1037	2004	GICL_NURE_0081	6/2/1976
Carrizo Wash		GICL_NURE_0082	6/3/1976
74QUEMADO@D	2004	GICL_NURE_0083	5/10/1976
74ZUNISALTLK1	2004	GICL_NURE_0084	6/3/1976
74ZUNISALTLK2	2004	GICL_NURE_0085	6/3/1976
Animas Valley		GICL_NURE_0086	6/3/1976
NM0020109	2002	GICL_NURE_0087	6/3/1976
National Park Service 1976		GICL_NURE_0088	6/4/1976
ELMA_NURE_0231	6/8/1976	GICL_NURE_0089	6/4/1976
GICL_NURE_0001	5/16/1976	GICL_NURE_0090	5/11/1976
GICL_NURE_0002	5/16/1976	GICL_NURE_0091	5/11/1976
GICL_NURE_0003	5/16/1976	GICL_NURE_0092	5/11/1976
GICL_NURE_0004	5/17/1976	GICL_NURE_0093	5/11/1976
GICL_NURE_0005	5/17/1976	GICL_NURE_0094	5/11/1976
GICL_NURE_0006	5/18/1976	GICL_NURE_0095	5/11/1976
GICL_NURE_0007	3/17/1976	GICL_NURE_0096	5/11/1976
		GICL_NURE_0097	6/17/1976

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Table A-10 Water quality analytes assessed and number of times sampled for the Gila and San Francisco rivers

Analyte	Number of sampling events for analyte across sites
.alpha.-Endosulfan	8
.alpha.-Hexachlorocyclohexane	8
.beta.-Hexachlorocyclohexane	8
.delta.-Hexachlorocyclohexane	8
1,1,1,2-Tetrachloroethane	21
1,1,1-Trichloroethane	21
1,1,2,2-Tetrachloroethane	21
1,1,2-Trichloroethane	21
1,1-Dichloroethane	21
1,1-Dichloroethene	8
1,1-Dichloroethylene	10
1,1-Dichloropropene	21
1,2,3-Trichlorobenzene	21
1,2,3-Trichloropropane	21
1,2,4-Trichlorobenzene	43
1,2,4-Trimethylbenzene	21
1,2-Dibromo-3-chloropropane	10
1,2-Dibromo-3-chloropropane (DBCP)	11
1,2-Dibromoethane (EDB)	9
1,2-Dichlorobenzene	25
1,2-Dichloroethane	21
1,2-Dichloropropane	21
1,2-Dinitrobenzene	12
1,3,5-Trimethylbenzene	21
1,3-Dichlorobenzene	25
1,3-Dichloropropane	21
1,3-Dinitrobenzene	12
1,4-Dichloro-2-butene	10
1,4-Dichlorobenzene	25
1,4-Dinitrobenzene	12
1,4-Dioxane	21
1-Methylnaphthalene	20
2,2-Dichloropropane	21
2,3,4,6-Tetrachlorophenol	20

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Analyte	Number of sampling events for analyte across sites
2,3,5,6-Tetrachlorophenol	20
2,4,5-Trichlorophenol	22
2,4,6-Trichlorophenol	22
2,4-Dichlorophenol	22
2,4-Dimethylphenol	22
2,4-Dinitrophenol	22
2,4-Dinitrotoluene	22
2,6-Dinitrotoluene	22
2-Butanone (MEK)	11
2-Chloroethyl vinyl ether	21
2-Chloronaphthalene	22
2-Chlorophenol	14
2-Chlorotoluene	11
2-Hexanone	21
2-Methylnaphthalene	22
2-Methylphenol	14
2-Nitroaniline	14
2-Nitrophenol	14
3,3'-Dichlorobenzidine	22
3-Methylphenol & 4-Methylphenol	18
3-Nitroaniline	14
4,4'-DDD	14
4,4'-DDE	14
4,4'-DDT	14
4,6-Dinitro-2-methylphenol	14
4,6-Dinitro-o-cresol	8
4-Bromophenyl Phenyl Ether	14
4-Chloro-3-methylphenol	14
4-Chloroaniline	14
4-Chlorophenyl Phenyl Ether	14
4-Chlorotoluene	11
4-Isopropyltoluene	11
4-Methyl-2-Pentanone	11
4-Methylphenol	2
4-Nitroaniline	14
4-Nitrophenol	14

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Analyte	Number of sampling events for analyte across sites
Acenaphthene	17
Acenaphthylene	22
Acetone	21
Acetonitrile	21
Acrolein	21
Acrylonitrile	21
Alachlor	22
Aldrin	22
Alkalinity	346
Alkalinity, total	2
Alkalinity, Total (total hydroxide+carbonate+bicarbonate)	52
Allyl Chloride	21
alpha-BHC	14
Aluminum	801
Ammonia	654
Ammonia-nitrogen as N	2
Ammonium	1
Aniline	20
Anion deficit	1
Anthracene	22
Antimony	353
Arsenic	569
Atrazine	22
Azobenzene	22
Barium	698
Benz[a]anthracene	8
Benzene	21
Benzidine	20
Benzo(a)anthracene	14
Benzo(a)pyrene	14
Benzo(b)fluoranthene	22
Benzo(g,h,i)perylene	13
Benzo(k)fluoranthene	14
Benzo[a]pyrene	8
Benzo[ghi]perylene	8
Benzo[k]fluoranthene	8

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Analyte	Number of sampling events for analyte across sites
Benzoic Acid	2
Benzyl alcohol	22
Beryllium	698
beta-BHC	14
Bicarbonate	400
Biochemical oxygen demand, standard conditions	1
Bis(2-chloro-1-methylethyl) ether	8
bis(2-Chloroethoxy)methane	22
Bis(2-chloroethyl) ether	8
bis(2-Chloroethyl)ether	14
bis(2-Chloroisopropyl)ether	14
bis(2-Ethylhexyl)adipate	10
bis(2-Ethylhexyl)phthalate	14
Boron	699
Bromobenzene	21
Bromochloromethane	11
Bromodichloromethane	11
Bromoform	11
Bromomethane	11
Butyl Benzyl Phthalate	22
Cadmium	568
Calcium	1081
Carbazole	22
Carbon	2
Carbon Disulfide	21
Carbon Tetrachloride	21
Carbon, Total Organic (Toc)	113
Carbonate	272
Cerium	130
CFC-11	10
CFC-12	10
Chlordane (Total)	8
Chloride	407
Chlorine	6
Chlorobenzene	21
Chlorodibromomethane	10

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Analyte	Number of sampling events for analyte across sites
Chloroethane	21
Chloroform	21
Chloromethane	21
Chlorophyll a	16
Chloroprene	21
Chlortetracycline	1
Chromium	696
Chrysene	22
cis-1,2-Dichloroethene	11
cis-1,2-Dichloroethylene	10
cis-1,3-Dichloropropene	21
cis-1,4-Dichloro-2-butene	8
cis-Chlordane	14
cis-Nonachlor	8
Cobalt	698
Color, True	2
Conductivity	184
Copper	699
Cumene	10
Cyanazine	20
Cyanide	9
Cyanide, Total	7
Cyanide, weak acid dissociable	2
delta-BHC	14
Di(2-ethylhexyl) phthalate	8
Dibenz(a,h)anthracene	14
Dibenz[a,h]anthracene	8
Dibenzofuran	22
Dibromochloromethane	11
Dibromomethane	21
Dibutyl phthalate	8
Dichlorobromomethane	10
Dichlorodifluoromethane	11
Dieldrin	22
Diethyl phthalate	8
Diethylphthalate	14

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Analyte	Number of sampling events for analyte across sites
Dimethyl phthalate	8
Dimethylphthalate	14
Di-n-butyl Phthalate	14
Di-n-octyl phthalate	22
Dissolved Oxygen	179
Dissolved oxygen (DO)	277
E. Coli	92
Endosulfan I	14
Endosulfan II	14
Endosulfan sulfate	22
Endrin	22
Endrin aldehyde	22
Endrin Ketone	22
Escherichia coli	137
Ethyl Methacrylate	21
Ethylbenzene	21
Ethylene dibromide	10
Fecal Coliform	2
Fluoranthene	22
Fluorene	22
Fluoride	258
gamma-BHC (lindane)	22
General observation (text)	136
Gran acid neutralizing capacity	1
Gross alpha (Am-241 ref.)	85
Gross alpha (U-nat ref.)	85
Gross alpha radioactivity, (Americium-241 ref std)	8
Gross alpha radioactivity, (nat-Uranium ref std)	8
Gross beta (Cs-137 ref.)	85
Gross beta (Sr/Y-90 ref.)	85
Gross beta radioactivity, (Cesium-137 ref std)	8
Gross beta radioactivity, (Strontium-Yttrium-90 ref std)	8
Hafnium	92
Halon 1011	10
Hardness	475
Hardness, Ca + Mg	126

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Analyte	Number of sampling events for analyte across sites
Hardness, Ca, Mg	1
Heptachlor	22
Heptachlor epoxide	22
Hexachlorobenzene	22
Hexachlorobutadiene	43
Hexachlorocyclopentadiene	22
Hexachloroethane	22
Hydrogen	1
Hydroxide	1
Indeno(1,2,3-cd)pyrene	14
Indeno[1,2,3-cd]pyrene	8
Inorganic carbon	1
Inorganic nitrogen (nitrate and nitrite) as N	187
Iodomethane	11
Ionic strength	1
Iron	349
Isobutanol	10
Isobutyl Alcohol	11
Isophorone	22
Isopropylbenzene	11
Kjeldahl nitrogen	342
Lanthanum	92
Lead	661
Lithium	130
m- & p-Xylenes	11
Magnesium	1081
Manganese	699
m-Cymene	10
m-Dichlorobenzene	18
m-Dinitrobenzene	8
Mercury	882
meta & para Xylene mix	10
Methacrylonitrile	10
Methoxychlor	22
Methyl bromide	10
Methyl ethyl ketone	10

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Analyte	Number of sampling events for analyte across sites
Methyl iodide	10
Methyl isobutyl ketone	10
Methyl Methacrylate	21
Methylacrylonitrile	11
Methylene chloride	10
Methylene chloride (Dichloromethane)	11
Metolachlor	20
Metribuzin	20
m-Nitroaniline	8
Molybdenum	697
Naphthalene	43
n-Butylbenzene	21
Nickel	699
Niobium	130
Nitrate	1
Nitrate + Nitrite (N)	303
Nitrate as N	2
Nitrate+ Nitrite (N)	192
Nitrobenzene	43
Nitrogen	1
Nitrogen, ammonia as N	188
Nitrogen, Nitrite (NO ₂) + Nitrate (NO ₃) as N	188
N-nitrosodimethylamine	20
N-nitroso-di-n-proplamine	14
N-Nitrosodi-n-propylamine	8
N-nitrosodiphenylamine	22
n-Propylbenzene	10
o-Chlorophenol	8
o-Chlorotoluene	10
o-Dichlorobenzene	18
O-Dinitrobenzene	8
o-Nitroaniline	8
o-Nitrophenol	8
Organic anions	1
Organic carbon	3
Orthophosphate	4

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Analyte	Number of sampling events for analyte across sites
o-Xylene	21
p,p'-DDD	8
p,p'-DDE	8
p,p'-DDT	8
p-Bromophenyl phenyl ether	8
p-Chloroaniline	8
p-Chloro-m-cresol	8
p-Chlorophenyl phenyl ether	8
p-Chlorotoluene	10
p-Dichlorobenzene	18
p-Dinitrobenzene	8
Pentachloroethane	21
Pentachlorophenol	22
pH	499
Phenanthrene	22
Phenol	22
Phosphorous	190
Phosphorus	286
Phosphorus as P	188
Phosphorus, Total	303
p-Nitroaniline	8
p-Nitrophenol	8
Potassium	532
Prometryn	8
Prometryne	12
Propanenitrile	10
Propionitrile	11
Propylbenzene	11
Pyrene	22
Pyridine	20
Radium-226	12
Radium-228	18
RBP2, High G, Bank Stability, Left Bank	2
RBP2, High G, Bank Stability, Right Bank	2
RBP2, High G, Channel Alteration	2
RBP2, High G, Channel Flow Status	2

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Analyte	Number of sampling events for analyte across sites
RBP2, High G, Embeddedness	2
RBP2, High G, Epifaunal Substrate/Available Cover	2
RBP2, High G, Frequency of Riffles (or bends)	2
RBP2, High G, Riparian Vegetative Zone Width, LB	2
RBP2, High G, Riparian Vegetative Zone Width, RB	2
RBP2, High G, Sediment Deposition	2
RBP2, High G, Vegetative Protection, Left Bank	2
RBP2, High G, Vegetative Protection, Right Bank	2
RBP2, High G, Velocity/Depth Regime	2
RBP2, Low G, habitat assessment total score	2
Ronnel	10
Salinity	3
Scandium	130
sec-Butylbenzene	11
Selenium	1106
Silica	3
Silicon	256
Silver	698
Simazine	22
Sodium	530
Solids, Dissolved	126
Solids, Total	127
Solids, Total Suspended (TSS)	2
Specific conductance	315
Strontium	348
Styrene	21
Sulfate	367
Sulfate as S	2
Sulfotep	10
Sulfur, sulfate (SO4) as SO4	43
Sum of anions	1
Sum of cations	1
Temperature	179
Temperature, air	98
Temperature, water	317
tert-Butyl methyl ether (MTBE)	11

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Analyte	Number of sampling events for analyte across sites
tert-Butylbenzene	21
Tetrachloroethene	11
Tetrachloroethylene	10
Tetrahydrofuran	10
Tetrahydrofuran (THF)	11
Thallium	353
Thorium-232	130
Tin	218
Titanium	130
Toluene	21
Total Coliform	137
Total Dissolved Solids	641
Total Kjeldahl Nitrogen	491
Total Organic Carbon	187
Total suspended solids	652
Total Trihalomethanes	11
Total Xylenes	11
trans-1,2-Dichloroethene	11
trans-1,2-Dichloroethylene	10
trans-1,3-Dichloropropene	21
trans-1,4-Dichloro-2-butene	21
trans-Chlordane	22
Tribromomethane	10
Trichloroethene	11
Trichloroethylene	10
Trichlorofluoromethane	11
Trihalomethanes	10
True color	2
Turbidity	460
Uranium-234/235/238	357
Uranium-238	138
Vanadium	699
Vinyl Acetate	21
Vinyl Chloride	21
Weather comments (text)	98
Xylene	10

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Analyte	Number of sampling events for analyte across sites
Yttrium	130
Zinc	702
Zirconium	130

Table A-11 Analytes assessed for Lake Roberts and Snow Lake

Analyte
.alpha.-Endosulfan
.alpha.-Hexachlorocyclohexane
.beta.-Endosulfan
.beta.-Hexachlorocyclohexane
.delta.-Hexachlorocyclohexane
1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,1-Dichloropropene
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,2-Dibromo-3-chloropropane
1,2-Dichloroethane
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichloropropane
1,4-Dichloro-2-butene
1,4-Dioxane
1-Methylnaphthalene
2,2-Dichloropropane
2,3,4,6-Tetrachlorophenol
2,3,5,6-Tetrachlorophenol
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloroethyl vinyl ether
2-Chloronaphthalene
2-Hexanone
2-Methylnaphthalene
3,3'-Dichlorobenzidine
3-Methylphenol & 4-Methylphenol
4,6-Dinitro-o-cresol

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Analyte
Acenaphthene
Acenaphthylene
Acetone
Acetonitrile
Acrolein
Acrylonitrile
Alachlor
Aldrin
Allyl chloride
Aluminum
Aniline
Anthracene
Antimony
Arsenic
Atrazine
Azobenzene
Barium
Benz[a]anthracene
Benzene
Benzidine
Benzo(b)fluoranthene
Benzo[a]pyrene
Benzo[ghi]perylene
Benzo[k]fluoranthene
Benzyl alcohol
Beryllium
Bis(2-chloro-1-methylethyl) ether
Bis(2-chloroethoxy)methane
Bis(2-chloroethyl) ether
bis(2-Ethylhexyl)adipate
Boron
Bromobenzene
Butyl benzyl phthalate
Cadmium
Calcium
Carbazole
Carbon disulfide
Carbon tetrachloride
CFC-11
CFC-12
Chlorobenzene
Chlorodibromomethane

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Analyte
Chloroethane
Chloroform
Chloromethane
Chlorophyll a
Chloroprene
Chromium
Chrysene
cis-1,2-Dichloroethylene
cis-1,3-Dichloropropene
cis-Chlordane
cis-Nonachlor
Cobalt
Copper
Cumene
Cyanazine
Di(2-ethylhexyl) phthalate
Dibenz[a,h]anthracene
Dibenzofuran
Dibromomethane
Dibutyl phthalate
Dichlorobromomethane
Dieldrin
Diethyl phthalate
Dimethyl phthalate
Di-n-octyl phthalate
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Escherichia coli
Ethyl methacrylate
Ethylbenzene
Ethylene dibromide
Fluoranthene
Fluorene
gamma-BHC (lindane)
Gross alpha radioactivity, (Americium-241 ref std)
Gross alpha radioactivity, (nat-Uranium ref std)
Gross beta radioactivity, (Cesium-137 ref std)
Gross beta radioactivity, (Strontium-Yttrium-90 ref std)

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Analyte
Halon 1011
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Indeno[1,2,3-cd]pyrene
Isobutanol
Isophorone
Kjeldahl nitrogen
Lead
Magnesium
Manganese
m-Cymene
m-Dichlorobenzene
m-Dinitrobenzene
Mercury
meta & para Xylene mix
Methacrylonitrile
Methoxychlor
Methyl bromide
Methyl ethyl ketone
Methyl iodide
Methyl isobutyl ketone
Methyl methacrylate
Methylene chloride
Metolachlor
Metribuzin
m-Nitroaniline
Molybdenum
Naphthalene
n-Butylbenzene
Nickel
Nitrobenzene
Nitrogen, ammonia as N
Nitrogen, Nitrite (NO ₂) + Nitrate (NO ₃) as N
N-Nitrosodimethylamine
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine
n-Propylbenzene
o-Chlorophenol

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Analyte
o-Chlorotoluene
o-Dichlorobenzene
O-Dinitrobenzene
o-Nitroaniline
o-Nitrophenol
o-Xylene
p,p'-DDD
p,p'-DDE
p,p'-DDT
p-Bromophenyl phenyl ether
p-Chloroaniline
p-Chloro-m-cresol
p-Chlorophenyl phenyl ether
p-Chlorotoluene
p-Dichlorobenzene
p-Dinitrobenzene
Pentachloroethane
Pentachlorophenol
Phenanthrene
Phenol
Phosphorus as P
p-Nitroaniline
p-Nitrophenol
Prometryn
Propanenitrile
Pyrene
Pyridine
Ronnel
Selenium
Silver
Simazine
Styrene
Sulfotep
tert-Butylbenzene
Tetrachloroethylene
Tetrahydrofuran
Thallium
Toluene
Total Coliform
Total suspended solids
trans-1,2-Dichloroethylene
trans-1,3-Dichloropropene

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Analyte
trans-1,4-Dichloro-2-butene
trans-Chlordane
Tribromomethane
Trichloroethylene
Trihalomethanes
Uranium-234/235/238
Vanadium
Vinyl acetate
Vinyl chloride
Xylene
Zinc