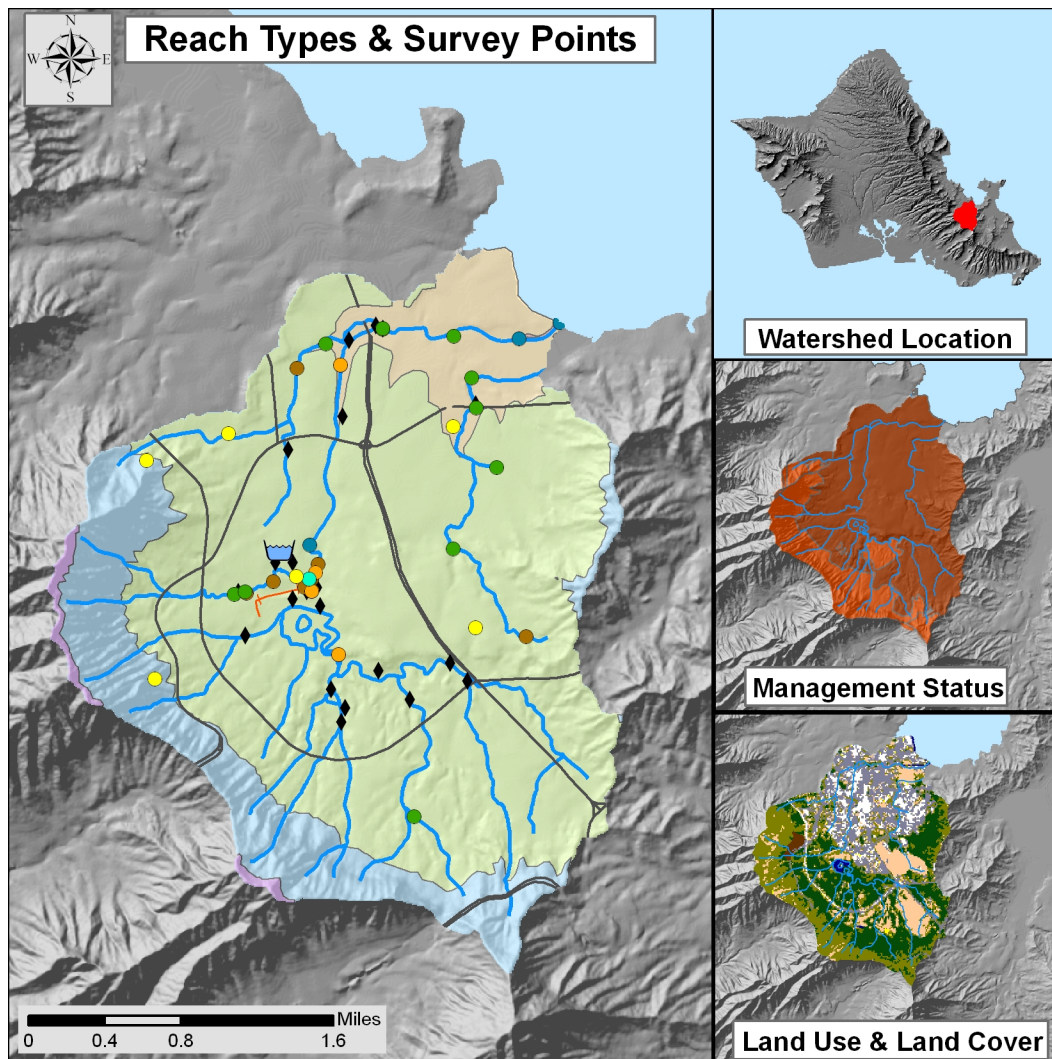


## Kāne‘ohe, O‘ahu



### WATERSHED FEATURES

Kāne‘ohe watershed occurs on the island of O‘ahu. The Hawaiian meaning of the name is “bamboo husband”. The area of the watershed is 7.3 square mi (18.8 square km), with maximum elevation of 2782 ft (848 m). The watershed’s DAR cluster code is not yet determined. The percent of the watershed in the different land use districts is as follows: 0% agricultural, 60.2% conservation, 0% rural, and 39.8% urban.

**Land Stewardship: Percentage of the land in the watershed managed or controlled by the corresponding agency or entity. Note that this is not necessarily ownership.**

<u>Military</u>	<u>Federal</u>	<u>State</u>	<u>OHA</u>	<u>County</u>	<u>Nature Conservancy</u>	<u>Other</u>	<u>Private</u>
0.0	0.1	4.5	0.0	22.4	0.0		73.1

**Land Management Status: Percentage of the watershed in the categories of biodiversity protection and management created by the Hawaii GAP program.**

Permanent Biodiversity <u>Protection</u>	Managed for Multiple <u>Uses</u>	Protected but <u>Unmanaged</u>	<u>Unprotected</u>
0.0	0.0	26.1	73.9

**Land Use: Areas of the various categories of land use. These data are based on NOAA C-CAP remote sensing project.**

	<u>Percent</u>	<u>Square mi</u>	<u>Square km</u>
High Intensity Developed	7.6	0.55	1.43
Low Intensity Developed	20.9	1.52	3.94
Cultivated	0.9	0.06	0.16
Grassland	13.7	0.99	2.58
Scrub/Shrub	29.0	2.11	5.46
Evergreen Forest	27.0	1.97	5.09
Palustrine Forested	0.0	0.00	0.00
Palustrine Scrub/Shrub	0.0	0.00	0.00
Palustrine Emergent	0.0	0.00	0.00
Estuarine Forested	0.0	0.00	0.00
Bare Land	0.3	0.02	0.06
Unconsolidated Shoreline	0.0	0.00	0.00
Water	0.6	0.05	0.12
Unclassified	0.0	0.00	0.00

### STREAM FEATURES

Kāneʻohe is a perennial stream. Total stream length is 20.3 mi (32.6 km). The terminal stream order is 3.

**Reach Type Percentages: The percentage of the stream's channel length in each of the reach type categories.**

<u>Estuary</u>	<u>Lower</u>	<u>Middle</u>	<u>Upper</u>	<u>Headwaters</u>
1.3	0.0	85.9	12.8	0.0

The following stream(s) occur in the watershed:

Kamoʻoaliʻi      Kāneʻohe      Kapunahala      Luluku

### BIOTIC SAMPLING EFFORT

Biotic samples were gathered in the following year(s):

1939	1969	1974	1975	1977	1984	1990
1993	1999	2000	2001	2002	2003	

**Distribution of Biotic Sampling: The number of survey locations that were sampled in the various reach types.**

<u>Survey type</u>	<u>Estuary</u>	<u>Lower</u>	<u>Middle</u>	<u>Upper</u>	<u>Headwaters</u>
Damselfly Surveys	0	1	3	2	0
DAR General Surveys	3	0	1	0	0
HDFG	0	1	3	0	0
Published Report	0	4	3	0	0
Unpublished Report	0	0	10	0	0
USGS Surveys	0	0	1	0	0

**BIOTA INFORMATION****Species List****Native Species****Crustaceans**

Amphipod sp.  
*Atyoida bisulcata*

Hapa crab  
*Macrobrachium grandimanus*  
Ostracod sp.

**Fish**

*Awaous guamensis*  
*Chanos chanos*  
*Eleotris sandwicensis*  
*Elops hawaiiensis*  
*Kuhlia sandwicensis*  
*Kuhlia xenura*  
*Mugil cephalus*  
*Stenogobius hawaiiensis*

**Snails**

*Ferrissia sharpi*  
*Neritina vespertina*  
Snail sp.

**Sponges**

Sponge sp.

**Worms**

Hirudinean sp.  
*Namalycastis abiuma*  
*Namalycastis sp.*  
*Oligochaete sp.*  
*Prostoma sp.*

**Native Species****Insects**

Coleoptera sp.  
Collembola sp.  
*Dasyrhicnoessa insularis*  
Empidid sp.  
*Hemerodromia sp.*  
*Hydroptila sp.*  
*Hyposmocoma sp.*  
*Limnoxenus sp.*  
*Limonia sp.*  
*Megalagrion nigrohamatum nigrolineatum*  
*Orthocladus sp.*  
*Scatella hawaiiensis*

**Introduced Species****Clams**

*Corbicula fluminea*

**Crustaceans**

*Caridina weberi*  
*Hyalella azteca*  
Isopod sp.  
*Macrobrachium lar*  
*Neocaridina denticulata*  
*Procambarus clarkii*  
*Scylla serrata*

**Introduced Species****Insects**

*Achradochera arcuata*  
*Atrichopogon jacobsoni*  
*Caenis nigropunctata*  
*Caenodes nigropunctatus*  
*Cheumatopsyche analis*  
*Cheumatopsyche pettiti*  
Chironomid larvae

<b>Fish</b>	<i>Ancistrus cf. temminckii</i>	<i>Chrysotus longipalpus</i>
	<i>Archocentrus sp.</i>	<i>Cricotopus bicinctus</i>
	<i>Archocentrus nigrofasciatus</i>	<i>Dolichopus exsul</i>
	<i>Clarias fuscus</i>	<i>Donaceus sp.</i>
	<i>Gambusia affinis</i>	<i>Enallagma civile</i>
	<i>Hypostomus watwata</i>	<i>Hydroptila arctia</i>
	<i>Hypsophrys nicaraguensis</i>	<i>Ischnura posita</i>
	<i>Limia vittata</i>	<i>Ischnura ramburi</i>
	<i>Melanochromis johannii</i>	<i>Limonia advena</i>
	<i>Misgurnus anguillicaudatus</i>	<i>Mesovelgia mulsanti</i>
	<i>Monopterus albus</i>	<i>Pelastoneurus lugubris</i>
	<i>Poecilia reticulata</i>	<i>Scatella stagnalis</i>
	<i>Poecilia sphenops</i>	Trichoptera larvae
	Poeciliid sp.	
	<i>Sarotherodon melanotheron</i>	
	<i>Tilapia sp.</i>	
	unidentified poeciliid	
	<i>Xiphophorus helleri</i>	
	<i>Xiphophorus maculatus</i>	
	<i>Xiphophorus sp.</i>	
<b>Plants</b>	<i>Elodea sp.</i>	
	<i>Vallisneria sp.</i>	
<b>Reptiles</b>	<i>Pelodiscus sinensis</i>	
<b>Snails</b>	<i>Cipangopaludina chinensis</i>	
	<i>Melania sp.</i>	
	<i>Melanooides tuberculata</i>	
	Physid sp.	
	Planorbid sp.	
	<i>Pseudosuccinea columella</i>	
	Thiarid sp.	

**Species Distributions: Presence (P) of species in different stream reaches.**

<u>Scientific Name</u>	<u>Status</u>	<u>Estuary</u>	<u>Lower</u>	<u>Middle</u>	<u>Upper</u>	<u>Headwaters</u>
<i>Atyoida bisulcata</i>	Endemic			P		
<i>Macrobrachium grandimanus</i>	Endemic		P	P		
<i>Eleotris sandwicensis</i>	Endemic		P	P		
<i>Kuhlia xenura</i>	Endemic		P			
<i>Stenogobius hawaiiensis</i>	Endemic		P	P		
<i>Megalagrion nigrohamatum</i> <i>nigrolineatum</i>	Endemic				P	
<i>Orthocladus sp.</i>	Endemic		P	P		
<i>Scatella hawaiiensis</i>	Endemic		P			
<i>Ferrissia sharpi</i>	Endemic		P			
<i>Neritina vespertina</i>	Endemic		P			

Amphipod sp.	Indigenous		P	P
<i>Caridina weberi</i>	Indigenous			P
<i>Awaous guamensis</i>	Indigenous		P	P
<i>Chanos chanos</i>	Indigenous	P		
<i>Elops hawaiiensis</i>	Indigenous	P		
<i>Kuhlia sandvicensis</i>	Indigenous	P		
<i>Mugil cephalus</i>	Indigenous	P	P	
<i>Dasyrhicnoessa insularis</i>	Indigenous		P	
<i>Limnoxenus sp.</i>	Indigenous			P
<i>Limonia sp.</i>	Indigenous		P	P
Sponge sp.	Indigenous		P	
<i>Namalycastis sp.</i>	Indigenous		P	
<i>Corbicula fluminea</i>	Introduced		P	
Isopod sp.	Introduced			P
<i>Macrobrachium lar</i>	Introduced			P
<i>Neocaridina denticulata</i>	Introduced			P
<i>Procambarus clarkii</i>	Introduced	P	P	P
<i>Scylla serrata</i>	Introduced	P		
<i>Ancistrus cf. temminckii</i>	Introduced		P	
<i>Archocentrus sp.</i>	Introduced		P	
<i>Archocentrus nigrofasciatus</i>	Introduced		P	
<i>Clarias fuscus</i>	Introduced		P	P
<i>Gambusia affinis</i>	Introduced		P	P
<i>Hypostomus watwata</i>	Introduced		P	P
<i>Limia vittata</i>	Introduced	P		
<i>Melanochromis johannii</i>	Introduced		P	
<i>Misgurnus anguillicaudatus</i>	Introduced			P
<i>Monopterus albus</i>	Introduced			P
<i>Poecilia reticulata</i>	Introduced			P
<i>Poecilia sphenops</i>	Introduced		P	P
Poeciliid sp.	Introduced		P	
<i>Sarotherodon melanotheron</i>	Introduced		P	
<i>Tilapia sp.</i>	Introduced	P	P	P
unidentified poeciliid	Introduced		P	P
<i>Xiphophorus helleri</i>	Introduced		P	P

<i>Xiphophorus maculatus</i>	Introduced		P
<i>Xiphophorus sp.</i>	Introduced	P	
<i>Achradochera arcuata</i>	Introduced	P	
<i>Atrichopogon jacobsoni</i>	Introduced	P	
<i>Caenis nigropunctata</i>	Introduced		P
<i>Cheumatopsyche analis</i>	Introduced	P	P
Chironomid larvae	Introduced	P	P
<i>Chrysotus longipalpus</i>	Introduced	P	
<i>Cricotopus bicinctus</i>	Introduced	P	
<i>Dolichopus exsul</i>	Introduced	P	
<i>Donaceus sp.</i>	Introduced	P	
<i>Enallagma civile</i>	Introduced	P	
<i>Ischnura posita</i>	Introduced		P
<i>Ischnura ramburi</i>	Introduced	P	P
<i>Limonia advena</i>	Introduced	P	
<i>Mesovelgia mulsanti</i>	Introduced	P	
<i>Pelastoneurus lugubris</i>	Introduced	P	
<i>Scatella stagnalis</i>	Introduced	P	
Trichoptera larvae	Introduced		P
<i>Elodea sp.</i>	Introduced		P
<i>Pelodiscus sinensis</i>	Introduced	P	
<i>Cipangopaludina chinensis</i>	Introduced	P	
<i>Melania sp.</i>	Introduced		P
Physid sp.	Introduced	P	P
Planorbid sp.	Introduced	P	
Thiarid sp.	Introduced	P	
Hapa crab	Undetermined	P	
Ostracod sp.	Undetermined		P
Coleoptera sp.	Undetermined		P
Empidid sp.	Undetermined	P	P
<i>Hemerodromia sp.</i>	Undetermined	P	
<i>Hydroptila sp.</i>	Undetermined	P	
Snail sp.	Undetermined	P	
Hirudinean sp.	Undetermined	P	P
<i>Oligochaete sp.</i>	Undetermined	P	P

## HISTORIC RANKINGS

**Historic Rankings:** These are rankings of streams from historical studies. "Yes" means the stream was considered worthy of protection by that method. Some methods include non-biotic data in their determination. See Atlas Key for details.

Multi-Attribute Prioritization of Streams - Potential Heritage Streams (1998): No

Hawaii Stream Assessment Rank (1990): Moderate

U.S. Fish and Wildlife Service High Quality Stream (1988): No

The Nature Conservancy- Priority Aquatic Sites (1985): No

National Park Service - Nationwide Rivers Inventory (1982): No

**Current DAR Decision Rule Status:** The following criteria are used by DAR to consider the biotic importance of streams. "Yes" means that watershed has that quality.

Native Insect Diversity  
> 19 spp.

No

Native Macrofauna  
Diversity > 5 spp.

Yes

Absence of Priority 1  
Introduced

No

Abundance of Any  
Native Species

No

Presence of Candidate  
Endangered Species

Yes

Endangered Newcomb's  
Snail Habitat

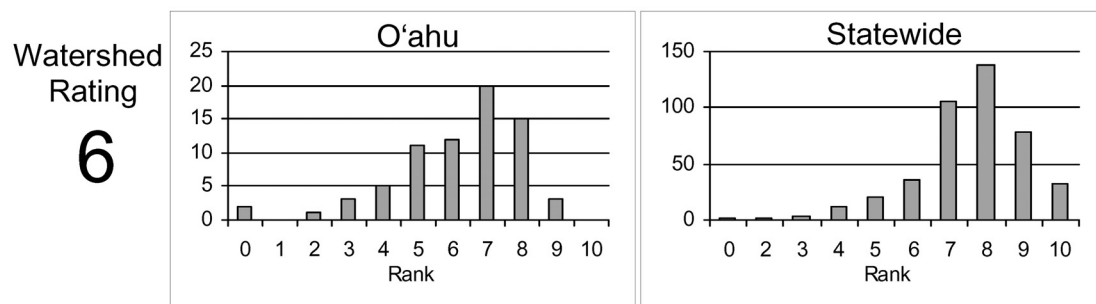
No

### CURRENT WATERSHED AND STREAM RATINGS

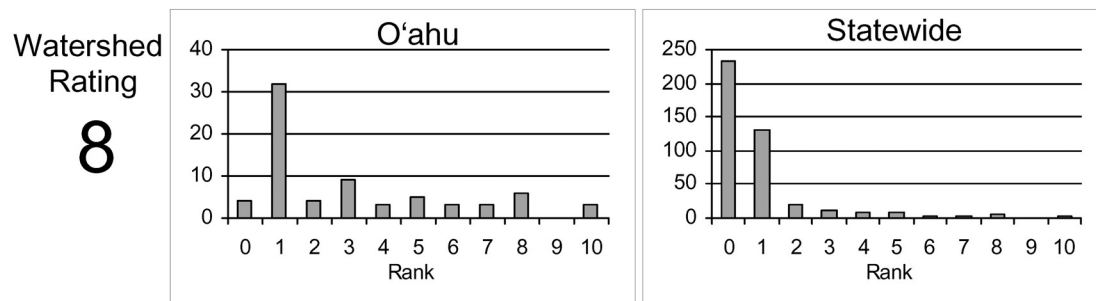
The current watershed and stream ratings are based on the data contained in the DAR Aquatic Surveys Database. The ratings provide the score for the individual watershed or stream, the distribution of ratings for that island, and the distribution of ratings statewide. This allows a better understanding of the meaning of a particular ranking and how it compares to other streams. The ratings are standardized to range from 0 to 10 (0 is lowest and 10 is highest rating) for each variable and the totals are also standardized so that the rating is not the average of each component rating. These ratings are subject to change as more data are entered into the DAR Aquatic Surveys Database and can be automatically recalculated as the data improve. In addition to the ratings, we have also provided an estimate of the confidence level of the ratings. This is called rating strength. The higher the rating strength the more likely the data and rankings represent the actual condition of the watershed, stream, and aquatic biota.

#### WATERSHED RATING: Kāneʻohe, Oʻahu

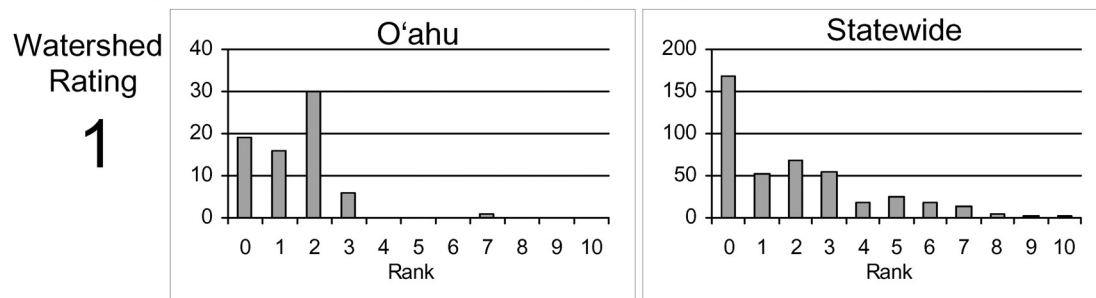
Land Cover Rating: Rating is based on a scoring system where in general forested lands score positively and developed lands score negatively.



Shallow Waters Rating: Rating is based on a combination of the extent of estuarine and shallow marine areas associated with the watershed and stream.



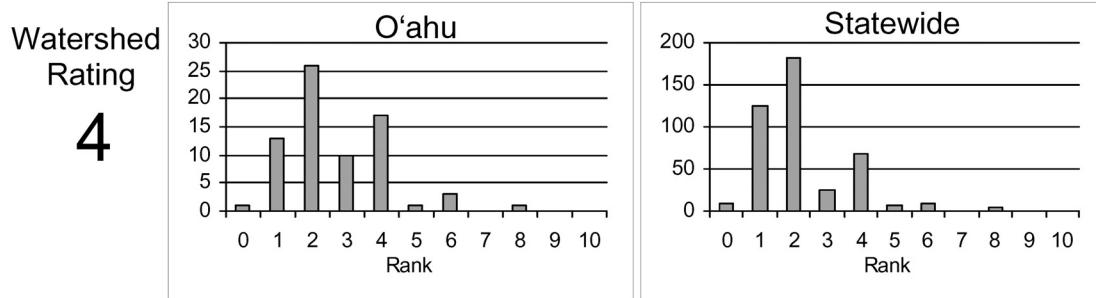
Stewardship Rating: Rating is based on a scoring system where higher levels of land and biodiversity protection within the watershed score positively.



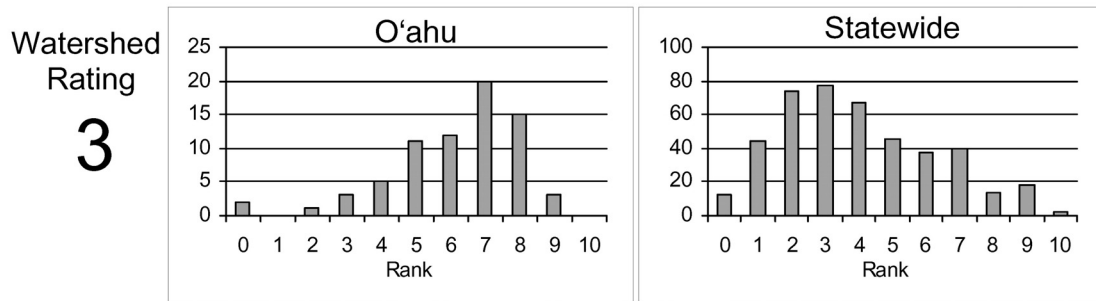


**WATERSHED RATING (Cont): Kāneʻohe, Oʻahu**

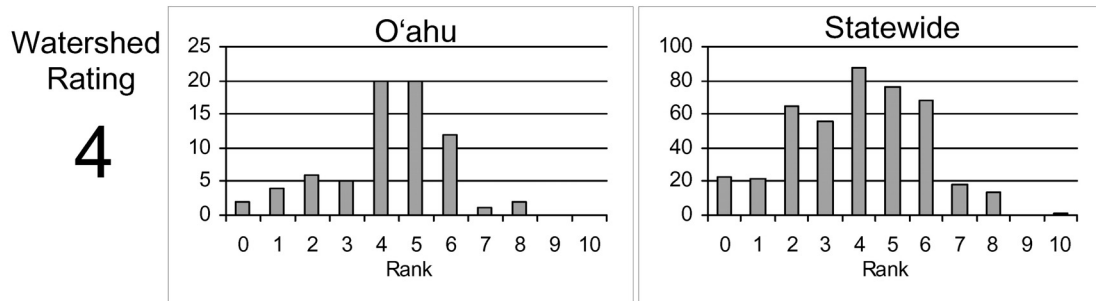
Size Rating: Rating is based on the watershed area and total stream length. Larger watersheds and streams score more positively.



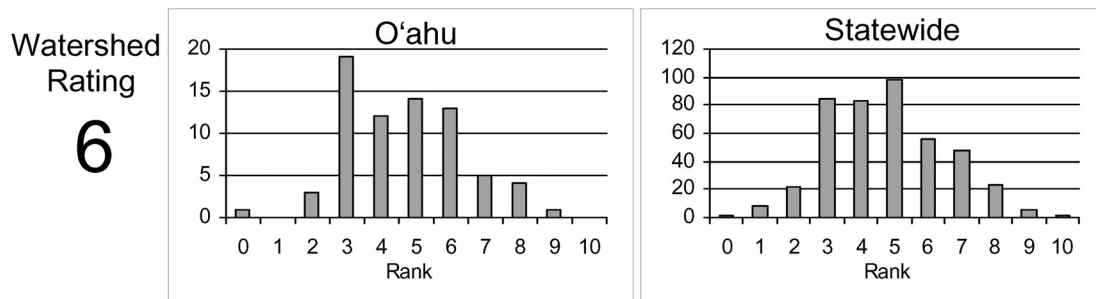
Wetness Rating: Rating is based on the average annual rainfall within the watershed. Higher rainfall totals score more positively.



Reach Diversity Rating: Rating is based on the types and amounts of different stream reaches available in the watershed. More area in different reach types score more positively.



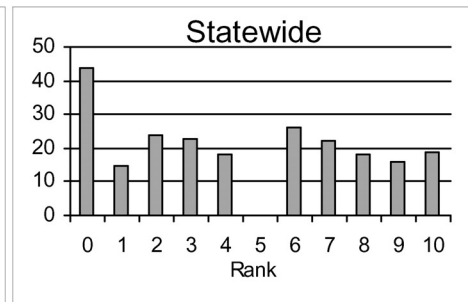
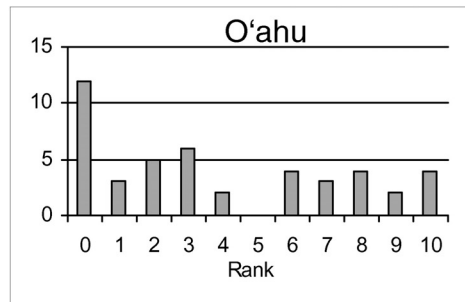
Total Watershed Rating: Rating is based on combination of Land Cover Rating, Shallow Waters Rating, Stewardship Rating, Size Rating, Wetness Rating, and Reach Diversity Rating.



**BIOLOGICAL RATING: Kāneʻohe, Oʻahu**

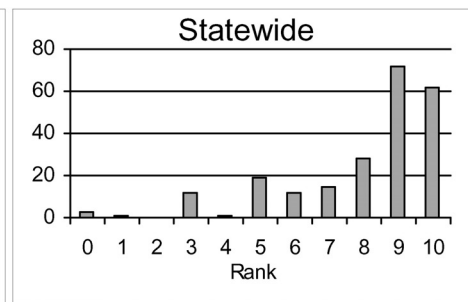
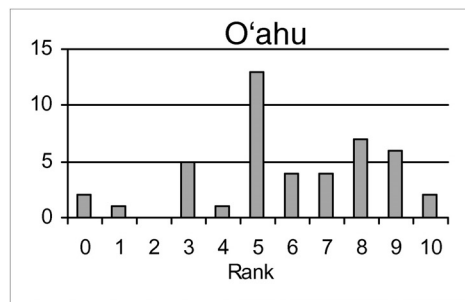
Native Species Rating: Rating is based on the number of native species observed in the watershed.

Stream Rating  
**7**



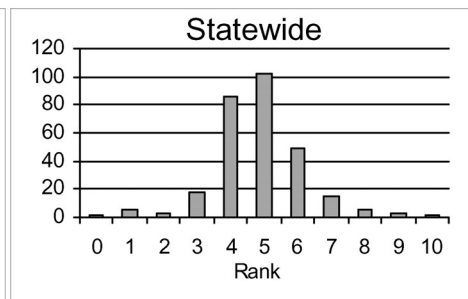
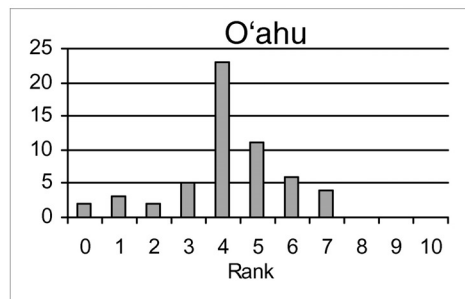
Introduced Genera Rating: Rating is based on the number of introduced genera observed in the watershed.

Stream Rating  
**3**



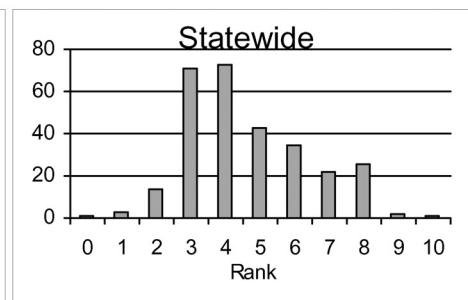
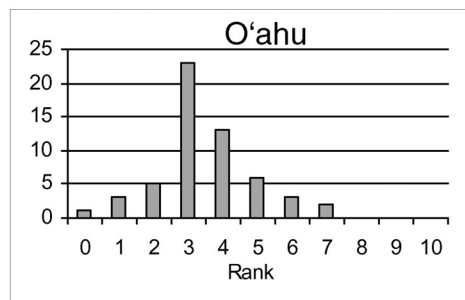
All Species' Score Rating: Rating is based on the Hawaii Stream Assessment scoring system where native species score positively and introduced species score negatively.

Stream Rating  
**0**



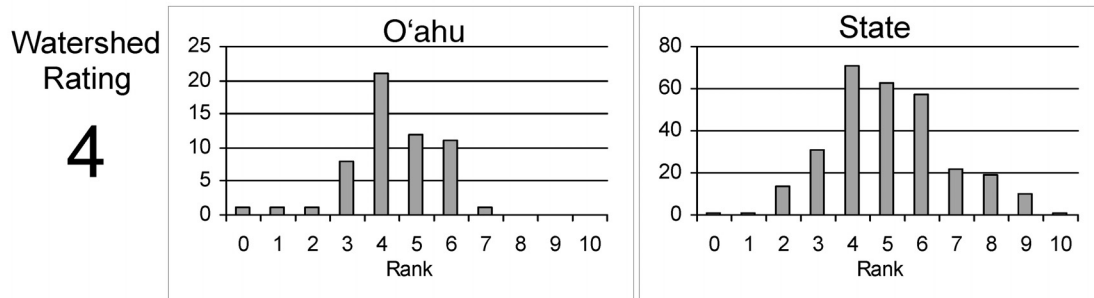
Total Biological Rating: Rating is the combination of the Native Species Rating, Introduced Genera Rating, and the All Species' Score Rating.

Stream Rating  
**2**

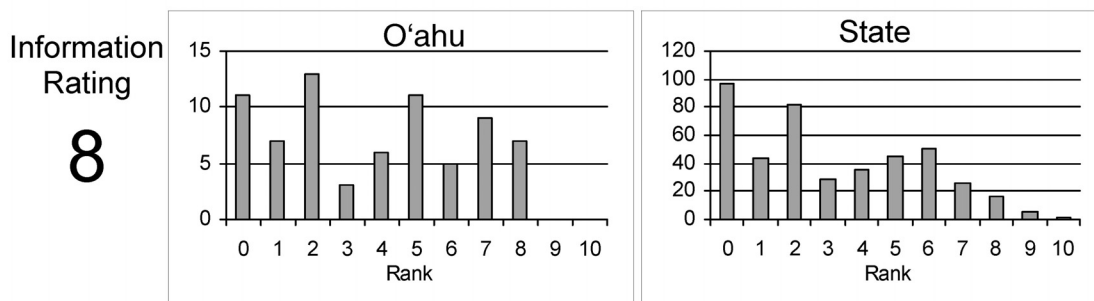


**OVERALL RATING: Kāneʻohe, Oʻahu**

Overall Rating: Rating is a combination of the Total Watershed Rating and the Total Biological Rating.

**RATING STRENGTH: Kāneʻohe, Oʻahu**

Rating Strength: Represents an estimate of the overall study effort in the stream and is a combination of the number of studies, number of different reaches surveyed, and the number of different survey types.

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