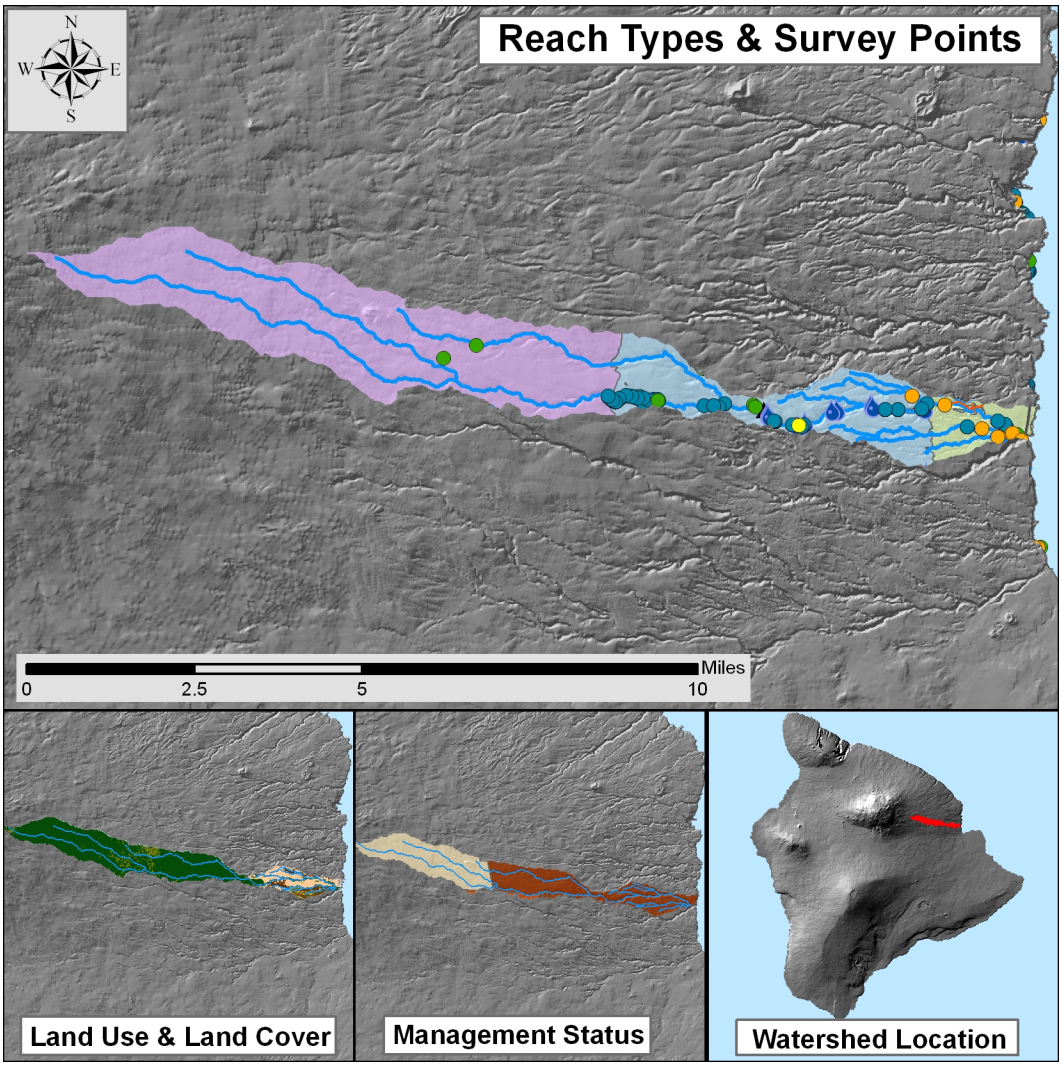
DAR Watershed Code: 82056

Honoli‘i, Hawai‘i



WATERSHED FEATURES

Honoli‘i watershed occurs on the island of Hawai‘i. The Hawaiian meaning of the name is “little valley”. The area of the watershed is 15.1 square mi (39.2 square km), with maximum elevation of 6125 ft (1867 m). The watershed's DAR cluster code is 6, meaning that the watershed is large, narrow, and steep in the upper watershed. The percent of the watershed in the different land use districts is as follows: 21% agricultural, 78.4% conservation, 0% rural, and 0.6% 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.

Military	Federal	State	OHA	County	Nature Conservancy	Other Private
0.0	45.4	2.2	0.0	0.0	0.0	52.4

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

Permanent Biodiversity Protection	Managed for Multiple Uses	Protected but Unmanaged	Unprotected
45.4	0.0	1.9	52.7

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

	Percent	Square mi	Square km
High Intensity Developed	0.2	0.02	0.06
Low Intensity Developed	0.4	0.07	0.17
Cultivated	4.6	0.69	1.79
Grassland	10.3	1.55	4.02
Scrub/Shrub	7.2	1.09	2.82
Evergreen Forest	77.3	11.71	30.32
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	0.0	0.01	0.02
Unconsolidated Shoreline	0.0	0.00	0.00
Water	0.0	0.00	0.00
Unclassified	0.0	0.00	0.00

STREAM FEATURES

Honoli‘i is a perennial stream. Total stream length is 38.3 mi (61.6 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.

Estuary	Lower	Middle	Upper	Headwaters
0.0	1.2	13.2	38.4	47.3

The following stream(s) occur in the watershed:

Honoli‘i Kaiwiki Pōhakupuka

BIOTIC SAMPLING EFFORT

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

1966 1967 1989 1990 1991 1992 1994
1995 2002 2003

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

Survey type	Estuary	Lower	Middle	Upper	Headwaters
Damselfly Surveys	0	0	0	1	0
DAR Observation	0	0	0	5	0
DAR Point Quadrat	0	51	78	183	0
HDFG	0	2	2	2	0
Published Report	2	0	0	4	2

BIOTA INFORMATION

Species List

Native Species	
Crustaceans	*Atyoida bisulcata*
Fish	*Awaous guamensis*
	Eleotris sandwicensis
	Gobiid sp.
	Lentipes concolor
	Sicyopterus stimpsoni
	Stenogobius hawaiiensis
Snails	*Neritina granosa*
Worms	*Amynthas diffringens*
	Myzobdella lugubris

Native Species	
Insects	*Anax junius*
	Anax strenuus
	Brachydeutera hebes
	Campsicnemus tibialis
	Chironomus hawaiiensis
	Dasyhelea hawaiiensis
	Eurynogaster sp.
	Forcipomyia hardyi
	Forcipomyia sp.
	Hyposmocoma sp.
	Limonia hawaiiensis
	Limonia jacobus
	Limonia kauaiensis
	Limonia nigropolita
	Limonia sp.
	Limonia stygipennis
	Limonia swezeyi
	Megalagrion blackburni
	Megalagrion calliphya
	Megalagrion hawaiiense
	Megalagrion sp.
	Microvelia vagans
	Orthocladius grimshawi
	Procanacae acuminata
	Procanace confusa
	Procanace sp.
	Pseudosmittia paraconjugata
	Rhantus pacificus
	Saldula exulans
	Saldula oahuense
	Saldula procellaris
	Scatella cilipes

Scatella clavipes
Scatella fluvialis
Scatella oahuense
Scatella warreni
Scatella williamsi
Telmatogeton sp.
Telmatogeton torrenticola

Introduced Species		Introduced Species	
Amphibians	*Bufo marinus*	**Insects**	*Cheumatopsyche analis*
	Rana catesbiana		Chironomid larvae
Crustaceans	*Macrobrachium lar*		*Cricotopus bicinctus*
	Procambarus clarkii		*Dolichopus exsul*
Fish	Poeciliid sp.		*Hydroptila potosina*
Worms	*Camallanus cotti*		*Ischnura posita*
			Limonia advena
			Pantala flavescens
			Psychoda sp.

Species Size Data: Species size (inches) observed in DAR Point Quadrat Surveys.

Scientific Name	Status	Minimum Size	Maximum Size	Average Size
Bufo marinus	Introduced	1.5	1.5	1.5
Rana catesbiana	Introduced	3	4	3.5
Atyoida bisulcata	Endemic	0.75	2	1.2
Macrobrachium lar	Introduced	1	6.5	3.4
Lentipes concolor	Endemic	0.75	5.5	2.5
Sicyopterus stimpsoni	Endemic	1	7.5	3.6
Awaous guamensis	Indigenous	0.75	13	3.9
Neritina granosa	Endemic	0.25	2	0.6

Average Density: The densities (#/square yard) for species observed in DAR Point Quadrat Surveys averaged over all sample dates in each reach type.

Scientific Name	Status	Estuary	Low	Mid	Upper	Headwaters
Atyoida bisulcata	Endemic			0.03	26.5	
Lentipes concolor	Endemic			0.11	0.64	
Neritina granosa	Endemic		18.9	0.43	0.13	
Sicyopterus stimpsoni	Endemic		0.27	0.23	0.01	
Awaous guamensis	Indigenous		0.35	0.31	0	
Bufo marinus	Introduced			0		
Macrobrachium lar	Introduced		0.18	0.04	0.01	
Rana catesbiana	Introduced				0.01	

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

Scientific Name	Status	Estuary	Lower	Middle	Upper	Headwaters
Atyoida bisulcata	Endemic		P	P	P	
Eleotris sandwicensis	Endemic	P				

Lentipes concolor	Endemic	P		P	P	
Sicyopterus stimpsoni	Endemic	P	P	P	P	
Stenogobius hawaiiensis	Endemic	P				
Anax strenuus	Endemic				P	P
Brachydeutera hebes	Endemic					P
Campsicnemus tibialis	Endemic				P	
Chironomus hawaiiensis	Endemic					P
Dasyhelea hawaiiensis	Endemic					P
Forcipomyia hardyi	Endemic					P
Hyposmocoma sp	Endemic				P	
Limonia hawaiiensis	Endemic				P	P
Limonia jacobus	Endemic				P	P
Limonia kauaiensis	Endemic				P	P
Limonia nigropolita	Endemic				P	
Limonia stygipennis	Endemic				P	
Limonia swezeyi	Endemic				P	P
Megalagrion blackburni	Endemic				P	P
Megalagrion calliphya	Endemic				P	P
Megalagrion hawaiiense	Endemic				P	P
Megalagrion sp.	Endemic		P	P	P	
Microvelia vagans	Endemic				P	P
Orthocladius grimshawi	Endemic					P
Procanacae acuminata	Endemic				P	
Procanace confusa	Endemic				P	
Pseudosmittia paraconjugata	Endemic				P	
Rhantus pacificus	Endemic					P
Saldula exulans	Endemic				P	P
Saldula oahuense	Endemic				P	
Saldula procellaris	Endemic				P	P
Scatella cilipes	Endemic				P	
Scatella clavipes	Endemic				P	P
Scatella fluvialis	Endemic				P	
Scatella oahuense	Endemic				P	
Scatella warreni	Endemic					P
Scatella williamsi	Endemic				P	
Telmatogeton torrenticola	Endemic				P	
Neritina granosa	Endemic		P	P	P	
Awaous guamensis	Indigenous	P	P	P	P	
Gobiid sp.	Indigenous		P		P	
Anax junius	Indigenous				P	
Eurynogaster sp.	Indigenous					P
Forcipomyia sp.	Indigenous				P	

Limonia sp.	Indigenous			P	
Procanace sp.	Indigenous			P	P
Telmatogeton sp.	Indigenous	P	P	P	
Amynthas diffringens	Indigenous	P			
Bufo marinus	Introduced		P		
Rana catesbiana	Introduced			P	
Macrobrachium lar	Introduced	P	P	P	
Procambarus clarkii	Introduced		P		
Poeciliid sp.	Introduced		P		
Cheumatopsyche analis	Introduced			P	P
Chironomid larvae	Introduced	P		P	
Cricotopus bicinctus	Introduced			P	P
Dolichopus exsul	Introduced			P	
Hydroptila potosina	Introduced			P	
Ischnura posita	Introduced			P	
Limonia advena	Introduced			P	
Pantala flavescens	Introduced			P	
Psychoda sp.	Introduced			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): Outstanding

U.S. Fish and Wildlife Service High Quality Stream (1988): Yes

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.	Native Macrofauna Diversity > 5 spp.	Absence of Priority 1 Introduced
Yes	Yes	No
Abundance of Any Native Species	**Presence of Candidate Endangered Species**	**Endangered Newcomb's Snail Habitat**
No	No	No

CURRENT WATERSHED AND STREAM RATINGS

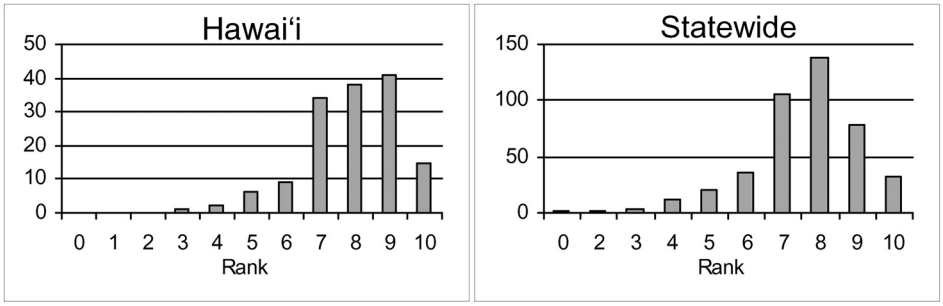
The current watershed and stream ratings are based on the data contained in the DAR Aquatic Surveys Database. The ratings provide the score for the individual watershed or stream, the distribution of ratings for that island, and the distribution of ratings statewide. This allows a better understanding 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: Honoli‘i, Hawai‘i

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

Watershed Rating

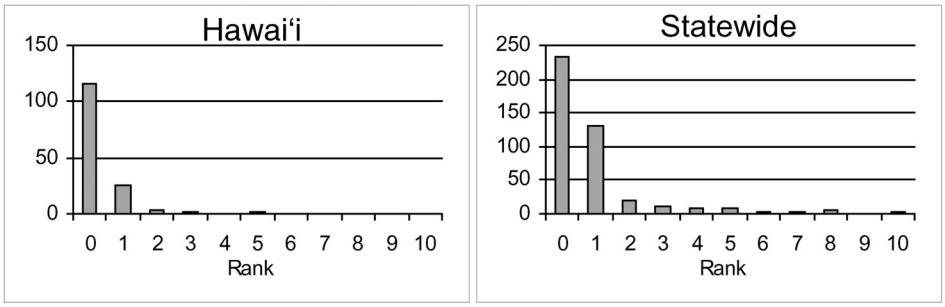
9



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

Watershed Rating

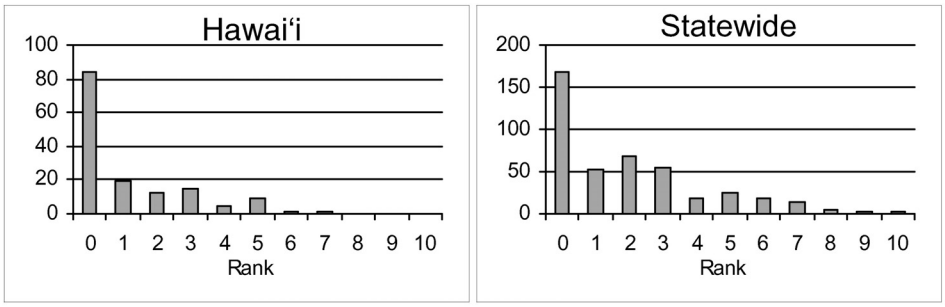
0



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

Watershed Rating

5

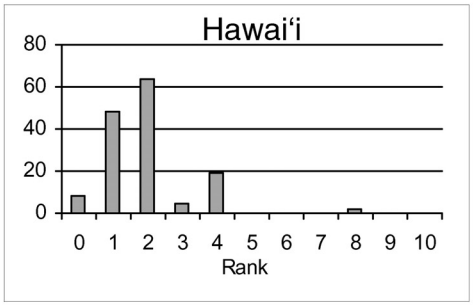


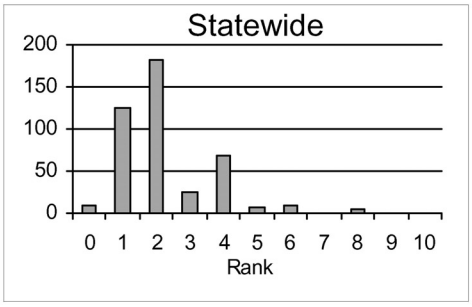
WATERSHED RATING (Cont): Honoli‘i, Hawai‘i

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

Watershed Rating

4

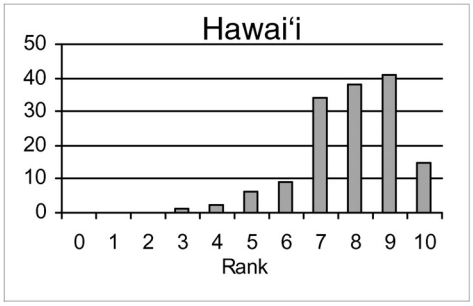


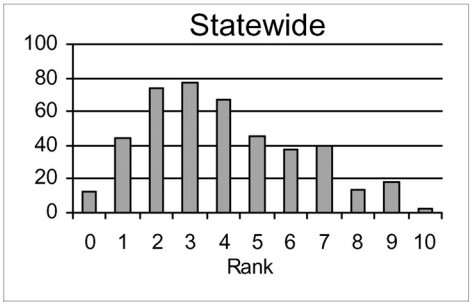


Wetness Rating: Rating is based on the average annual rainfall within the watershed. Higher rainfall totals score more positively.

Watershed Rating

8

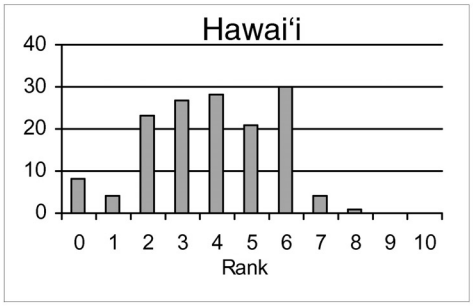


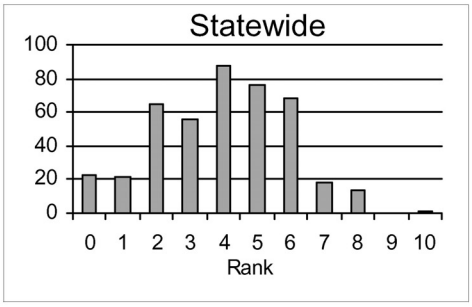


Reach Diversity Rating: Rating is based on the types and amounts of different stream reaches available in the watershed. More area in different reach types score more positively.

Watershed Rating

6

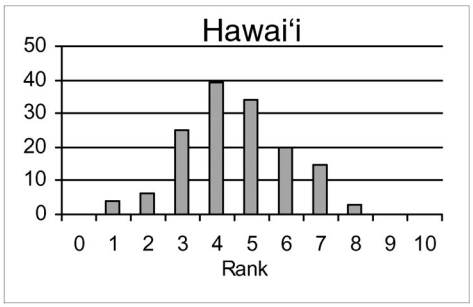


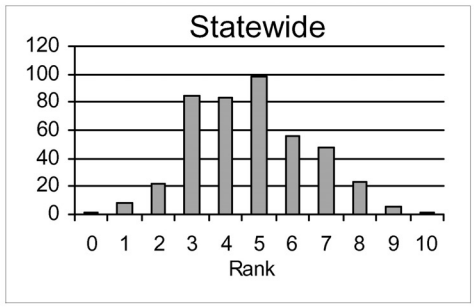


Total Watershed Rating: Rating is based on combination of Land Cover Rating, Shallow Waters Rating, Stewardship Rating, Size Rating, Wetness Rating, and Reach Diversity Rating.

Watershed Rating

8



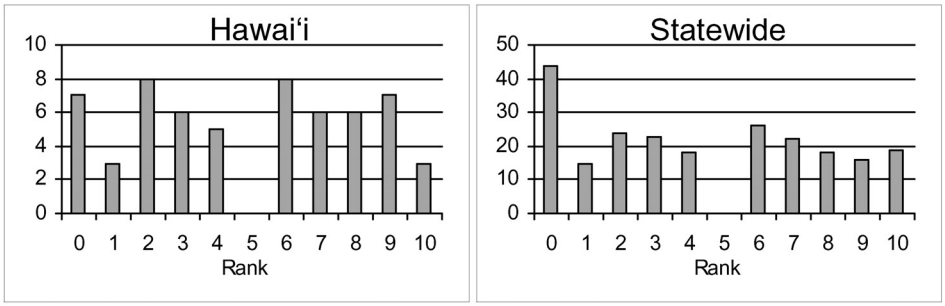


BIOLOGICAL RATING: Honoli‘i, Hawai‘i

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

Stream Rating

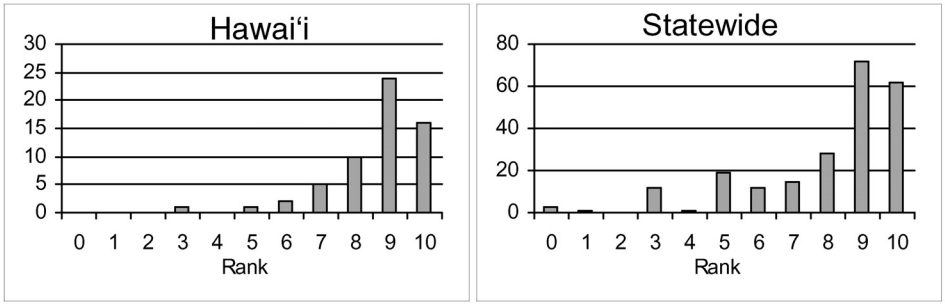
8



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

Stream Rating

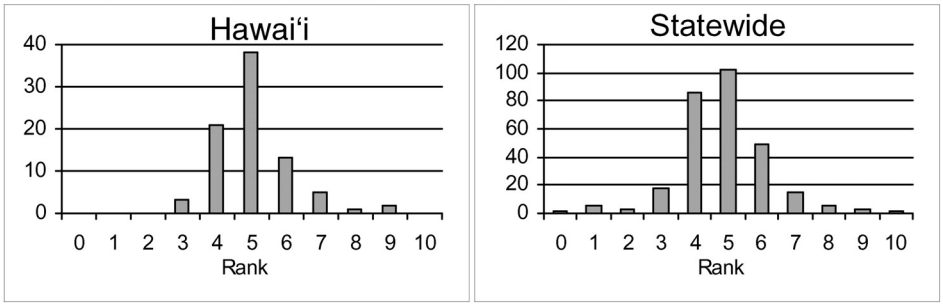
7



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

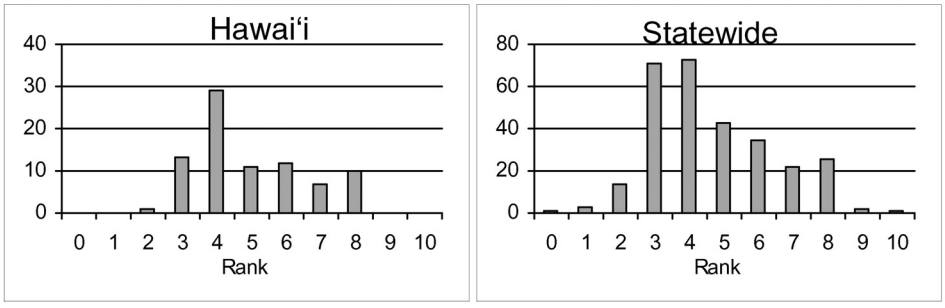
9



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

Stream Rating

8

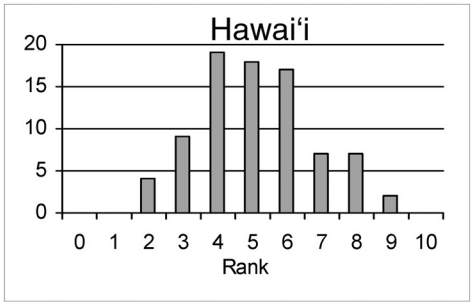


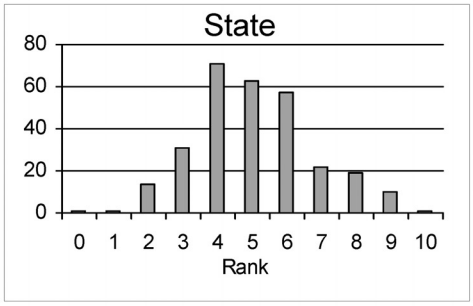
OVERALL RATING: Honoli‘i, Hawai‘i

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

Watershed Rating

9



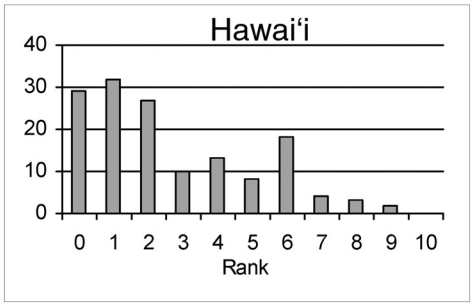


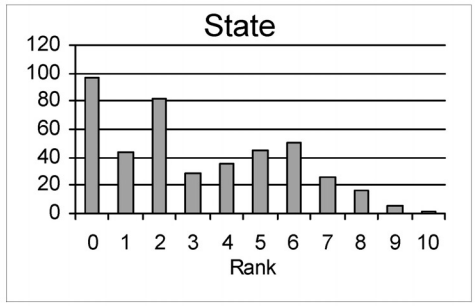
RATING STRENGTH: Honoli‘i, Hawai‘i

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.

Information Rating

9





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