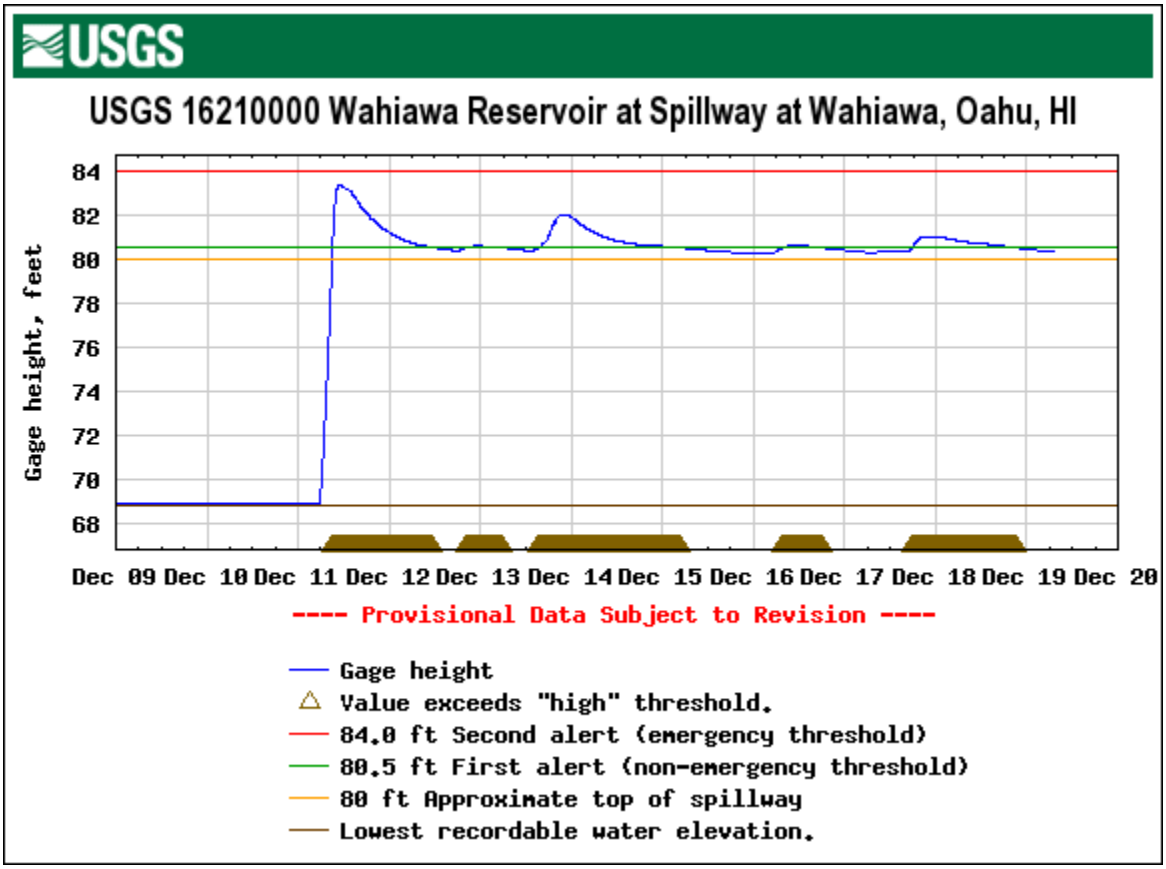
Peak Flow Data for Selected Streams on Oahu and Kauai, December 2008

Heavy rainfall occurred on the islands of Oahu and Kauai during the period December 10-14, 2008. On Oahu, the central part of the Koolau Mountains received over 15 inches of rain, and much of the Waianae Mountains received over 10 inches of rain. On Kauai numerous stations recorded in excess of 10 inches of rain, with the gage at Mt. Waialeale recording almost 25 inches. Click here for a National Weather Service (NWS) summary of rainfall totals and a meteorological description of the event.

In central Oahu, water flowed rapidly from the Koolau Mountains into Lake Wilson (Wahiawa Reservoir). The water level in the reservoir rose 14 feet within a few hours. Data from the USGS gage on the reservoir, in addition to other gages operated by USGS and NWS, were used by State and County agencies to coordinate emergency response.



Flooding was reported in several areas of central, windward, and north shore Oahu, and southwestern Kauai. Provisional gage-height data collected during the storm indicate that several streams on Oahu were flowing at rates near or above the peak of record for several USGS stream gages; actual peak gage-height and flow values will not be known until more detailed field surveys and hydrologic calculations are completed. The tables below provide provisional data for selected stream gages, along with related historic peak information. These tables will be updated as more data become available. Maps showing the location of the gages are also provided below.

The flow of water in a stream depends on several factors. Gage height cannot be used to directly compare flows between different gages or different storms.

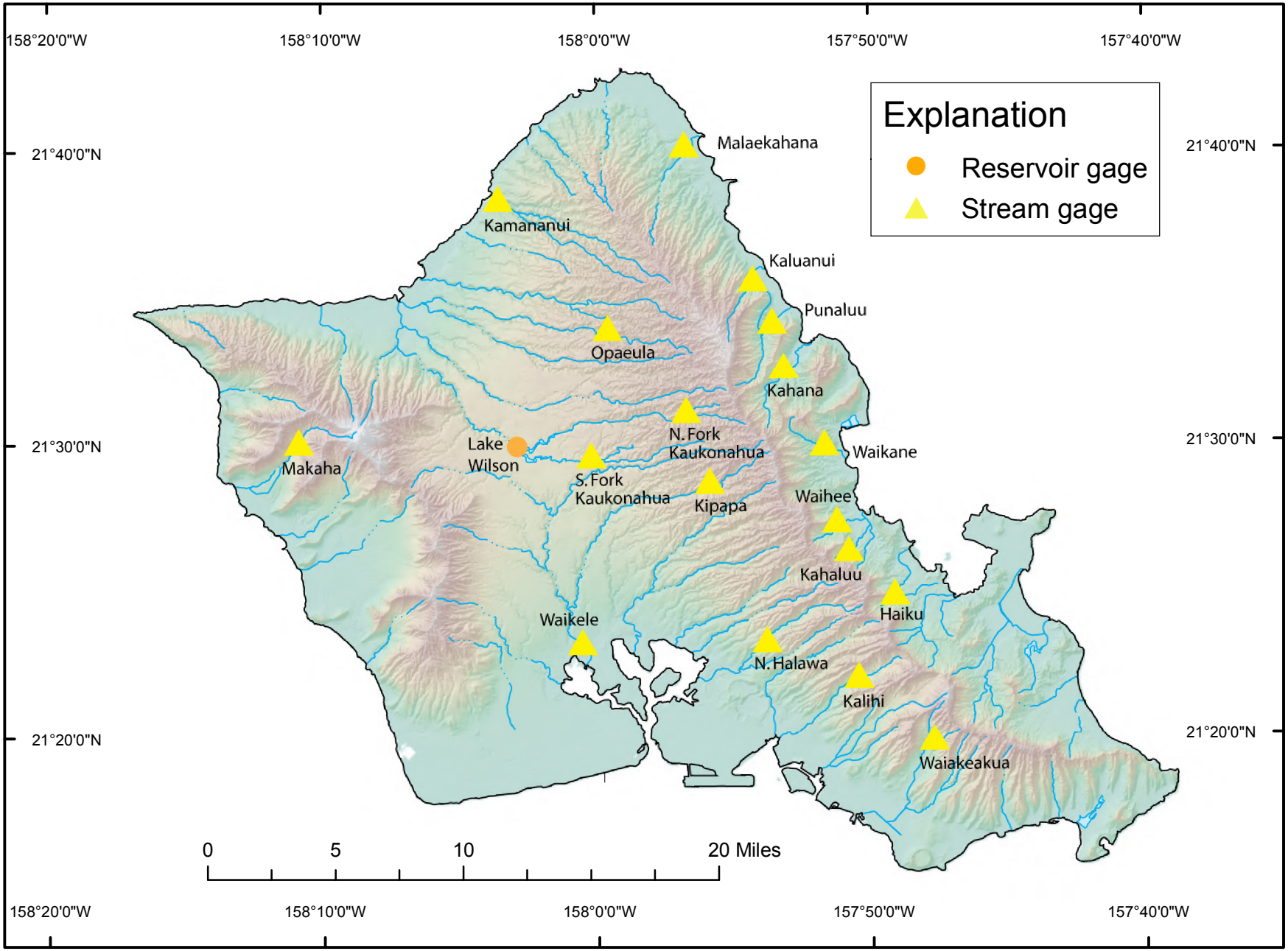

158°20'0"W
158°10'0"W
158°0'0"W
157°50'0"W
157°40'0"W
21°40'0"N
21°30'0"N
21°20'0"N
Explanation
Reservoir gage
Stream gage
Malaekahana
Kamananui
Kaluanui
Punaluu
Opaeula
Kahana
N. Fork Kaukonahua
Lake Wilson
Makaha
S. Fork Kaukonahua
Kipapa
Waikane
Waihee
Kahaluu
Haiku
Waikele
N. Halawa
Kalihi
Waiakeakua
0
5
10
20 Miles

Table 1: Provisional peak gage-height and flow data for selected stream gages on Oahu, December 2008

[Values in **bold** are new historic peak of record; Ht., height; ft, feet; yr, year; cfs, cubic feet per second; TBD, to be determined]

Station Number	Station Name	Dec. 11, 2008 Peak			Historic Peak				
		Gage Ht. (ft)	Flow (cfs)	Recurence Interval (yr)	Gage Ht. (ft)	Date	Flow (cfs)	Date	Years of Record
	Central Oahu, draining northward								
16200000	NF Kaukonahua Str abv RB, nr Wahiawa	14.10	**6,290**	50 - 100	13.20	10/28/1981	5,490	1/1/1933	83
16208000	SF Kaukonahua Str at E pump, nr Wahiawa	12.60	**6,530**	50 - 100	11.33	4/15/1963	5,460	4/15/1963	49
16345000	Opaeula Str nr Wahiawa	14.53	5,200	25 - 50	13.66	3/8/2006	5,540	7/17/1974	49
	Central Oahu, draining southward								
16212800	Kipapa Str nr Wahiawa	10.03	2,930	5	12.67	3/21/1991	6,370	3/21/1991	48
16213000	Waikele Str at Waipahu	18.85	**22,600**	100	14.82	11/28/1954	13,600	11/28/1954	55
	Leeward Oahu								
16211600	Makaha Str nr Makaha	6.00	1,020	10 - 25	9.54	11/14/1996	2,680	11/14/1996	48
	Windward Oahu								
16304200	Kaluanui Str nr Punaluu	13.13	**2,870**	50	11.90	1/6/1982	2,390	1/6/1982	41
16303000	Punaluu Str nr Punaluu	7.41	2,370	2 - 5	8.87	2/12/1994	6,900	3/20/1991	54
16296500	Kahana Str at alt 30 ft nr Kahana	9.55	**7,870**	100	9.39	5/6/2002	7,580	5/6/2002	48
16294900	Waikane Str at alt 75 ft at Waikane	10.76	3,940	2 - 5	10.76	2/4/1965	8,800	2/4/1965	48
16284200	Waihee Str nr Kahaluu	5.79	506	2	7.93	3/21/1991	1,530	3/21/1991	32
16283200	Kahaluu Str nr Ahuimanu	3.40	203	< 2	6.05	9/18/1994	932	3/19/2006	24
16275000	Haiku Str nr Heeia	3.36	407	< 2	7.94	5/2/1965	5,740	5/2/1965	67
	North Shore Oahu								
16310501	Malaekahana Str at alt 30 ft nr Kahuku	18.03	2,460	5 - 10	14.45	4/2/2006	4,640	4/15/1963	49
16330000	Kamananui Str at Maunawai	11.05	6,620	10	15.84	11/20/1990	16,800	11/20/1990	49
	Honolulu								
16226200	N. Halawa Str nr Honolulu	10.45	783	< 2	12.35	3/19/2006	2,050	3/19/2006	24
16229000	Kalihi Str nr Honolulu	7.07	610	< 2	13.90	1/16/1921	12,400	11/18/1930	91
16240500	Waiakeakua Str at Honolulu	3.88	788	2	10.40	1/16/1921	3,890	2/4/1965	89

Updated on: 2/4/2009

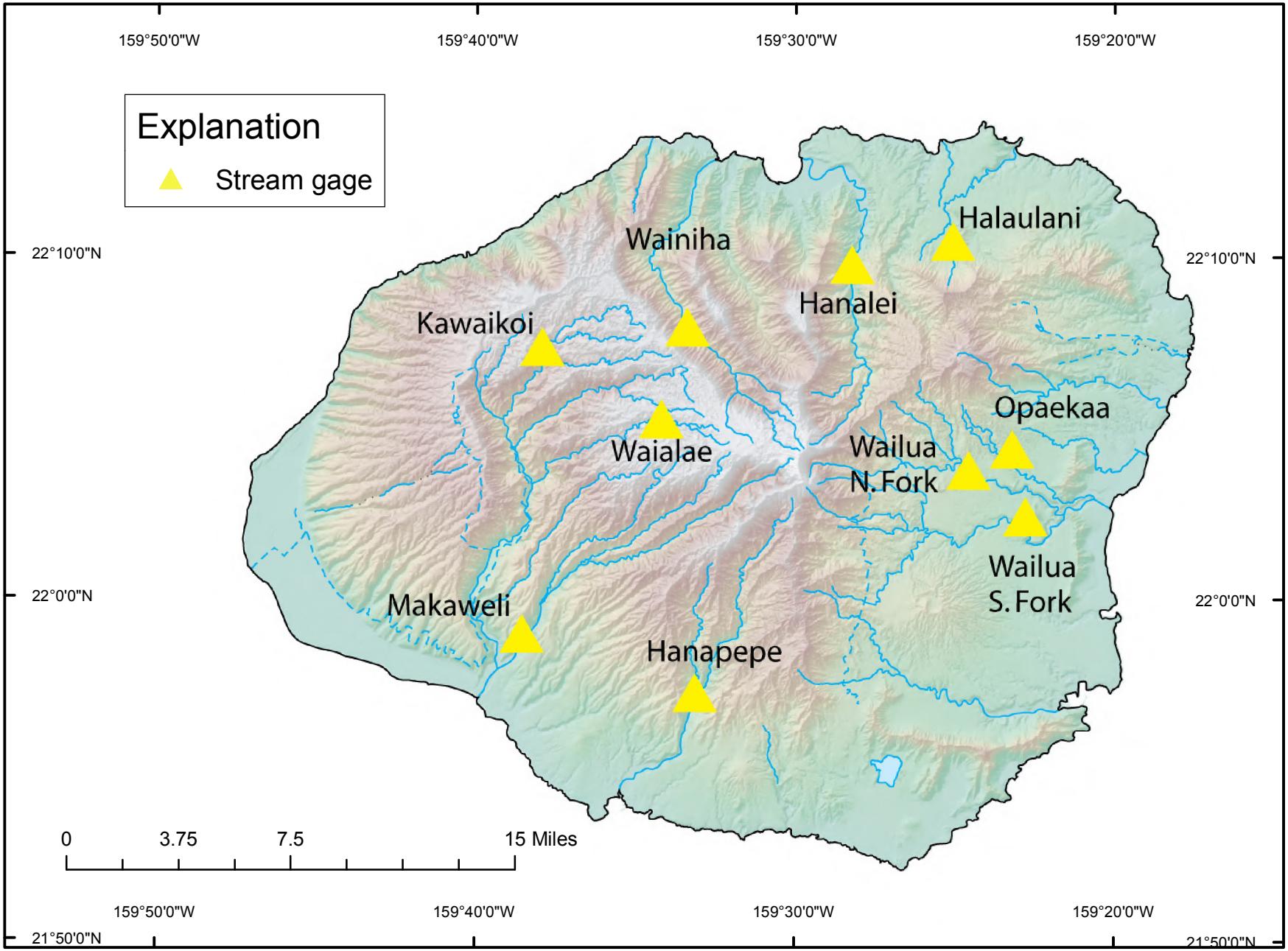

Explanation
Stream gage
159°50'0"W
159°40'0"W
159°30'0"W
159°20'0"W
22°10'0"N
22°0'0"N
21°50'0"N
Halaulani
Wainiha
Hanalei
Kawaikoi
Opaekaa
Waialae
Wailua
N. Fork
Wailua
S. Fork
Makaweli
Hanapepe
0
3.75
7.5
15 Miles

Table 2: Provisional peak flow data for selected stream gages on Kauai, December 2008

[ft, feet; yr, year; cfs, cubic feet per second]

Station Number	Station Name	December Peak			Historic Peak		
		Flow (cfs)	Date	Recurence Interval (yr)	Flow (cfs)	Date	Years of Record
	Leeward-draining Streams						
16010000	Kawaikoi Stream nr Waimea	4,470	12/13/08 09:15	2 - 5	11,300	01/13/67	91
16019000	Waialae Str at alt 3,820 ft. nr Waimea	2,140	12/13/08 09:15	2 - 5	4,530	01/16/21	64
16036000	Makaweli River nr Waimea	15,600	12/13/08 09:15	5 - 10	26,000	01/31/75	63
16049000	Hanapepe Riv blw Manuahi Str nr Eleele	8,600	12/13/08 09:40	2 - 5	39,000	04/15/63	83
	Windward-draining Streams						
16060000	SF Wailua river nr Lihue	12,000	12/13/08 04:15	2	68,800	04/15/63	94
16068000	EB of NF Wailua River nr Lihue	4,320	12/13/08 03:50	2	18,400	11/12/55	92
16071500	Left Branch Opaekaa Str nr Kapaa	254	12/13/08 04:30	2 - 5	1,060	12/14/91	47
16097500	Halaulani Str at alt 400 ft nr Kilauea	826	12/13/08 03:30	2	4,140	02/13/94	50
	Northward-draining Streams						
16103000	Hanalei River nr Hanalei	10,900	12/13/08 08:45	2	44,600	11/03/95	46
16108000	Wainiha River nr Hanalei	2,620	12/13/08 14:15	1 - 2	20,200	04/19/74	54

Updated on: 12/31/2008