Applying knowledge to improve water quality
Southwest States & Pacific Islands Regional Water Program
A Partnership of USDA CSREES & Land Grant Colleges and Universities

Fall 2005
HPIWQ003

Pollutants Suspected of Affecting Water Quality

A large number of survey respondents said they knew or suspected that high bacteria counts, toxic wastes, heavy metals, fertilizers, pesticides, minerals and/or salt water intrusion are adversely affecting water quality for drinking or recreation on their island of residence. Overall, 66% of the Water Issues Survey respondents said they know or suspect high bacteria counts to be a problem in their local waters (Table 1). Over half of the respondents also identify toxic wastes as a significant problem. All other potential pollutants are identified as problems by over 40% of the survey respondents.

Based on respondent answers, pollutant sources are specific to particular islands (Table 2). High bacteria counts were identified as the most frequent water pollutant on the Republic of the Marshall Islands (RMI), Guam, Palau, Federated States of Micronesia (FSM) and American Samoa. Conversely, salt water intrusion was identified as the most frequent problem in the Commonwealth of the Northern Mariana Islands (CNMI). Toxic wastes were the second most identified problem on Guam, Palau and American Samoa.

Table 1. Percentage of respondents that know or suspect the following to be contaminants in their drinking water supply.

Contaminant	Know or suspect it as a problem, %
High bacteria counts	66
Toxic wastes	50
Heavy metals	45
Fertilizers/ nitrates	44
Pesticides	43
Minerals	41
Salt water intrusion	40

Water sampling in Malota Stream, American Samoa

Table 2. Impact of island of residence on the first (primary) and second (secondary) cited sources known or suspected of contaminating local drinking water supplies.

	Contamination source	
Island	Primary	Secondary
CNMI	Salt water intrusion	High bacteria counts
RMI	High bacteria counts	Heavy metals
Guam	High bacteria counts	Toxic wastes
Palau	High bacteria counts	Toxic wastes
FSM	High bacteria counts	Salt water intrusion
American Samoa	High bacteria counts	Toxic wastes

Water Issues Survey Background

The results of the water issues discussed in this fact sheet are from a 37-question survey conducted by the Pacific Islands water quality team with support from the Pacific Northwest water quality program. The survey was used to document public awareness, aptitudes, attitudes, and actions toward water quality in Guam, American Samoa, the Republic of Palau, the Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, and the Republic of the Marshall Islands. Fifty surveys were completed from each of the six island jurisdictions for a total of 300 completed surveys.The collected data was analyzed using the SAS procedure at the University of Idaho and has a sampling error of +/- 5 percent.

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Survey respondents were provided with 14 potential pollution sources and asked to select the three sources they felt were most responsible for water quality degradation on their island entity. The initial list was developed by the authors (Pacific Island water quality coordinators) of this paper. Four of the 14 potential pollution sources were widely selected by survey respondents (Table 3). A majority of respondents selected land clearing (deforestation, development, bulldozing) as a major pollution source. Erosion associated with roads and construction, wastes from urban areas, and septic systems and cesspools were selected as being the next three major sources of water pollution by the respondents.

Table 3. "Which of the following are most responsible for existing pollution problems in water resources (choose up to three items)?"

Pollution source	Percent of respondents
Land clearing	53
Erosion – roads/construction	48
Wastes from urban areas	46
Septic systems/cesspools	45
Agriculture – livestock/poultry	26
Wild animals/wild pigs	17
Agriculture – crop production	14
Industry	11
Motorized watercraft	10
Erosion after wildfires	9
Recreational vehicles	7
Pasture management	4
Military bases	3
Mining	1

While island of residence did influence pollutant selection and ranking, some general trends were also seen (Table 4). Development and population growth are affecting the region as a whole. as seen in the identification of erosion from roads and construction, land clearing, and urban wastes as top sources of pollution. Erosion was among the top three choices in five of the six island entities (American Samoa was the only exception). Land clearing, urban wastes, and septic systems/ cesspools were each among the top three choices in four of the six islands. The only other major source of pollution to be listed was wild animals/wild pigs in American Samoa, but nowhere else.

Table 4. Impact of island of residence on the first (primary), second (secondary), and third (tertiary) most cited sources of water pollution.

	Contamination source		
Island	First	Second	Third
CNMI	Erosion	Urban wastes	Land clearing
RMI	Land clearing	Septics/cesspools	Erosion
Guam	Urban wastes	Septics/cesspools	Erosion
Palau	Erosion	Land clearing	Septics/cesspools
FSM	Land clearing	Erosion	Urban wastes
American Samoa	Urban wastes	Wild animals/pigs	Septics/cesspools

This material is based on work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, under Agreement No. 2004-51130-02258