



Water Issues in the Pacific Islands

A 37-question survey was developed by the Pacific Islands Water Quality Team to document public awareness, aptitudes, attitudes, and actions towards water quality in American Samoa, Guam, the Republic of the Marshall Islands, the Federated States of Micronesia, Commonwealth of the Northern Mariana Islands, and the Republic of Palau. Demographic data about survey respondents was also collected. This statistically designed survey was completed by at least 50 residents of each entity who were solicited for this study in early 2004. The collected data was analyzed using the SAS procedure at the University of Idaho. The sampling error of these survey questions was \pm 4 percent.

How Do You Feel About the Environment?

Survey respondents rated the importance of ten water issues (Table 1). Clean drinking water appears to be the most important water issue on the islands - 84% of respondents ranked the issue as extremely important, while 100% of the respondents ranked water as either extremely or very important. Over 75% of respondents considered the following water issues as either extremely or very important: 1) clean drinking water, 2) household water supply, 3) clean groundwater, 4) water for agriculture, 5) aquatic organism protection, 6) water for recreation, 7) clean rivers, streams, and lakes, and 8) water for industry.

Table 1. The importance of water issues in the Pacific Islands. Column 2 is the percentage of respondents rating the issue as extremely important. Column 3 is the percentage of respondents rating the issue as extremely or very important.

Issue	Importance	
	Extremely	Extremely or Very
	%	
Clean drinking water	84	100
Household water supply	70	96
Clean groundwater	61	87
Clean rivers, streams, lakes	47	76
Aquatic organism protection	42	85
Water for agriculture	39	86
Water for recreation	38	78
Watershed restoration	36	66
Water for industry	34	75
Wetlands	28	60

Water Issues

Only 55% of the respondents feel that their home drinking water is safe to drink. Forty-five percent of the respondents consider not having enough water as a potential problem (sum of “definitely” and “probably”) (Table 2). Approximately 29% of the respondents regularly purchase bottled water, 29% use rainwater catchments, and 23% use city water for drinking purposes.

Table 2. Responses to the question: “Do you regard having enough water as a water problem in the area where you live?”

Response	%
No	37
Definitely	31
Probably	14
Probably not	9
I don't know	8

Over 40% of the respondents know or suspect that the following pollutants are problems in their drinking water: 1) high bacteria counts, 2) toxic wastes, 3) heavy metals, 4) fertilizers/nitrates, 5) pesticides, 6) minerals, and 7) salt water intrusion (Table 3).

Table 3. Percentage of respondents that know of or suspect the following problems in their drinking water.

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

Over 45% of the respondents cited: 1) land clearing, 2) erosion associated with roads and/or construction, 3) wastes from urban areas, and 4) septic systems/cesspools as activities most responsible for pollution of island water resources (Table 4).

Table 4. Responses to the question: “Which of the following are most responsible for existing pollution problems in water resources?” Pick three choices.

Pollution source	% citing
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

Only 48% of respondents know the definition of the term “watershed”. Based on the importance of this term and the fact that only 18% of the respondents are very aware of watershed management this area needs some programming attention.

Governance

A majority of respondents feel that the environment does not receive enough emphasis from local government and elected officials (Table 5). One third of the respondents feel that individual citizens should be most responsible for protecting water quality in their community. Conversely, 59% of respondents believe that the government should be most responsible for protecting water quality (Table 6).

Table 5. Responses to the question: “In your opinion does the environment receive the right amount of emphasis from the local government and elected officials in your jurisdiction?”

Response	%
No, not enough emphasis	58
No opinion / don't know	23
Yes	12
No, too much emphasis	7

Table 6. Responses to the question: “Who should be most responsible for protecting water quality in your community?”

Should be most responsible	%
Individual citizens	33
Government	59
Other	5
Don't know	2

Water Quality Education

A majority of respondents have received water information via radio, newspapers, environmental agencies and television (Table 7). Over 43% of the respondents have received water information from Extension. This may be the highest Extension penetration in the United States, Territories, and Freely Associated States.

Table 7. Responses to the question: “From which of the following sources have you received water quality information?”

Information source	%
Radio	72
Newspapers	70
Environmental agencies	64
Television	56
Schools	49
Environmental groups	45
Extension service	44
Universities	21
Consumer confidence reports	18

Over one-third of survey respondents cited newspapers, television, demonstrations, fact sheets and bulletins as the best learning opportunities (Table 8). Over 80% of respondents want to learn more about drinking water and human health. A majority of respondents want to learn more about water conservation. Conversely, only 35% of respondents want to learn more about nutrient and pesticide management (Table 9).

Table 8. Survey respondents learning opportunities of choice...

Opportunity	% choosing
Read newspaper / watch television	38
Look at demonstration or display	37
Read printed fact sheets, bulletins, brochures	36
Radio messages	31
Take part in volunteer activity	27
Watch a video of information	26
Attend short-course	25
Visit a web site for information	23
Get trained for volunteer position	17
Take a course for certification or credibility	16
Attend a fair or festival	11
Ask for a home, farm or workplace water practices assessment	11
Advertising on billboards, at movie theaters	6

Table 9. Responses to the question: "Which of the following water quality subject matter areas do you want to learn more about?"

Water area	% wanting more information
Drinking water and human health	84
Water conservation	58
Agricultural water management	49
Pollution assessment and prevention	47
Watershed management	47
Environmental restoration	44
Water policy and economics	43
Animal manure and waste management	43
Nutrient and pesticide management	35

Programming Priorities

Based on this survey, we have identified three important programming areas. These areas include:

- Drinking water and human health
- Water conservation
- Watershed management

Demographics

We have confidence in the results presented from this survey because the residents sampled accurately reflect the islands' demographics. Over 300 individuals completed this survey. Examples of the demographics of this survey are:

- Community sizes of: >10,000, 2,500 – 10,000, 1,000 – 2,500, 300 – 1,000 and < 300 represented 25, 19, 19, 22 and 13% of the respondents, respectively.
- Two-thirds of the respondents have lived in the islands all of their lives.
- Approximately 53% of survey respondents were male, while 47% were female.
- The education levels of: elementary or some high school, high school graduate, some college, A.A. degree, and college graduate represented 21, 24, 20, 22 and 13% of the respondents, respectively.
- The age ranges of <30, 30 – 39, 40 – 49, 50 – 59, 60 – 69, and 70+ represented 34, 21, 25, 13, 5 and 3% of the respondents, respectively.