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Texas A&M System

2010
A Study of Recreational Boating Use of Lakes Dunlap, McQueeney, Placid, Nolte (Meadow Lake), Gonzales (H4) & Wood (H5)

A Study of Recreational Boating Use of Lakes Dunlap, McQueeney, Placid, Nolte (Meadow Lake), Gonzales (H4), and Wood (H5), Texas has been produced by the Human Dimensions of Natural Resources Lab in the Department of Recreation, Park and Tourism Sciences at Texas A&M University.

GBRA

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

The goal of this project was to construct an informative management tool for the Guadalupe - Blanco River Authority (GBRA) to better manage the pressures of increased recreational use and shoreline development on Lakes Dunlap, McQueeney, Placid, Nolte (Meadow Lake), Gonzales (H4), and Wood (H5).

In so doing, for each lake and the system of lakes, this investigation identified users/potential users:

a. Household characteristics (e.g., socio-demographics characteristics);
b. Mode of use (e.g., preferred activity, timing and area of use);
c. Areas of concern and avoidance related to safety and crowding;
d. Perceptions of lake conditions for the 2009 boating season and the preceding five years;
e. Preferences for managing recreational boating on the system lakes; and
f. The impact of recreational boating on shoreline structures.

Method
- Surveys (online and hard-copy) were administered to boaters exiting lakes at public boat ramps, shoreline property owners, and select stakeholders. A total of 585 were completed (Dunlap – 111; McQueeney – 276; Placid – 110; Nolte (Meadow) – 22; Gonzales (H4) – 13; Wood (H5) – 31; Other lakes – 22).

Respondents' Characteristics
- For the most part, respondents were older (*M*=57 years), well educated (72% were college graduates), White (93.2%) men (75.3%).
- Eighty three percent of respondents were active boaters spending, on average, 48 days boating over the last 12 months and with over 26 years of boating experience.
- Speed/ski boats were the most popular watercraft (46.5%) followed by fishing/bass boats (22.7%), pontoon boats (21.3%) and personal watercraft (PWC) (20.0%).
- Two thirds of respondents were lakeshore property owners (66.2%) who had lived on the lake for over 16 years (*M*=16.3).

Perceptions of Setting Density
- Concern over the level of use occurring on the lakes was most pronounced on Lakes Dunlap, Placid and McQueeney.
- In general, respondents:
    o Indicated wanting to have seen fewer people;
    o Indicated that the number of people encountered detracted from their experience;
    o Expressed mild concern over safety in response to the number of people encountered and the behavior of other boaters;
    o Indicated feeling moderately crowded.

Issues of Concern

Issues that respondents expressed concern over included:

- The level of use – especially on public holiday weekends. These crowded conditions exacerbate concerns over the behavior of other boaters, safety, and boaters' enjoyment/satisfaction.
- The size of other boaters' wakes resulting in damage to shorelines and shoreline structures in addition to the disruption other boaters' activities;
- Careless and inconsiderate behavior of other boaters (e.g., traveling at unsafe speed);
- The volume of amplified music (i.e., too loud);
- The use of personal watercraft. This relates to their behavior (e.g., jumping wakes, cutting close of other watercraft, speed) and noise;
- The towing of inflatable water toys (i.e., zig-zagging in crowded or narrow areas of the lake).
- To varying extents, other issues affecting all six lakes include lake depth (i.e., shallow in areas) and submerged obstacles (e.g., tree stumps) and aquatic vegetation.

Table 1. Potential Management Action

Proposition	Need	Applications Across the US
Ban watercraft with sleeping quarters	Area lakes not capable of supporting overnight use	Often managed though regulations targeting overnight use
Ban high performance watercraft	Safety concerns related to their size, speed and engine noise	Often managed through speed limits. Bans have been instituted on several lakes in Alabama (Lakes Martin, Weiss, & Harris), and have been controversial. Bans also target high performance PWCs.
Ban the use of airboats	Safety concerns related to their exhaust fan and engine noise	On specific USACE lakes, airboats are restricted from some environmentally sensitive areas of the lakes. Some ordinances also manage their use through noise restrictions.
Limit the length of boats to be equal to or less than 24 feet. Limit the length of pontoon boats to be equal of less than 28 feet	Safety concerns owing to the width of the lakes and level of use occurring on the lakes	Idaho, Connecticut has boat length limits set for specific lakes. A city in Washington state (Kirkland), has a boat length restriction (24') applied at public boat ramps during the boating season only (4/1 to 10/31). In special management areas along the Kenai River in Alaska, the state prohibits the use of watercraft over 21 feet (also have a 50hp restriction and no two stroke engines).
Ban the use of pontoon planes with the exception of those permitted by GBRA	Safety concerns related to planes taking off/landing on the lake while boating is taking place	Most often implemented to restrict use in pristine settings (CA, NY, OR)
Ban the use of towing inflatables on the 4th of July public holiday weekend	Safety concerns during peak use periods	We could not find any comparable restriction. It appears that the type of use and lake conditions make these lakes unique.

Table 1. Potential Management Action (cont.)

Ban the use of personal watercraft on the 4th of July public holiday weekend	Safety concerns during peak use periods	Federal agencies (National Park Service, NOAA) instituted or recommended bans citing environmental concerns of impacts n visitor experiences. The City of Austin has instituted a PWC ban on Lake Austin for public holiday weekends citing concerns over safety.
Permitting use on area lakes	Need for greater boater education/courtesy. Permits acquired after taking online boater safety/education course.	Permitting use on inland waterways is not uncommon (e.g., City of Fort Worth – Lake Worth; City of Arlington – Lake Arlington), across Texas TPWD offers an online boater safety/education course. A number of other states around the country impose an education course requirement for the issuance of a license
Institute a lake-wide speed limit of 45 miles per hour	Safety concerns and shoreline erosion	Speed limits most often effected with the use of no-wake zones in coves and other designated areas of a lake. Some lakes around the US have lake-wide speed restrictions (e.g., Lake Winnipesaukee in New Hampshire) that are also set at 45 miles/hour during the day and 25 miles/hour during the evening.

STUDY PUPOSE

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METHOD

Study Area

The lakes of interest consisted of Lakes Dunlap, McQueeney, Placid, Nolte (Meadow Lake), Gonzales (H4), and Wood (H5) (see Figures 1 through 6). These lakes comprise a contiguous riverine system of lakes along the Guadalupe River within Comal, Guadalupe, and Gonzales Counties in Texas. All lakes are managed by the GBRA.
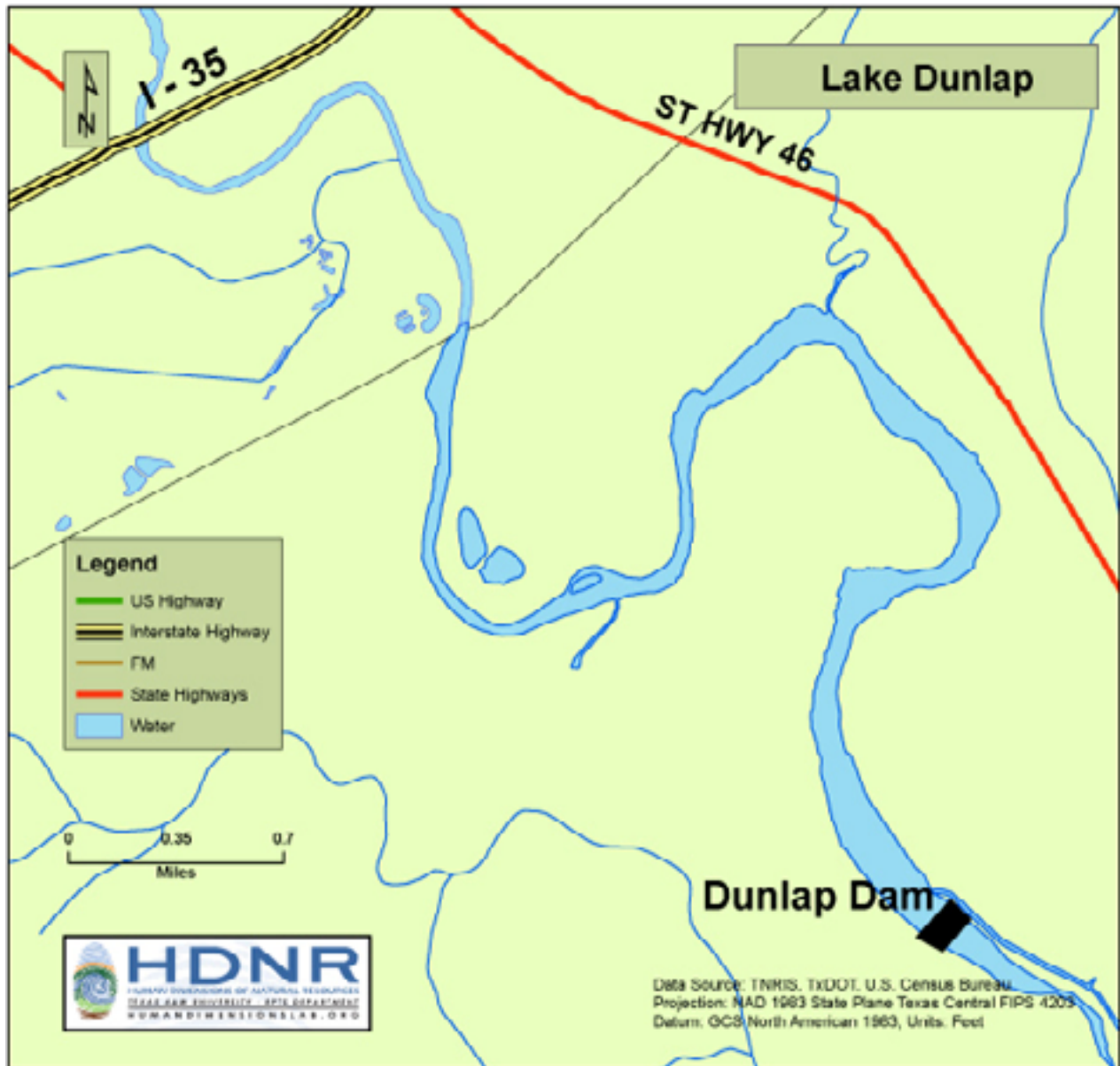
Figure 1. Lake Dunlap
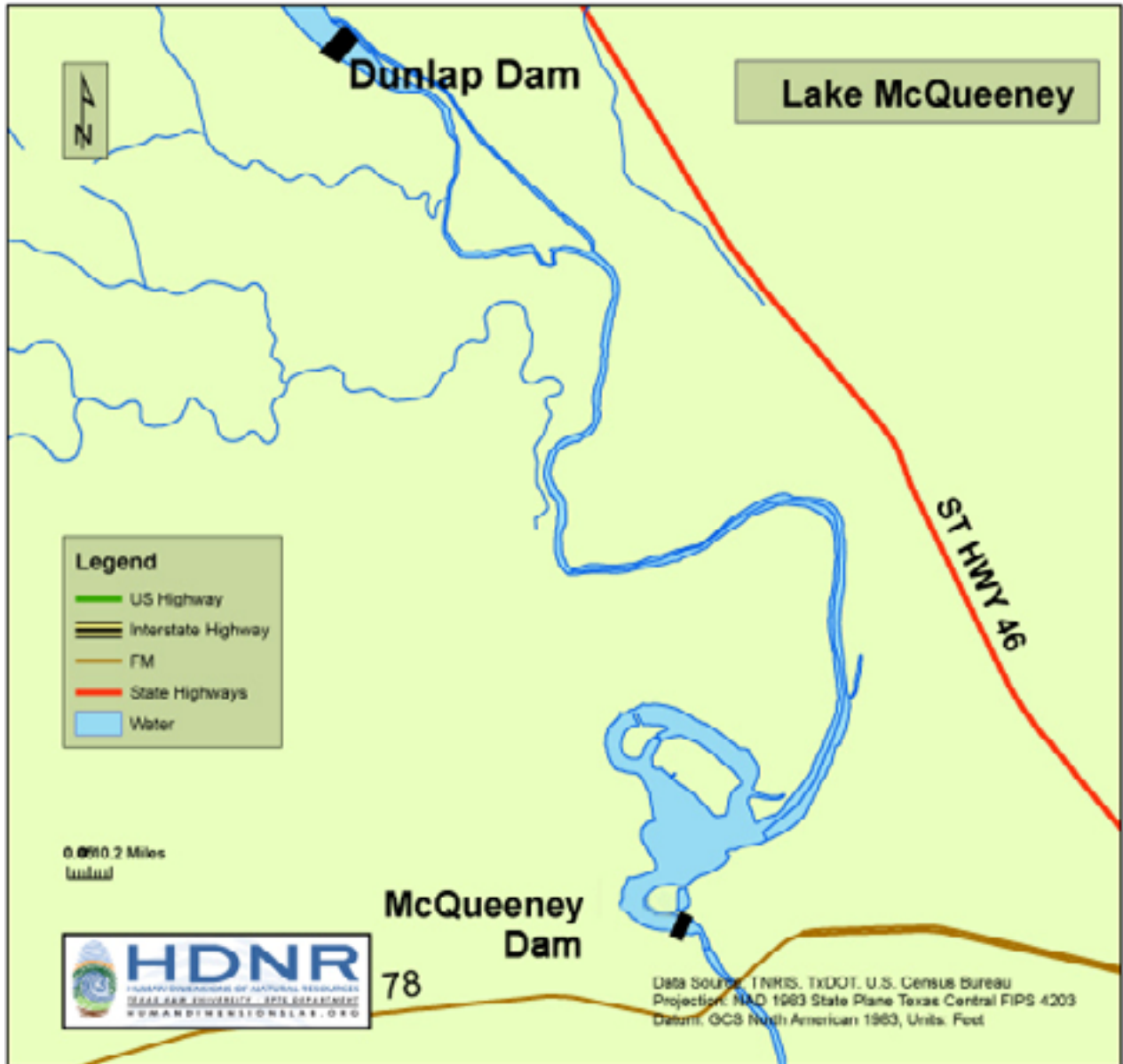
Figure 2. Lake McQueeney
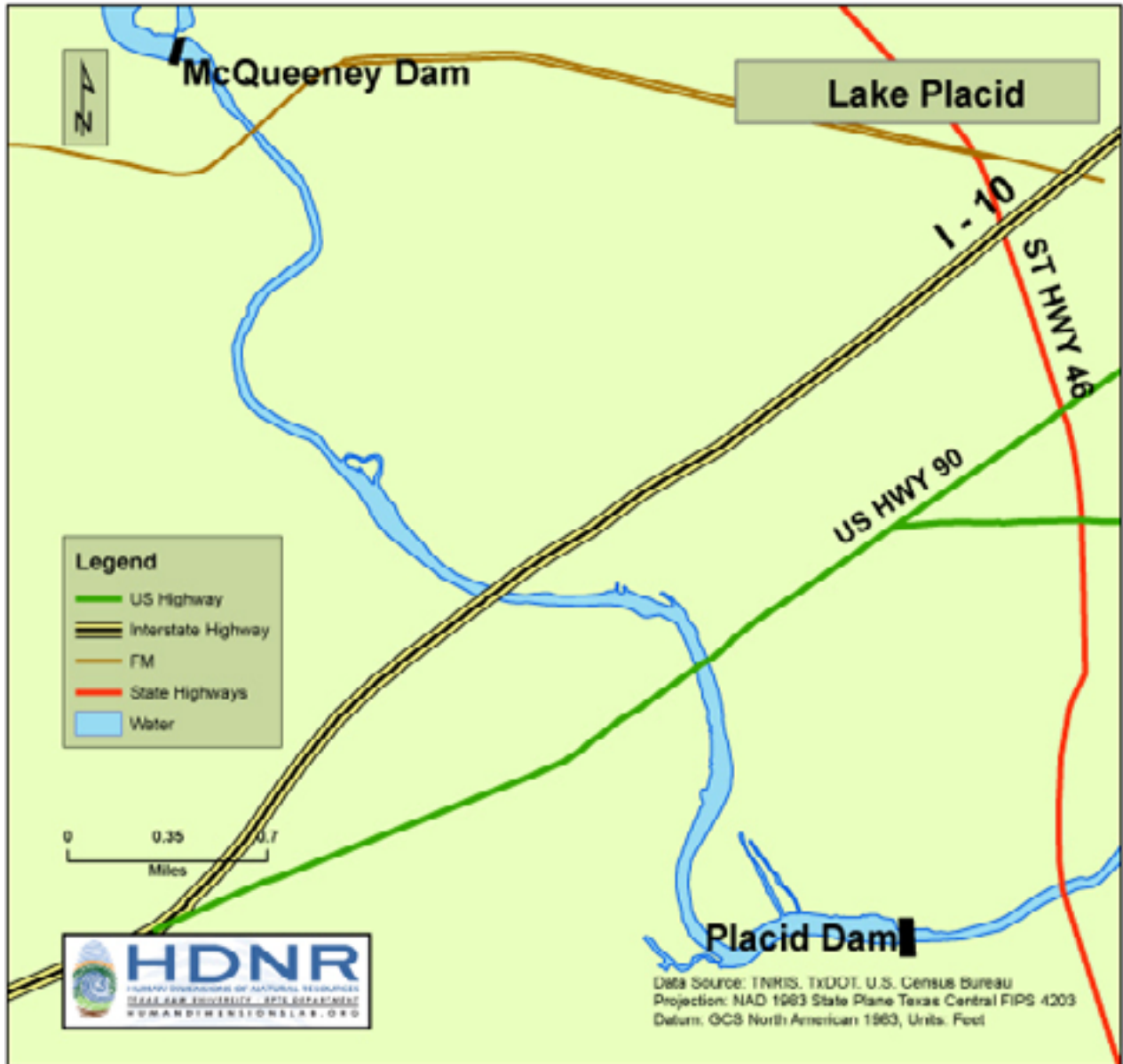
Figure 3. Lake Placid
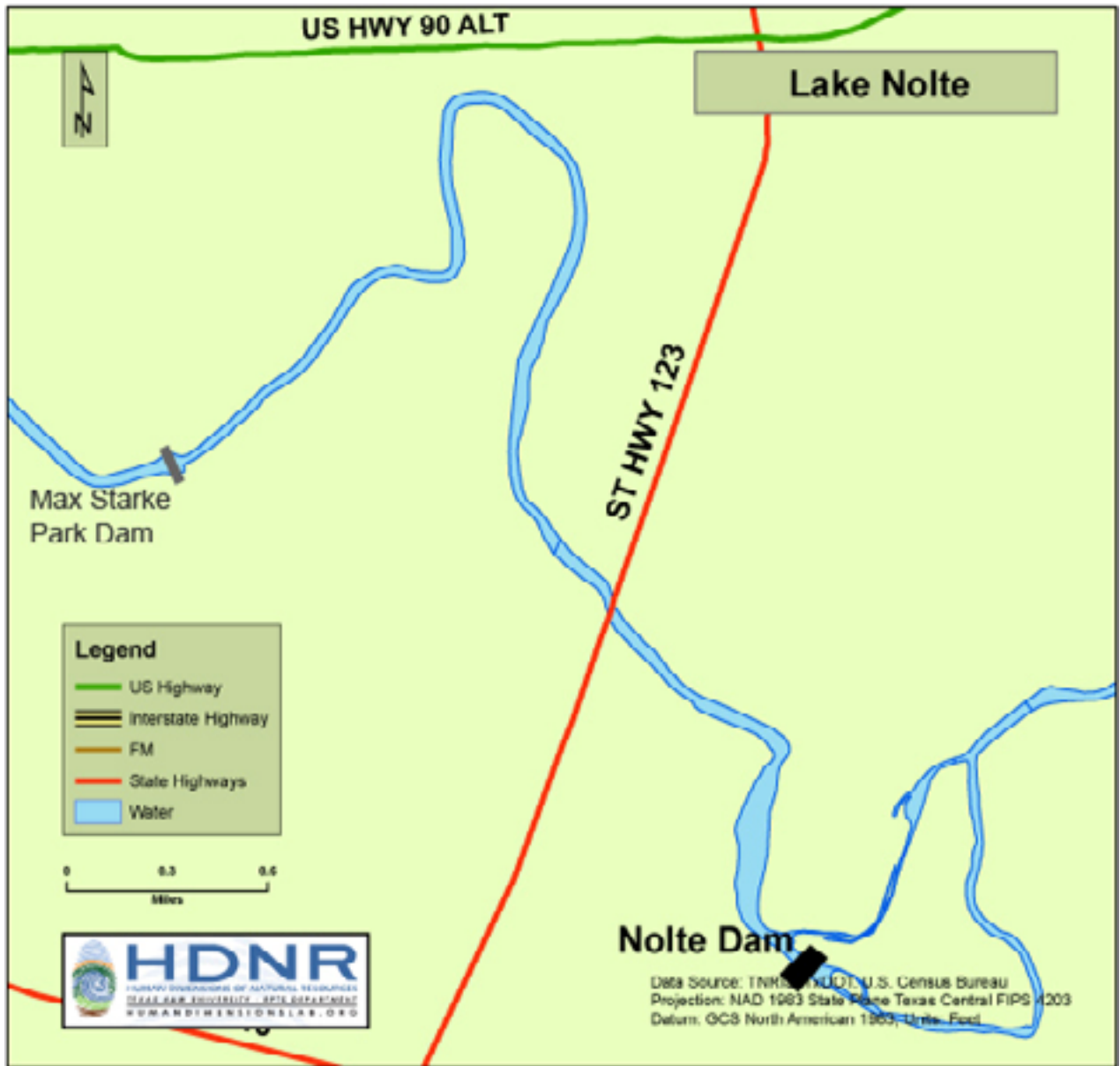
Figure 4. Lake Nolte (Meadow Lake)
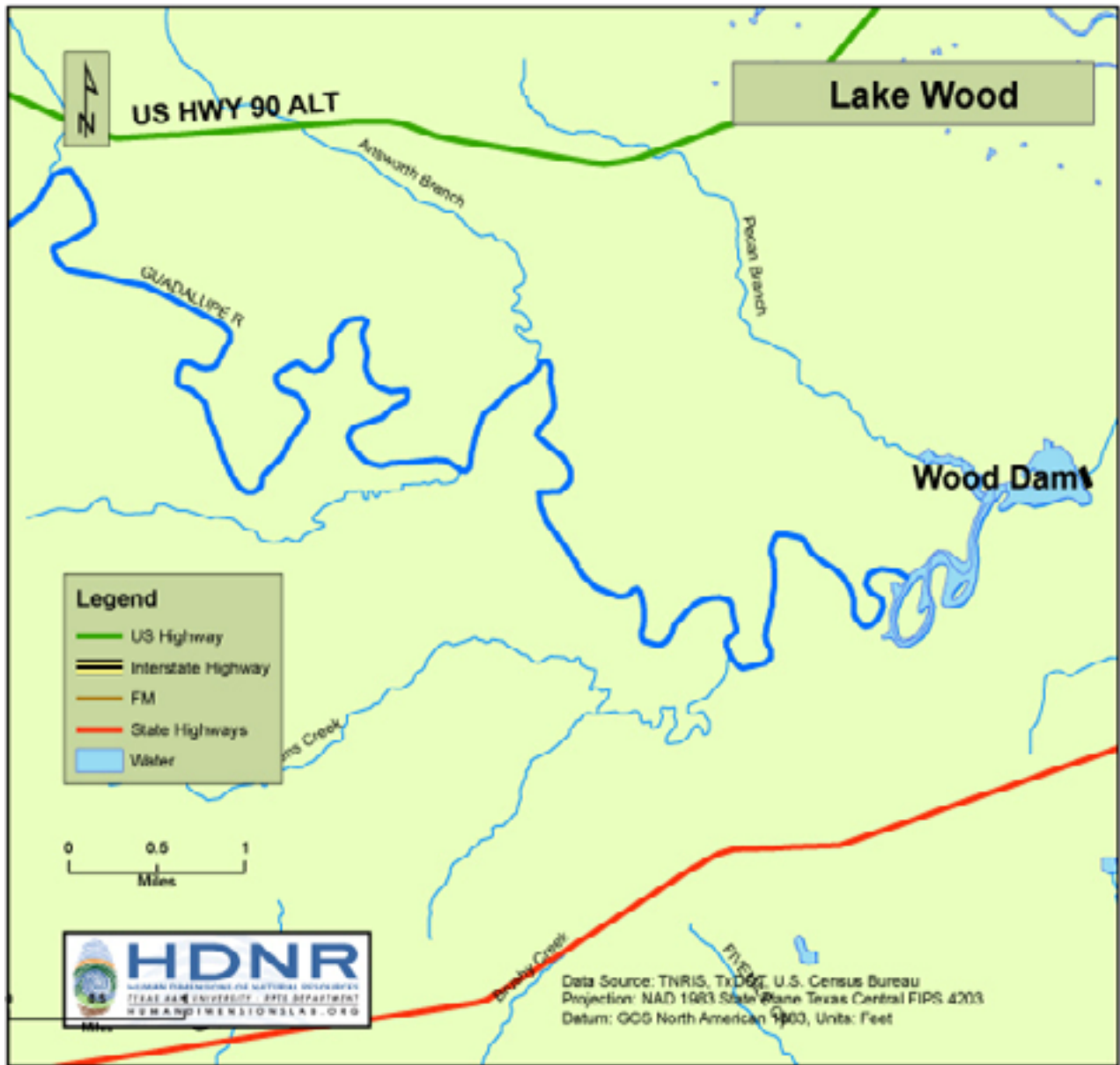
Figure 5. Lake Wood (H4)
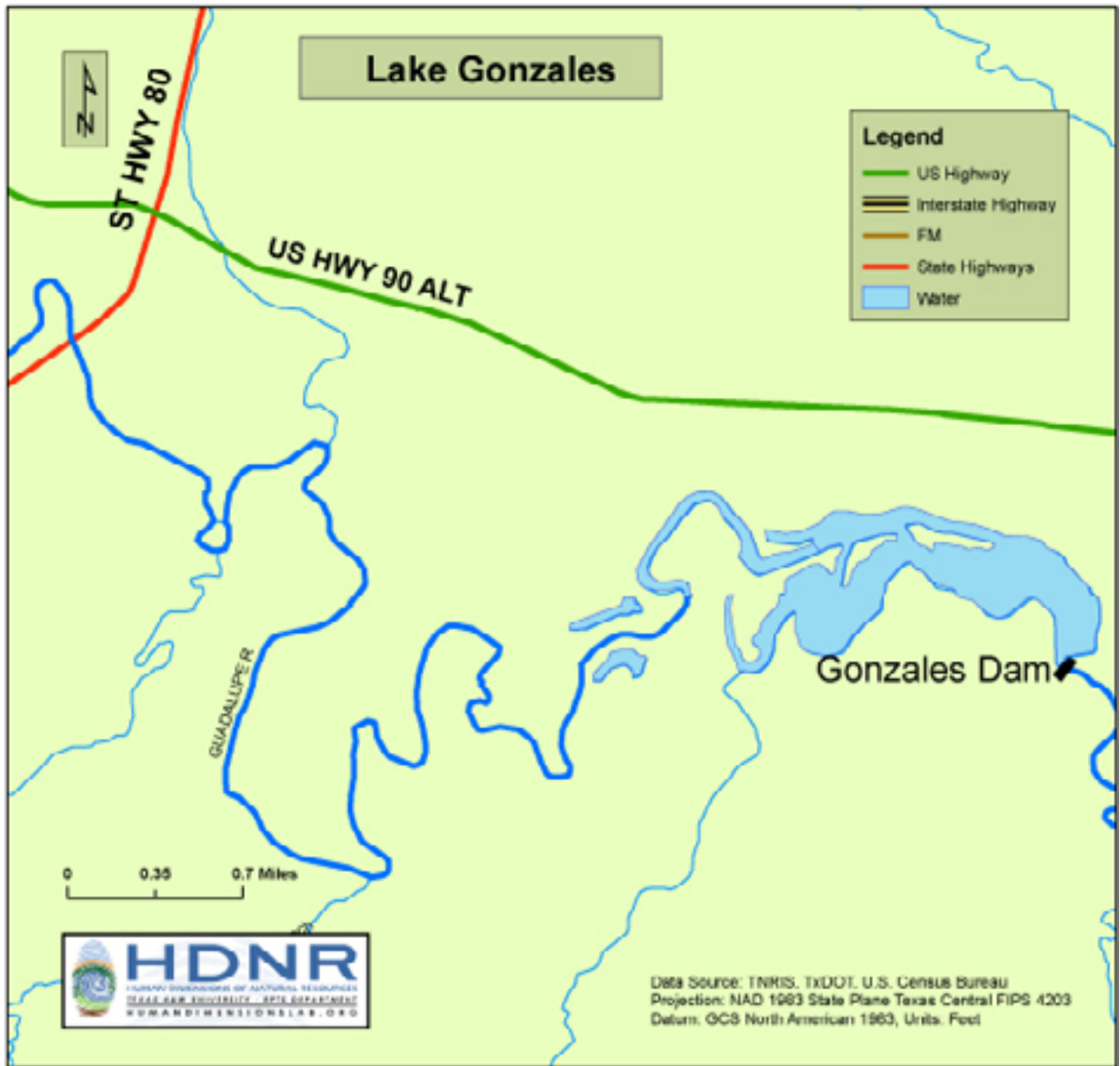
Figure 6. Lake Gonzales (H5)

Sample

Data for the survey were collected via three sources; 1) onsite contacts with a follow-up mail/online survey; 2) GBRA supplied mailing lists of people interested in recreational boating on the study lakes and "friend" associations; and 3) a random sample of lakeshore property owners and residents living nearby the study lakes. Below is a description of how each of these samples was collected. Data were collected over the summer and Fall of 2009.

Onsite Contacts

A team of Texas A&M researchers were placed at three public boat ramps on Lake Dunlap, Placid and Nolte (Rivershade RV Park) over the Labor Day Holiday weekend, 2009 (September, 5 through 7). This resulted in the collection of 52 names and email/postal addresses. A further 14 names and email/postal addresses were collected at the Lake Wood kiosk using self-administered collection sheets over the same period.

GBRA Supplied Mailing Lists

The GBRA and lake interest groups provided us with 1,520 names and email/postal addresses. Members of these lists were comprised of "lake friends" members, local home owners' associations, bass club members, and others with an interest in recreational boating on the study lakes.

County-Wide List

Four thousand five hundred names were drawn from the 2009 Certified County Appraisal Rolls for Comal, Guadalupe and Gonzales counties. A total of 750 property owners were selected for each of the study lakes (Dunlap, McQueeney, Placid, Nolte, Wood and Gonzales) providing a total of 4,500 potential participants. Each county tax roll was filtered to identify residential property owners based on state property tax codes. For Lakes Dunlap, McQueeney, Placid and Nolte, ArcGIS 9.3 was used to create a 100 foot buffer and a three mile buffer around each lake to target shoreline owners and the general public. A general goal was established to obtain 400 property owners within 100 feet and 350 property owners within three miles of each lake.

Several instances of buffer overlap were encountered. Primary consideration was given to the 100 foot buffer and secondary consideration was given to the three mile buffer. However, in some cases 400 property owners within the 100 foot buffer could not be identified and the three mile buffer was oversampled to acquire the remainder. Additionally, each lake was oversampled to allow for culling of duplicate property owner' and life and estate trusts listed in the tax roll. Property owners were randomly excluded from the cleaned list to reduce the totals to the desired 750 mark.

For Lakes Wood (H4) and Gonzales (H5), the application of 100 foot and three mile buffers did not provide a viable sample owing to the sparsely populated area. The sample frame for these lakes was developed by overlaying zip code regions (78629, 78614, 78122) which lined the Guadalupe River corridor.

Response Rate

For cases in which we had their postal address, a return postage-paid card was sent to their homes in November, 2009. This card provided respondents with the option of completing the survey online or receiving a hard copy in the mail. To obtain a hard copy, respondents were requested to indicate their primary lake on a return postage-paid card. These subjects were then sent a survey packet containing a hard copy of the survey questionnaire and a postage paid return envelope.

For cases for whom we had an existing email address, we sent a weblink to complete the survey online in November, 2009. Four email reminders were sent to subjects over the weeks following through January 2010.

A total of 6,086 contacts were sent postcards/email invitations to participate in the survey. Two hundred and thirty six postcards/emails were returned owing to bad addresses. A total of 585 completed surveys were returned (10.0%). By lake, completed surveys were as follows:
- Dunlap – 111
- McQueeney – 276
- Placid – 110
- Nolte (Meadow) – 22
- Gonzales (H4) – 13,
- Wood (H5) – 31
- Other lakes - 22

Survey of Public Meeting Attendees

At the conclusion of a public meeting held at the McQueeney Lions Club on March 27, 20101, attendees were requested to complete a short survey listing nine propositions for restricting uses on the GBRA lakes. These propositions emerged from the larger survey of the boating public (discussed above) and reflected issues that were of concern to boaters. A total of 81 surveys were completed. Findings are discussed beginning p. 44.

<center>**FINDINGS – OVERALL (Lakes Combined)**</center>

The findings presented in this section are based on data collected from all respondents. Because the questionnaires presented to respondents referenced a specific lake to which they were affiliated, lake names are replaced with "X" in our reporting of the results collected from all lake users.

Respondents' Personal Information

As displayed below in Table 2, overall, the sample was comprised of respondents who were older (M=57.0 years), well educated (59.6% with some post-graduate education), white (93.2%) men (75.3%). While approximately half (50.7%) were employed full time, a further 33 percent (33.3%) indicated being retired. Last, household incomes were relatively high with 65 percent (65.1%) of respondents reporting incomes in excess of $100,000.

Table 2. Household Information

Characteristic	
Age (years, *M, SD*)	57.0, 11.9
Gender (*n*, %)	
Male	75.3 (397)
Female	24.7 (130)
Education (%, *n*)	
8th grade or less	.4 (2)
9th to 11th grade	.2 (1)
12th grade (high school graduate)	6.4 (34)
13-15 years (some college	21.1 (112)
16 years (college graduate)	12.4 (66)
17+ years (some graduate work)	28.4 (151)
Masters, Doctoral, or Professional Degree	31.2 (166)
Race/Ethnicity (%, *n*)	
Hispanic	2.2 (12)
White, not Hispanic	93.2 (500)
Black or African-American	1.3 (7)
Native American or Alaskan Native	0 (0)
Asian or Pacific Islander	3.2 (17)
Employment Status (%, *n*)	
Employed, full time	50.7 (272)
Homemaker	4.1 (22)
Employed, part time	3.4 (18)
Retired, but working full time	4.3 (23)
Retired, working part time	10.8 (58)
Retired, not working	22.5 (121)
Unemployed	.6 (3)
Student	.4 (2)
Other	3.4 (18)

Table 2. Household Information (cont.)

Household Income (%, *n*)	
Less than $25,000	1.9 (9)
$25,000 - $49,999	7.3 (35)
$50,000 - $74,999	13.1 (63)
$75,000 - $99,999	12.7 (61)
$100,000 - $149,999	21.6 (104)
$150,000 - $199,999	11.2 (54)
$200,000 - $249,999	6.6 (32)
$250,000 – $299,999	6.4 (31)
$300,000 or more	19.3 (93)

Boating Experience

Most respondents (83.0%) indicated being active boaters with extensive experience (*M*=26.3 years) (see Table 3). The most popular watercraft used on the lakes was a speed/ski boat (46.5%) followed by fishing/bass boats (22.7%), pontoon boats (21.3%) and personal watercraft (20.0%).

In terms of respondents preferred activities, cruising was cited most frequently (49.9%) followed by skiing (20.2%) and wakeboarding (19.4%). Respondents tended to enjoy the lakes in groups of four to five (*M*=4.5) consisting of family and friends (53.4%).

Table 3. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	83.0 (517)	
How many years have you been boating? (years, *M, SD*)	26.3, 17.0	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	48.0, 54.12	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	*M, SD*
Speed boat, ski boat	46.5 (295)	.86, 2.0
Fishing or bass boat	22.7 (144)	.58, 1.6
Pontoon boat	21.3 (135)	.43, .8
Inflatable pulled behind another watercraft	16.5 (105)	.55, .9
Wakeboard boat	13.5 (86)	.27, .4
High performance boat	1.9 (12)	.04, .2
Personal Watercraft (PWC; e.g., Jet Ski)	20.0 (127)	.79, .9
Other (Please specify	8.7 (55)	.773.8
Which of these watercraft do you use **most often**? (%, *n*)		
Speed boat, ski boat	43.7 (228)	
Fishing or bass boat	16.9 (88)	
Pontoon boat	14.8 (77)	
Inflatable pulled behind another watercraft	.2 (1)	
Wakeboard boat	11.5 (60)	
High performance boat	0 (0)	
Personal Watercraft (PWC; e.g., Jet Ski)	7.5 (39)	
Other (Please specify	5.6 (29)	

Table 3. Experience Characteristics (cont.)

What activity do you **most often** use your boat for? (*%*, n)	
Skiing	20.2 (101)
Cruising	49.9 (250)
Wakeboarding	19.4 (97)
Towing inflatables/water toys	3.8 (19)
Fishing	1.8 (9)
Racing up and down the lake	3.2 (16)
Other	1.8 (9)
How many people are usually in your boating group? (*M, SD*)	4.4, 2.1
Which of the following best describes your boating group?	
By yourself	2.8 (15)
Family	32.6 (173)
Multiple families	2.8 (15)
Family and friends	53.4 (283)
Friends	5.8 (31)
Organized outing group	.4 (2)
Business associates	.2 (1)
Other	1.9 (10)

Boat Count Observations

Over the July 4th and Labor Day public holiday weekends volunteers were placed on each of the study lakes and recorded watercraft type and activity participation by boaters. The volunteers established transects by selecting a point on the opposing shore and recorded boat type and activity for each of the watercraft breaking crossing the transect. Table 4 below contains a summary of volunteers' observations. It is important to note that because of the subjectivity involved in determining boat and activity types, these data should be interpreted with some caution.

In terms of the most popular boats observed on the lakes over the public holiday weekends, personal watercraft (PWC), speed boat/ski boats, and wakeboarding boats were observed most often (see Table 4). for the activity types, cruising tubing/towing inflatables were observed most often.

Compared with the data presented above in Table 3 reporting the watercraft respondents used most often throughout the 2009 season, there appears variation occurring on public holiday weekends. Where almost 30 percent of respondents reported using their "speed boat/ski boats" most often (43.7%) throughout the 2009 season, less than 30 percent (29.6%) of this type of boating traffic was recorded. Alternately, less than 10 percent (7.5%) of respondents to the survey identified PWC as the primary watercraft over the 2009 season, whereas they comprised a little less than 50% (46.9) of the total boat traffic observed over the public holiday periods.

Table 4. Boat Type & Activity Observations

Boat Type (%, *n*)	Dunlap	McQueeney	Placid	Nolte	Wood	Gonzales	All Lakes
Speed boat/Ski boat	27.5 (22)	25.0 (593)	34.2 (593)	38.0 (38)	14.7 (10)	24.6 (15)	29.6 (1,353)
House boat	1.3 (1)	.2 (5)	.2 (3)	0	0	0 21.3 (13)	.2 (8)
PWC	14.1 (11)	46.4 (1,100)	51.1 (886)	32.0 (101)	42.6 (29)	0 54.1 (33)	46.9 (2,140)
Inflatable	1.3 (1)	3.3 (8)	.2 (4)	5.1 (16)	13.2 (9)	0	2.1 (59)
Fishing/Bass boat	6.3 (5)	.2 (5)	1.9 (33)	9.5 (30)	23.5 (16)	0	2.7 (122)
Wakeboard boat	35.0 (28)	18.2 (431)	7.3 (126)	9.2 (29)	0	0	13.5 (614)
Rowboat/Canoe/Kayak	0	.1 (4)	.1 (2)	.3 (3)	0	0	.2 (9)
Sailboat	0	0	0	0	0	0	0
Pontoon boat	10.0 (8)	7.2 (7.2)	4.4 (76)	0	5.9 (4)	0	5.9 (269)
High performance boat	0	0 (2)	.1 (1)	0	0	0	.1 (3)
Deck boat	5.0 (4)	.3 (6)	0	0	0	0	.2 (10)
Game warden	0	0	.5 (8)	0	0	0	.2 (8)
Paddle	0	.7 (16)	.1 (1)	.3 (1)	0	0	.4 (18)
Other	0	0	.1 (1)	.3 (1)	0	0	0 (2)

Table 4. Boat Type & Activity Observations (cont.)

Activity (%, *n*)							
Cruising	55.1 (43)	78.1 (815)	75.9 (1,012)	42.9 (115)	74.6 (44)	0	72.2 (2,029)
Skiing	5.1 (4)	2.0 (21)	1.4 (19)	4.9 (13)	0	17.6 (3)	2.1 (60)
Fishing	1.3 (1)	0 (1)	0	0	0	0	.1 (2)
Wakeboarding	29.5	2.9 (30)	3.1 (41)	4.9 (13)	3.4 (2)	64.7 (11)	4.3 (120)
Tubing/inflatable	9.0 (7)	9.6 (100)	19.5 (260)	47.4 (127)	22.0 (13)	17.6 (3)	18.2 (510)
Water balloon fighting	0	5.3 (55)	0	0	0	0	2.0 (55)
Racing	0	0	.1 (2)	0	0	0	.1 (2)
Parasail	0	0 (1)	0	0	0	0	0 (1)
Parade	0	2.0 (21)	0	0	0	0	.7 (21)

Constraints to Boating

While most respondents (83.0%) indicated being active boaters, less than a third (31.4%) indicated that they boated as often as they would like (see Table 5 below). Respondents who indicated that they did not boat as often as they would like were then instructed to indicate their level of agreement with a series of statements that reflected potential reasons for not boating. Factors that boaters cited as reasons for not boating as often as they would prefer tended to center on the social condition extant on the lakes:

- "It's too crowded" – Almost 60 percent agreement (57.7%).
- "The behavior of other boaters is unsafe" – Just over 50 percent (51.8%) agreement.
- "At times, the water is too rough" – Just over 50 percent (54.7%) agreement.
- "Other boaters are inconsiderate" – Forty percent (40.7%) agreement.

Table 5. Constraints to Boating

Do you boat as often as you would like? (yes, %, *n*)						31.4 (174)	
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
I don't boat as often as I would like because… (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	70.6	16.7	7.3	3.1	2.3	1.5	.93
b. I can't afford to go boating	60.8	22.6	9.9	5.5	1.3	1.6	.96
c. It's too hot in summer	51.4	24.5	14.8	8.6	1.0	1.8	1.0
d. It's too crowded	13.4	13.1	15.7	36.1	21.6	3.4	1.3
e. I have no way to access the Lake	61.4	21.4	7.3	6.3	3.7	1.7	1.1
f. The Lake is too narrow	32.5	20.7	25.4	18.3	3.1	2.4	1.2
g. The behavior of other boaters is unsafe	10.6	15.2	22.4	35.3	16.5	3.3	1.2
h. The Lake is too shallow	23.2	25.3	24.8	18.8	7.8	1.6	1.2
i. Poor water quality	25.6	31.6	22.5	17.2	3.1	2.4	1.4
j. Other boaters are inconsiderate	13.1	20.9	25.3	29.0	11.7	3.1	1.2
k. Public access is inconvenient	41.6	20.5	19.7	10.0	8.2	2.2	1.3
l. I no longer have enough time	26.0	20.2	18.9	28.3	6.6	2.7	1.3
m. Work commitments keep me away from boating on the Lake	23.3	28.3	25.7	35.3	7.3	2.9	1.3
n. My family no longer has an interest in boating	50.3	30.8	14.2	4.5	.3	1.7	.9
o. Shoreline owners/residents are inconsiderate	51.7	27.3	15.7	2.1	3.1	1.8	1.0
p. At times, the water surface is too rough	14.4	15.4	15.4	30.6	24.1	3.3	1.4
q. There's too much vegetation in the water	23.1	28.6	26.0	14.2	7.9	2.6	1.3

Use of Area Lakes

Consistent with their representation in our sample, respondents indicated that Lake McQueeney was their primary lake (47.9%) and the lake they most frequently used (47.2%) with an average of 32 days ($M=32.0$) of boating over the 2009 season. Lakes Dunlap and Placid were the next most popular with 19 percent (18.8% and 19.0%, respectively) citing the lakes as their primary lakes and a further 20 percent (20.8% and 20.6%, respectively) indicating the lakes were their most commonly used. These respondents averaged between 15 (15.4 for Dunlap) and 17 days of boating for the 2009 season.

Table 6. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*	92.0 (497)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	20.8 (137)	15.4, 32.2	18.8
Lake McQueeney	48.8 (315)	32.0, 47	47.9
Lake Placid	20.6 (136)	17.0, 35.1	19.0
Meadow Lake (Nolte)	3.9 (26)	5.4, 22.6	3.9
Lake Gonzales (H4)	2.7 (18)	1.6, 12.5	1.6
Lake Wood (H5)	4.7 (31)	1.6, 6.7	4.2
Canyon Lake	13.8 (91)	2.4, 7.6	1.8
Other	4.4 (29)	.1, .2	2.8
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			10.0, 34.9, 0

Lake Attachment

Overall, respondents expressed strong attachment to the area lakes (see Table 7). While they expressed agreement with most of the statements enjoyment and the opportunity to spend time with family and friends were key to their lake affection.

Table 7. Feelings about Area Lakes

Considering Lake X please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	*M*	*SD*
	1	2	3	4	5	*M*	*SD*
a. Lake X is the best lake for the activities that I enjoy most	2.4	9.0	17.3	36.0	35.2	3.9	1.1
b. I have a strong emotional bond to the lake	2.3	6.4	13.8	33.8	43.7	4.1	1.0
c. I can't imagine a better lake for what I like to do	7.6	17.0	25.0	23.8	26.7	3.4	1.3
d. I feel the lake is a part of me	3.8	7.2	21.7	34.6	32.7	3.9	1.1
e. I feel a strong sense of belonging to the lake	2.5	6.0	18.3	36.5	36.7	4.0	1.0
f. The lake is one of the few places where I can be myself	5.9	12.7	35.2	25.7	20.6	3.4	1.1
g. I really enjoy the lake	.8	.8	5.7	39.4	53.4	4.4	.7
h. The lake means a lot to me	1.5	1.5	9.1	36.8	51.1	4.3	.8
i. The time spent boating on the lake allows me to bond with my family and friends	1.3	1.9	.2	34.3	53.4	4.4	.8
j. I associate special people in my life with the lake	1.5	4.9	16.0	32.3	45.3	4.1	1.0

Perceptions of Lake Conditions

Perceptions of Setting Density

In general, respondents expressed concern over the level and type of use occurring on the study lakes (see Table 8):

- Sixty six percent (66.1%) of respondents would have liked to have seen fewer people on the lake.
- While almost 53 percent (52.7) of respondents indicated the number of people they encountered throughout the 2009 boating season was about what they had expected, more than 35 percent (35.6%) indicated seeing more than they had expected.
- While approximately 30 percent (30.4%) of respondents indicated that the number of people they had seen on the study lakes had no effect on their enjoyment, almost 60 percent (59.4%) indicated that the level of use had detracted from their enjoyment.
- There was some concern among respondents relating to safety in light of the number of boats on the lake and the behavior of other boaters. Approximately eight percent (7.8) indicated that it was "not at all safe" due to the number of boaters on the lake and a further 10 percent (10.4%) indicated that is was "not at all safe" because of the behavior of other boaters.
- While a little over 30 percent of respondents did not feel crowded by the level of use on the lakes, almost 40 percent (39.1%) expressed some concern and a further 21 percent (21.2%) expressed elevated concern.

Table 8. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake X for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	1.0	2.9	30.1	34.9	31.2	3.9	.9
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake X for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	1.8	9.9	52.7	15.1	20.5	3.0	.6

Table 8. Perceptions of Setting Density (cont.)

How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake X for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment	M	SD
	3.6	6.5	30.4	38.4	21.0	3.7	1.0

In light of the **number of boats** you saw on Lake X this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe	M[1]	SD
	7.8	19.9	41.0	23.4	7.9	3.0	1.0

In light of the **behavior of other boaters** on Lake X this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe	M	SD
	10.4	22.1	41.5	21.5	4.6	2.9	1.0

Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake X for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9	M	SD
	3.5	3.5	4.9	9.6	18.1	22.4	16.7	11.8	9.4	5.8	2.0

[1] Based on responses 1 through 4 Table

Perceptions of Social Conditions

Respondents were requested to indicate their level of agreement with a series of statements examining the social conditions on the study lakes for the 2009 boating season (see Table 9 below). Areas of concern include:

- The size of boaters' wakes ("Other boaters created massive wakes") – 65 percent (65.2%) expressing agreement.
- The behavior of other boaters ("I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)" – Sixty four percent (64.2%) expressing agreement.
- The music played from boats ("Other boaters played overly loud amplified music") – 46 percent (46.4%) expressing agreement.
- The behavior of personal watercraft operators ("I was bothered by personal watercraft cutting too close to my boat") – A little over 50 percent (51.5%) expressing agreement.

Areas that received mixed levels of agreement include;

- Boaters avoided favored parts of the lake in response to the crowded conditions ("I avoided my favorite parts of the lake because there were too many boats there") – Over 40 percent (40.9%) disagreed with the statement whereas almost 35 percent (34.4%) expressed agreement.
- The level of law enforcement on the lakes ("There was adequate law enforcement patrols on the lake") – While over 32 percent (32.5%) indicated that law enforcement on the lake was inadequate, 53 percent (53.0%) indicated it was adequate.
- Boaters' perceptions of risk ("Boating in high use areas involved too much risk") – While over 32 percent of (32.0%) respondents indicated that the level of risk associated with boating in some areas of the lake was not problematic, 45 percent (45.1%) of sample differed – indicating that boating on some of the areas of the lake was risky.

While Table 9 does highlight some areas of concern, the data also illustrate that respondents remain satisfied with the 2009 boating season expressing strong levels of agreement with measures of their enjoyment (item "a") and the money they invested in the 2009 boating season (item "e") was well worth the investment.

Table 9. Perceptions of Social Conditions

Below are some statements about your boating experience on Lake X. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	2.0	4.6	15.7	56.7	21.0	3.9	0.9
b. I avoided my favorite parts of the lake because there were too many boats there	14.1	26.8	24.7	22.5	11.9	2.9	1.2
c. I thought the lake and its surroundings were in good condition	4.8	14.9	20.3	49.1	10.9	3.5	1.0
d. Other boats came closer to my boat than I like	6.8	16.3	24.1	31.9	20.9	3.4	1.2
e. My boat trips were well worth the money I spent to take them	1.2	3.0	20.6	51.8	23.4	3.9	0.8
f. There was adequate law enforcement patrols on the lake	13.1	19.4	14.5	38.3	14.7	3.2	1.3
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	42.8	36.4	15.6	2.6	2.6	1.9	1.0
h. Boating in high use areas involved too much risk	11.8	20.2	22.8	33.7	11.4	3.1	1.2
i. The weather was not favorable	29.5	36.2	27.1	5.9	1.4	2.1	1.0
j. Engine noise from other boaters was too loud	19.0	33.1	24.6	15.8	7.4	2.6	1.2
k. Other boaters created massive wakes	7.8	12.3	14.7	31.8	33.4	3.7	1.3
l. I was bothered by poor water quality (e.g., contaminants, color)	13.1	33.7	23.1	20.7	9.4	2.8	1.2
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	5.2	13.0	17.6	36.4	27.8	3.7	1.2
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	20.3	36.5	19.5	12.7	11.0	2.6	1.3
o. Other boaters played overly loud amplified music	7.6	20.5	25.5	24.3	22.1	3.3	1.2
p. I nearly had an accident on the lake because of crowded conditions	26.5	33.3	23.5	11.0	5.6	2.4	1.1
q. I was bothered by personal watercraft cutting too close to my boat	11.2	19.8	17.4	29.1	22.4	3.3	1.3
r. The presence of personal watercraft interfered with the quality of my boating experience	15.8	19.8	22.6	22.4	19.2	3.1	1.3

Coping with Adverse Conditions

Respondents were requested to indicate how they would respond to potential obstacles related to their boating activity. Respondents' agreement with indicators of temporal displacement (i.e., altering the timing of their boating activity) suggest that the most prominent obstacle boaters face on the lakes is related to the level of use. In coping with "crowded" conditions, respondents indicated adjusting the timing of their boating (items "b" and "e"), avoided certain areas of the lake (item "f") or they simply adjusted to the condition encountered (item "c" and "j").

Table 10. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake X	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake X	55.4	5.7	18.7	14.3	5.9	2.1	1.4
b. Decided that if I boated on Lake X in the future, I would boat at earlier and/or later times of the day	17.0	8.1	18.1	32.1	24.6	3.4	1.4
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	17.0	11.7	28.0	31.8	11.4	3.1	1.3
d. Talked to someone who could do something concrete about the problem	42.9	12.2	26.9	11.4	6.7	2.3	1.3
e. Decided that if I boated on Lake X in the future, I would boat on the weekdays rather than weekends	21.2	8.0	16.3	33.0	21.6	3.3	1.4
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	24.0	10.6	21.5	25.5	18.4	3.0	1.4
g. Told myself it was unreasonable to expect that things should have been different at this location	27.2	14.6	30.8	19.2	8.2	2.7	1.3
h. Planned not to return to Lake X	84.6	6.3	6.7	.8	1.7	1.3	0.8
i. Boated on nearby lakes	70.4	9.0	11.3	7.3	2.1	1.6	1.1
j. Tried to view this condition or situation in a positive way	20.9	8.2	32.5	25.3	13.1	3.0	1.3
k. Decided that the problem was a one-time occurrence	58.9	14.7	19.1	5.2	2.1	1.8	1.1
l. Boated less often	34.0	11.0	19.6	23.8	11.6	2.7	1.4

Perception of Physical Conditions

For the most part, respondents were satisfied with the physical condition of the lake (see Table 11). Issues that were of some concern included factors that were the product of the behavior of others. For example:

- "Large wakes from wakeboarding boats" – Almost 16 percent (16.7%) considered this to be a "moderate problem" and a further 41 percent (41.7%) considered this to be a "big problem"
- "Erosion of shoreline" – Almost 20 percent (19.6%) considered this to be a "moderate problem" and 30 percent (30.1%) considered this to be a "big problem".
- "Loud music played from watercraft" – Almost 23 percent (22.9%) indicated this to be a "moderate problem" and a further 24 percent (24.6%) noted referred to this as a "big problem".
- "Inflatables/water toys trailing watercraft" – Twenty percent (20.4%) indicated this to be a "moderate problem" and a further 23 percent (22.9%) noted this to be a "big problem".

Table 11. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake X? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment		
	1	2	3	4	5	M^1	SD
a. Litter on shoreline	22.3	31.4	26.7	13.7	5.9	2.3	1.0
b. Insufficient navigational aids on the lake	34.4	24.9	23.2	9.9	7.6	2.1	1.0
c. Improper disposal of human waste	46.9	12.4	13.1	7.6	20.0	1.8	1.0
d. Loud music played from watercraft	26.3	20.2	22.9	24.6	5.9	2.5	1.2
e. Engine noise	37.0	25.0	21.2	11.8	5.0	2.1	1.1
f. Conflicts with docks over shoreline space	60.1	13.3	8.6	4.2	13.7	1.5	0.9
g. Debris at launch ramps	31.2	22.8	19.4	10.5	16.0	2.1	1.0
h. Inadequate public toilet facilities on the lake	42.9	11.2	14.7	13.9	17.3	2.0	1.2
i. Erosion of shoreline	20.8	20.2	19.6	30.1	9.3	2.6	1.2
j. Large wakes from wakeboarding boats	16.4	18.4	16.4	41.7	7.1	2.9	1.2
k. Inflatables/water toys trailing watercraft	29.1	21.3	20.4	22.9	6.3	2.4	1.2

Table 11. Perceptions of Physical Conditions (cont.)

l.	Not enough public boat ramps	69.5	7.6	6.5	8.2	8.2	1.5	1.0
m.	The speed of other boaters	25.7	27.4	24.6	17.1	5.3	2.3	1.1
n.	Fish habitat	45.6	12.0	15.6	10.3	16.5	1.9	1.1
o.	Habitat for birds	50.7	13.3	12.8	6.9	16.2	1.7	1.0
p.	Wildlife habitat	49.5	13.3	13.7	6.7	16.8	1.7	1.0
q.	The use of inflatables/water toys along the shore	47.4	16.2	13.9	15.8	6.7	2.0	1.2
r.	Aquatic vegetation	37.8	21.8	17.3	14.8	8.2	2.1	1.1

[1] Based on responses 1 through 4

Lake Management Preferences

With regard to issues related to the management of recreational boating on the study lakes, respondents' preferences varied (see Table 12). Strongest support was expressed for managing issues that are outside the jurisdiction of lake authorities or that are logistically less feasible:

- "Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)" – Over 80 percent (80.5%) of respondents expressed support, of which, more than 50 percent (50.7%) indicated "strong support".
- "Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders" – 80 percent (80.0%) of respondents offered support for this law, of which, more than 50 percent (52.3%) expressed strong support.
- "Training for the operation of personal watercraft" - Over 80 percent (84.5%) of respondents expressed support, of which, more than 50 percent (50.8%) indicated "strong support".
- "Dredge the lake to improve depth" - Over 70 percent (72.1%) of respondents expressed support, of which, almost 50 percent (47.3%) indicated "strong support".

Activities receiving slightly less support included:

- "Provide more aggressive enforcement of safety rules and regulations" – 62 percent (62.4%) of respondents expressed support.
- "Training for all watercraft operators" - 62 percent (62.0%) of respondents expressed support.
- "Online training for all watercraft operators" – Just under 60 percent (59.0%) expressed support.

Issues that received opposition included:

- "Provide more improved public access to the lake" – Forty two percent (42.0%) of respondents opposed the proposition.
- "Install more public boat ramps" – Almost 80 percent (78.6%) opposed the proposition, of which, 66 percent (66.2%) "strongly opposed".
- "Widen existing public boat ramps to accommodate more lanes" – A little over 70 percent (71.2%) opposed the proposition, of which, 55 percent (55.0%) indicated "strongly oppose".

Table 12. Managerial Issues

Given the conditions you observed on Lake X for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	M	SD
	1	2	3	4	5	*M*	*SD*
a. Provide more improved public access to the lake	22.6	19.4	20.6	23.0	14.4	1.9	1.5
b. Zone the waters to provide specific uses at specific places	22.6	19.4	20.6	23.0	14.4	2.9	1.4
c. Provide more aggressive enforcement of safety rules and regulations	8.0	7.4	22.3	33.3	29.1	3.7	1.2
d. Expand the number of marina slips	44.5	21.0	19.8	9.4	5.2	2.1	1.2
e. Cite boaters who's music can be heard within 100 feet	14.8	18.0	21.6	23.2	22.2	3.2	1.4
f. Restrict personal watercraft use to designated areas only	24.7	15.5	19.5	17.5	22.9	3.0	1.5
g. Establish "off limits" zones to protect sensitive resources	21.8	16.6	27.2	20.8	13.6	2.9	1.3
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	4.4	5.0	10.2	29.7	50.7	4.2	1.1
i. Training for the operation of personal watercraft	2.2	4.6	8.8	33.7	50.8	4.3	1.0
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	6.0	5.0	9.0	27.7	52.3	4.2	1.2
k. Training for all watercraft operators	6.0	9.4	22.6	30.1	31.9	3.7	1.2
l. Online training for all watercraft operators	7.6	8.8	24.6	32.2	26.8	3.6	1.2
m. Banning personal watercraft on public holidays	25.2	18.2	20.0	12.2	24.4	2.9	1.5
n. Restrict activities by day or week during peak use periods (e.g., holidays)	27.8	20.6	20.8	16.4	14.4	2.7	1.4
o. Install more public boat ramps	66.2	12.4	6.6	8.2	6.6	1.8	1.3
p. Widen existing public boat ramps to accommodate more lanes	55.0	16.2	14.8	7.4	6.6	1.9	1.3
q. Dredge the lake to improve depth	6.8	5.6	15.6	24.8	47.3	4.0	1.2

Almost 45 percent (44.7%) of respondents indicated having taken a boater safety or education class (see Table 13).

Sixty percent (60.5%) of respondents indicated that "tougher restrictions" were required to limit the size of wakes generated by some watercraft. Of those who indicated the need for tougher restrictions, banning the use of fat sacks was most preferred with 50 percent (50.4) indicating the option to be the 1st priority among the four alternatives. (i.e., banning the use of fat sacks, creating larger no-wake zones, banning the use of PWCs, and banning wakeboarding boats).

Respondents were also asked whether or not they felt the lakes should be managed to support a variety of recreation activities. A little over 60 percent (62.3%) indicated that lakes should support various activities. While all of the activities listed (i.e., waterskiing, wakeboarding, PWC, towing inflatables) received strong support (for those indicating "yes" to the previous question) with more than 70 percent advocating their availability, respondents were almost unanimous in their support of waterskiing (94.0%).

Table 13. Management Preferences

a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	44.7 (213)				
b. Do you feel that tougher restrictions are required on Lake X to limit the size of wakes generated by some watercraft? c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	60.5 (288)				
	Percent rating 1st or 2nd priority				
	1st	2nd	*M*	*SD*	
Ban the use of "fat sacks" on the lake.	50.4 (126)	20.4 (51)	2.0	1.2	
Create larger no-wake zones.	31.1 (83)	25.1 (67)	2.4	1.3	
Ban the use of personal watercraft on the lake.	17.2 (43)	12.4 (31)	3.2	1.3	
Ban wakeboarding boats on Lake X.	27.1 (70)	15.5 (40)	2.8	1.4	
d. Do you feel that GBRA should manage Lake X to support a variety of recreational boating activities? (yes, %, *n*)	62.3 (292)				
If "Yes", which of the following activities do you feel are suitable for Lake X?					
Waterskiing	94.0 (280)				
Wakeboarding	73.4 (196)				
PWC (e.g., Jet Ski)	76.4 (217)				
Towing Inflatables	71.1 (197)				

Shoreline Property

Almost two thirds (66.2%) of respondents were shoreline property owners. On average, they indicated having owned their home for 16 years (M=16.3) with 57 percent (57.1%) indicating that their lakeshore property was their primary residence. For those for who their lake home was a secondary residence, they averaged 16 (M=16.3) visits over the 2009 season.

Over 90 percent (92.3%) of shoreline property owners also indicated owning a dock, bulkhead or slip. Of these, 45 percent (45.7%) indicated that their bulkhead/dock/slip had been damaged by boating activities occurring on the lake resulting in an average cost of repair of around $11,377.

Table 14. Information about Respondents' Shoreline Properties

a. Do you have a home on Lake X (yes, *n, %*)	66.2 (309)
b. How long have your owned the residence on Lake X (*M, SD*)	16.3, 14.8
c. Is your home on Lake X your primary residence? (yes, *n, %*)	57.1 (177)
If not, approximately how many days did you spend there during the past 12 months? (days *M, SD*)	16.3, 14.8
d. Does your property on Lake X have a bulkhead, dock or slip? (yes, *n, %*)	92.3 (134)
Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake in the last 3 years? (yes, *n, %*)	45.7 (134)
What has been the total cost of repairs? ($, *M, SD*)	$11,377.28, $23,442.99

Public Meeting Survey Findings

At the conclusion of the public meeting held at the McQueeney Lions Club on March 27, 2010, attendees were requested to complete a attendees were requested to complete a short survey listing nine propositions for restricting uses on the GBRA lakes. These propositions emerged from the larger survey of the boating public (discussed above) and reflected issues that were of concern to boaters (see Table 15 below). A total of 81 surveys were completed. Attendees were presented the survey following a short presentation of the study findings by the Texas A&M contractor and a questions/answer session managed by GBRA personnel.

In the survey, respondents were requested to indicate their support for restricting use for certain activities year round, on public holiday weekend, or the July 4th public holiday weekend only. For items "h" and "I, respondents were only given the opportunity to express support/oppositions for restrictions on public holiday weekends.

We observed strongest support restricting use year round on items "a" through "g":
   a. "Banning watercraft with sleeping quarters" – Almost 57 percent (56.8%) expressed support.
   b. "Banning high performance boats (e.g., "cigarette boats") – Over 80 percent (80.2%) expressed support.
   c. "Banning the use of air boats" – Sixty three percent (63.0%) expressed support.
   d. "Banning the use of wake-creation devices (e.g., drop plates, the filling of bladders)" – Almost 60 percent (59.3%) expressed support.
   e. "Limiting the length of boats permitted on the lakes to be equal to or less than 24 feet - Almost 60 percent (59.3%) expressed support.
   f. "Banning pontoon planes" – Almost 50 percent (49.4%) expressed support.
   g. "Banning house boats" – Fifty five percent (55.6%) expressed support.

For the questions examining support for restrictions on the use of personal watercraft (PWC's) and towing inflatables, there was less consensus. For the use of PWC's, of respondents who responded to these questions, there was general support for restricting PWC's on both public holiday weekends (44.4% support, 22.2% oppose) and the July 4th public holiday weekend alone (45.7% support, 22.2% oppose). However, for the restriction of towing inflatables, support was divided for both all public holiday weekends (33.3% support, 35.8% oppose) and the July 4th public holiday weekend alone (39.5% support, 33.3% oppose).

Table 15. Public Meeting Survey

"Considering your own experiences on the study lakes (Dunlap, McQueeney, Placid, Nolte, Gonzales and Wood) and the study findings, we would like to know how you feel about potential actions aimed at ensuring the public's safety and enjoyment of the lakes. Please indicate your support or opposition to the following propositions by checking the appropriate circle below.

| | Please check your support/opposition FOR ALL THREE PERIODS; year round, public holiday weekends, and the July 4th weekend alone | | | | | | | | |
| | Year Round | | | On public holiday weekends only | | | On the July 4 weekend only | | |
N=81	Support	Oppose	No opinion	Support	Oppose	No opinion	Support	Oppose	No opinion
a. Banning watercraft with sleeping quarters	56.8 (46)	12.3 (10)	29.6 (24)	61.7 (50)	11.1 (9)	27.2 (22)	59.3 (48)	11.1 (9)	28.4 (23)
b. Banning high performance boats (e.g., "cigarette boats")	80.2 (65)	12.3 (10)	4.9 (4)	85.2 (69)	12.3 (10)	1.2 (1)	84.0 (68)	11.1 (9)	3.7 (3)
c. Banning the use of air boats	63.0 (51)	16.0 (13)	19.8 (16)	63.0 (51)	14.8 (12)	19.8 (16)	61.7 (50)	13.6 (11)	21.0 (17)
d. Banning the use of wake-creation devices (e.g., drop plates, the filling of bladders)	59.3 (48)	25.9 (21)	6.2 (5)	65.4 (53)	24.7 (20)	6.2 (5)	65.4 (53)	23.5 (19)	6.2 (5)
e. Limiting the length of boats permitted on the lakes to be equal to or less than 24 feet	59.3 (48)	23.5 (19)	12.3 (10)	63.0 (51)	21.0 (17)	13.6 (11)	61.7 (50)	21.0 (17)	13.6 (11)
f. Banning pontoon planes	49.4 (40)	30.9 (25)	13.6 (11)	53.1 (43)	29.6 (24)	9.9 (8)	51.9 (42)	29.6 (24)	11.1 (9)
g. Banning house boats	55.6 (45)	19.8 (16)	19.8 (16)	59.3 (48)	18.5 (15)	19.8 (16)	56.8 (46)	18.5 (15)	19.8 (16)
h. Banning the pulling of inflatables (e.g., water toys, tubes)	Not Applicable			44.4 (36)	22.2 (18)	6.2 (5)	45.7 (37)	22.2 (18)	7.4 (6)
i. Banning the use of personal watercraft (e.g., jetskis)	Not Applicable			33.3 (27)	35.8 (29)	3.7 (3)	39.5 (32)	33.3 (27)	4.9 (4)

Note: Some respondents did not check *support, oppose* or *no opinion*. Consequently, percentages do not add to 100. There were a total of 81 respondents.

LAKE DUNLAP

Respondents' Personal Information

As displayed below in Table 16, overall, the sample was comprised of respondents who were older (*M*=55.7 years), well educated (71.6% with college degrees), white (91.3%) men (79.2%). While almost 60 percent (58.3%) were employed full time, almost 30 percent (29.1%) indicated being retired. Last, household incomes were relatively high with two thirds of the Lake Dunlap sample (66.0%) of respondents reporting incomes in excess of $100,000.

Table 16. Household Information

Characteristic	
Age (years, *M, SD*)	55.7, 11.1
Gender (%, *n*)	
Male	79.2 (80)
Female	20.8 (21)
Education (%, *n*)	
8th grade or less	0
9th to 11th grade	0
12th grade (high school graduate)	9.8 (10)
13-15 years (some college	18.6 (19)
16 years (college graduate)	8.8 (9)
17+ years (some graduate work)	27.5 (28)
Masters, Doctoral, or Professional Degree	35.3 (36)
Race/Ethnicity (%, *n*)	
Hispanic	2.9 (3)
White, not Hispanic	91.3 (95)
Black or African-American	0
Native American or Alaskan Native	2.9 (3)
Asian or Pacific Islander	0
Other	2.9 (3)
Employment Status (%, *n*)	
Employed, full time	58.3 (60)
Homemaker	2.9 (3)
Employed, part time	2.9 (3)
Retired, but working full time	4.9 (5)
Retired, working part time	12.6 (13)
Retired, not working	16.5 (17)
Unemployed	0
Student	0
Other	1.9 (2)

Table 16. Household Information (cont.)

Household Income (%, *n*)	
Less than $25,000	0
$25,000 - $49,999	9.1 (8)
$50,000 - $74,999	9.1 (8)
$75,000 - $99,999	15.9 (14)
$100,000 - $149,999	27.3 (24)
$150,000 - $199,999	11.4 (10)
$200,000 - $249,999	6.8 (6)
$250,000 – $299,999	11.4 (10)
$300,000 or more	9.1 (8)

Boating Experience

Most respondents (89.2%) indicated being active boaters with extensive experience (*M*=27.0 years) (see Table 17). The most popular watercraft used on the lake was a speed/ski boat (46.8%) followed by pontoon boats (34.2%), personal watercraft (26.1%), and fishing/bass boats (24.3%).

In terms of respondents preferred activities, cruising was cited most frequently (40.6%) followed by skiing (18.8%) and wakeboarding (12.9%). Respondents tended to enjoy the lake in groups of four to five (*M*=4.5) consisting of family and friends (55.2%).

Table 17. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	89.2 (99)	
How many years have you been boating? (years, *M, SD*)	27.0, 16.0	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	41.0, 47.8	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	Number Used *M, SD*
Speed boat, ski boat	46.8 (52)	.6, .5
Fishing or bass boat	24.3 (27)	.4, .5
Pontoon boat	34.2 (38)	.5, .5
Inflatable pulled behind another watercraft	20.7 (23)	.3, .5
Wakeboard boat	19.8 (22)	.3, .5
High performance boat	1.8 (2)	.1, .2
Personal Watercraft (PWC; e.g., Jet Ski)	26.1 (29)	.4, .5
Other (Please specify	10.8 (12)	.2, .4

Table 17. Experience Characteristics (cont.)

Which of these watercraft do you use **most often**? (%, *n*)	
Speed boat, ski boat	33.7 (34)
Fishing or bass boat	12.9 (13)
Pontoon boat	21.8 (22)
Inflatable pulled behind another watercraft	1.0 (1)
Wakeboard boat	14.9 (15)
High performance boat	0
Personal Watercraft (PWC; e.g., Jet Ski)	9.9 (10)
Other (Please specify	5.9 (6)
What activity do you **most often** use your boat for? (*%*, n*)*	
Skiing	18.8 (19)
Cruising	40.6 (41)
Wakeboarding	12.9 (13)
Towing inflatables/water toys	5.0 (5)
Fishing	11.9 (12)
Racing up and down the lake	7.9 (8)
Other	3.0 (3)
How many people are usually in your boating group? (*M, SD*)	4.5, 2.1
Which of the following best describes your boating group?	
By yourself	2.9 (3)
Family	29.5 (31)
Multiple families	1.9 (2)
Family and friends	55.2 (58)
Friends	8.6 (9)
Organized outing group	1.0 (1)
Business associates	0
Other	1.0 (1)

Respondents were requested to indicate factors they liked most about Lake Dunlap. The characteristics cited as being most enjoyable on Lake Dunlap concerned the fun and relaxing opportunities afforded by the lake (*n*=22) in addition to its convenience (*n*=22). Opportunities to spend time with friends and family (*n*=20) and enjoy favored pastimes (*n*=18) were also noted.

*Table 18. Characteristics **Most Liked** about Lake Dunlap*

What did	Five Most Cited Characteristics	*n*
you like	1. Affective (Escape, tranquility, peaceful, get away, solitude, relaxed, fun)	22
best	1. Convenience (Location, live close to the lake; easy access, own property)	22
about	2. Social bonding (with friends, family, meeting people)	20
your	3. Activities (swimming, fishing, boating, wakeboarding, pontoon boat cruising, skiing, cruising, entertainment; picnic, bird watching, etc.)	18
visits to	4. Being outdoors, enjoy outdoors/nature, Enjoy aesthetics of nature/landscape	10
Lake Dunlap?	4. Water/Lake (beautiful, calm, clean, being by the water/lake, constant water level, easy paddling)	10

Characteristics that respondents indicated liking least about Lake Dunlap primarily concerned: (1) water quality (*n*=28), (2) the behavior of other boaters (*n*=28), and the high volume of use of public holiday weekends (*n*=26).

*Table 19. Characteristics **Least Liked** about Lake Dunlap*

What did	Five Most Cited Characteristics	*n*
you like	1. Water quality (vegetation – e.g., algae growth, hydroplant, lily pads; obstacles – e.g., debris, floating trash; scummy surface; dirty water; gravel beds across/under the water; sewer comes into it; silted areas; NBU dumping sewer water in lake)	28
least about	1. Behavior of others/drivers (inconsiderate, inexperienced, dangerous, discourteous, drunk, noisy)	28
your visits to	2. Boat traffic, Crowded, holiday crowds	26
Lake	3. Jet skiers, wave runners, PWCs	12
Dunlap?	4. Wake board boats	9

Constraints to Boating

While most respondents (89.2%) indicated being active boaters, only a third (33.6%) indicated that they boated as often as they would like (see Table 20 below). Respondents who indicated that they did not boat as often as they would like were then instructed to indicate their level of agreement with a series of statements that reflected potential reasons for not boating. Factors that boaters cited as reasons for not boating as often as they would prefer tended to center on time constraints and the social condition extant on the lakes:

- "Work commitments keep me away from boating on the lake" – Just over 50 percent (50.7%) in agreement.
- "I no longer have enough time" – Forty two percent (42.7%) in agreement.
- "It's too crowded" – Over 45 percent agreement (45.9%).
- "The behavior of other boaters is unsafe" – Just over 43 percent (43.8%) agreement.
- "Other boaters are inconsiderate" – Almost 40 percent (38.6%) in agreement.

Table 20. Constraints to Boating

Do you boat as often as you would like? (yes, %, *n*)	33.6 (37)						
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
I don't boat as often as I would like because… (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	71.6	14.9	9.5	2.7	1.4	1.5	0.9
b. I can't afford to go boating	62.2	23.0	10.8	4.1	0	1.6	0.8
c. It's too hot in summer	52.7	13.5	20.3	13.5	0	1.9	1.1
d. It's too crowded	14.9	16.2	23.0	32.4	13.5	3.1	1.3
e. I have no way to access the Lake	56.8	29.7	6.8	4.1	2.7	1.7	1.0
f. The Lake is too narrow	42.5	23.3	15.1	16.4	2.7	2.1	1.2
g. The behavior of other boaters is unsafe	9.6	19.2	27.4	31.5	12.3	3.2	1.2
h. The Lake is too shallow	33.8	28.4	21.6	12.2	4.1	2.2	1.2
i. Poor water quality	22.7	24.0	18.7	30.7	4.0	2.7	1.2
j. Other boaters are inconsiderate	18.7	20.0	22.7	25.3	13.3	3.0	1.3
k. Public access is inconvenient	44.0	30.7	18.7	5.3	1.3	1.9	1.0

Table 20. Constraints to Boating (cont.)

l. I no longer have enough time	18.7	21.3	17.3	36.0	6.7	3.0	1.3
m. Work commitments keep me away from boating on the Lake	16.0	21.3	12.0	44.0	6.7	3.0	1.3
n. My family no longer has an interest in boating	54.1	27.0	13.5	5.4	0	1.7	0.9
o. Shoreline owners/residents are inconsiderate	50.7	26.7	17.3	2.7	2.7	1.8	1.0
p. At times, the water surface is too rough	21.3	24.0	13.3	25.3	16.0	2.9	1.4
q. There's too much vegetation in the water	25.7	23.0	18.9	20.3	12.2	2.7	1.4

Use of Area Lakes

Respondents indicated that Lake Dunlap was their primary lake (98.9%) and the lake they most frequently used (97.1%) with an average of over 47 days (*M*=47.7) of boating over the 2009 season (see Table 21).

Table 21. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*)	90.6 (96)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake McQueeney	4.3 (12)	1.5, 2.9	.4 (1)
Lake Dunlap	97.1 (268)	47.7, 51.7	98.9 (272)
Lake Placid	4.7 (13)	1.0, 2.2	.4 (1)
Meadow Lake (Nolte)	.4 (1)	.1, .5	0
Lake Gonzales (H4)	.4 (1)	0, 0	0
Lake Wood (H5)	.7 (2)	.1, .4	0
Canyon Lake	10.5 (29)	2.3, 5.0	0
Other	2.5 (7)	3.1, 10.0	.4 (1)
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			16.3, 44.3, 0

Lake Attachment

Overall, respondents expressed strong attachment to Lake Dunlap (see Table 22). While they expressed agreement with most of the statements, enjoyment and the opportunity to spend time with family and friends were key to their lake affection.

Table 22. Feelings about Area Lakes

Considering Dunlap please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	M	SD
a. Dunlap is the best lake for the activities that I enjoy most	1.0	9.5	20.0	31.4	38.1	4.0	1.0
b. I have a strong emotional bond to the lake	1.9	8.6	21.0	29.5	39.0	4.0	1.1
c. I can't imagine a better lake for what I like to do	4.8	17.1	23.8	28.6	25.7	3.5	1.2
d. I feel the lake is a part of me	2.9	8.7	30.8	30.8	26.9	3.7	1.1
e. I feel a strong sense of belonging to the lake	1.9	9.6	25.0	30.8	32.7	3.8	1.1
f. The lake is one of the few places where I can be myself	7.7	11.5	42.3	22.1	16.3	3.3	1.1
g. I really enjoy the lake	0.0	1.0	4.8	41.0	53.3	4.5	0.6
h. The lake means a lot to me	1.0	1.9	7.6	43.8	45.7	4.3	0.8
i. The time spent boating on the lake allows me to bond with my family and friends	0.0	2.9	9.5	35.2	52.4	4.4	0.8
j. I associate special people in my life with the lake	2.9	5.7	15.2	37.1	39.0	4.0	1.0

Boater's Starting Location

Most respondents began boating from Zones 2 (22.1%) and 3 (26.9%) (see Figure 7).

Figure 7. Normal Starting Location
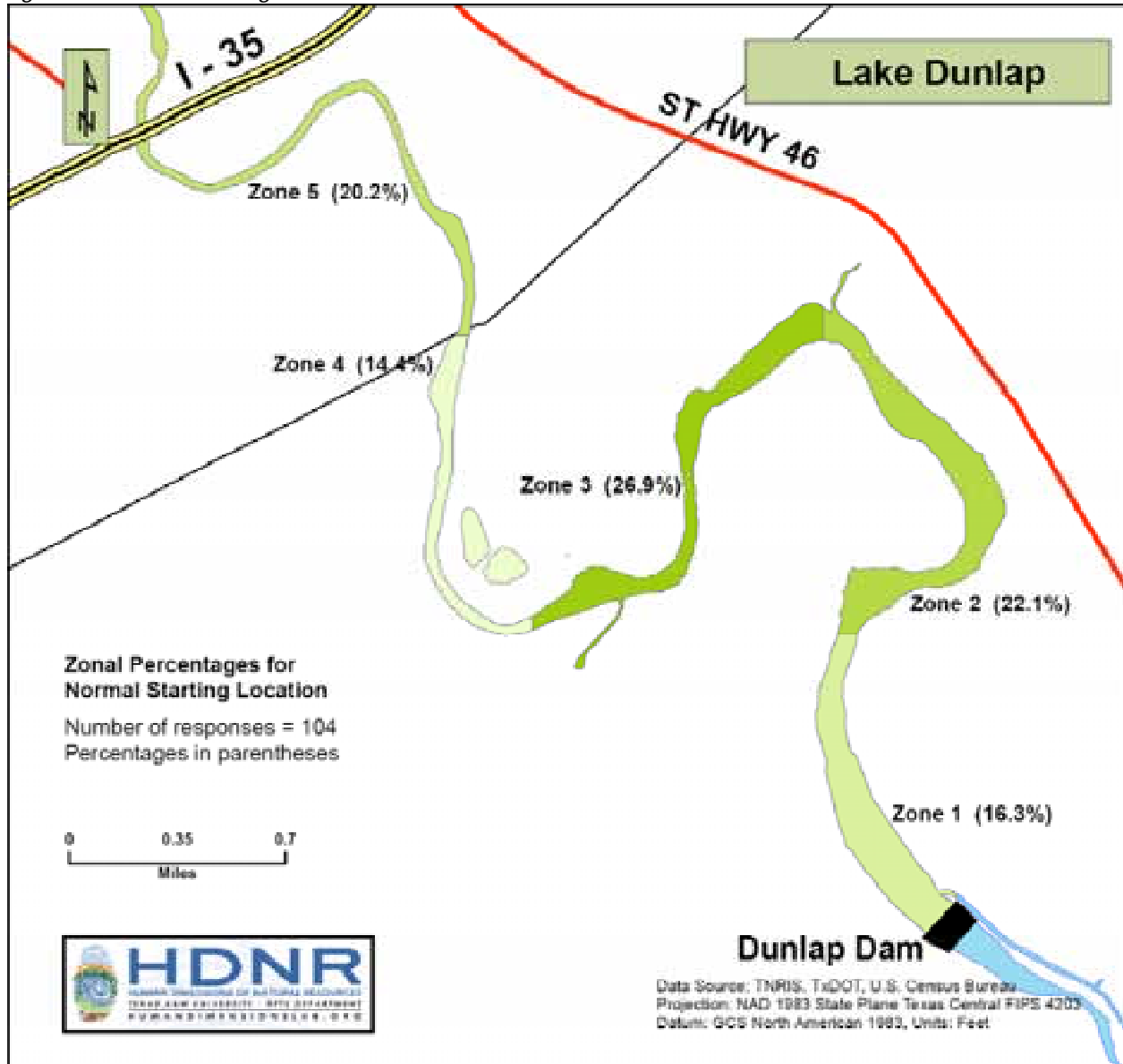
Traveling Upstream

The farthest upstream boaters reported visiting was Zone 5 (70.9%) (see Figure 8).

Figure 8. Farthest Traveled Upstream

Traveling Downstream

The farthest downstream boaters would travel was to Zone 1 (79.8%) (see Figure 9).

Figure 9. Farthest Traveled Downstream

Areas Where Boaters Spent Most Time

Boaters spent most time in Zones 2 (28.0%), 3 (24.0%) and 4 (21.3%) (see Figure 10).

Figure 10. Area Spent Most Time
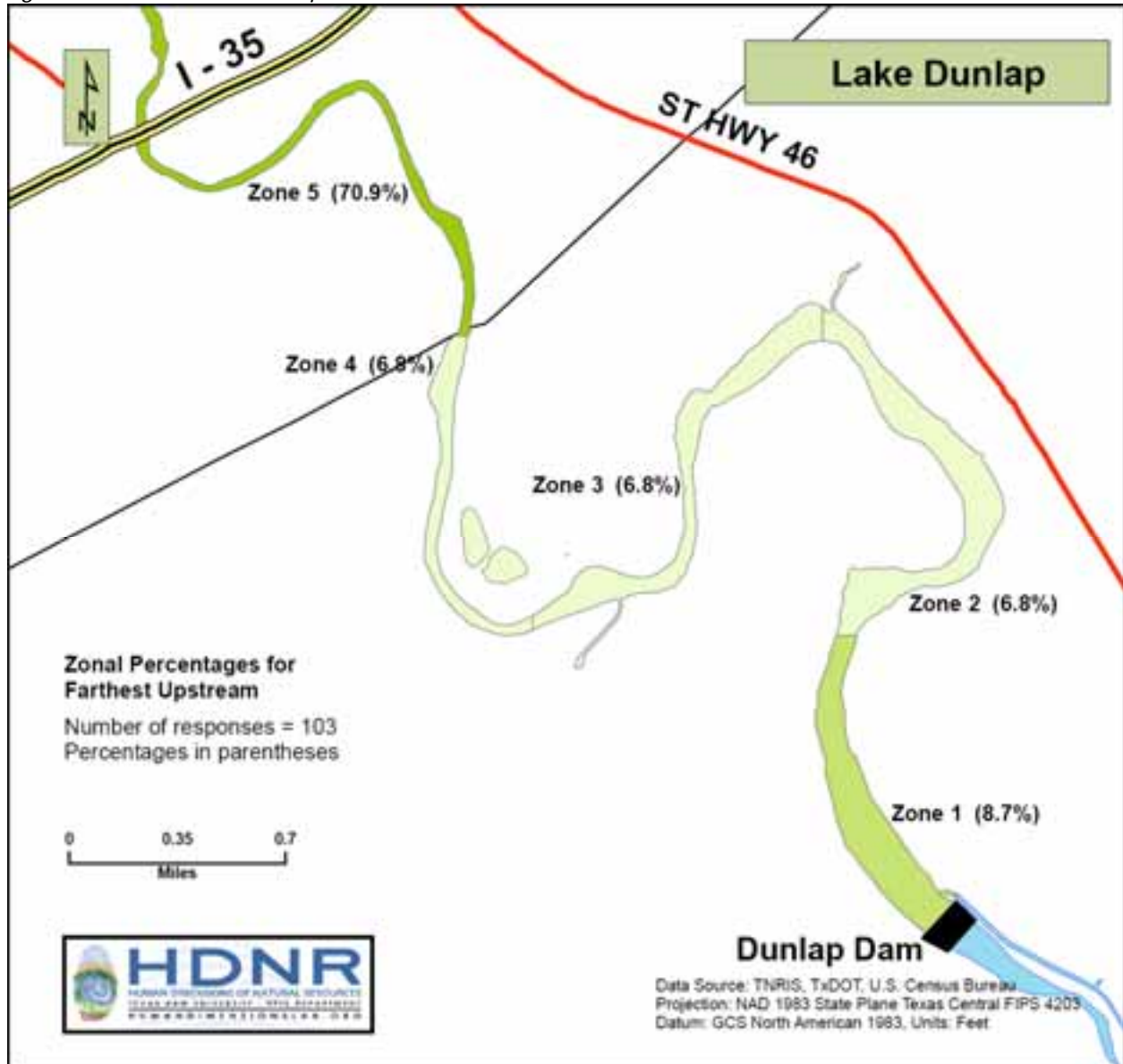
Areas Avoided

Areas that boaters avoided were situated at points farthest downstream (Zone 1, 35.0%) and upstream (Zone 5, 36.7%) (see Figure 11). The most commonly cited reason respondents reported for avoiding these areas concerned submerged obstacles (e.g., stumps, sandbars, etc.) (see Table 23 below). Other commonly reported issues included the narrowness of the lake (in some areas) and boat traffic.

Figure 11. Areas Avoided
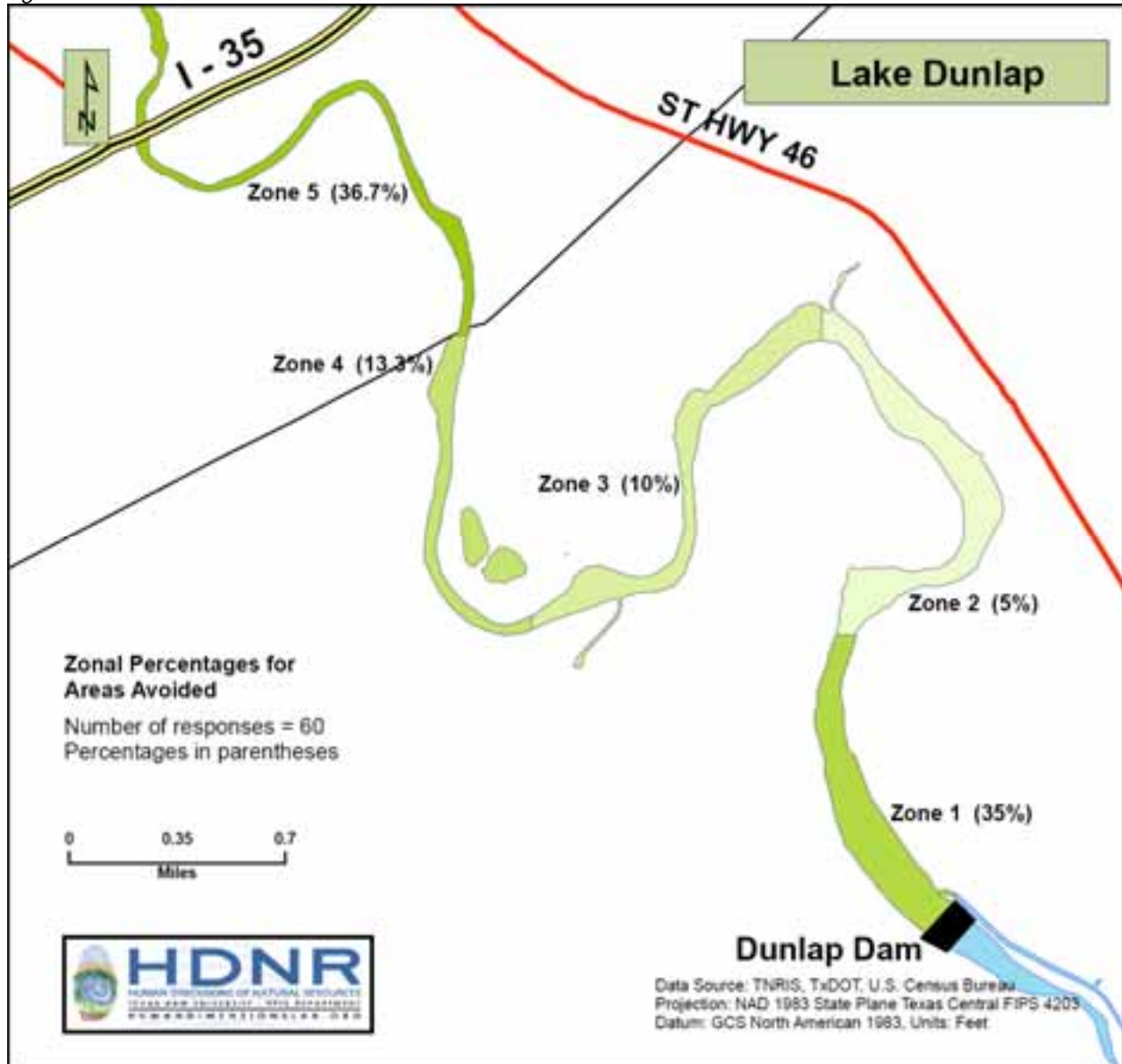
Table 23. Reasons for Avoiding Areas on Lake Dunlap

Five Most Cited Reasons	*N*
1. Obstacles (stumps; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	25
2. Narrow	15
3. Boat traffic	11
4. Shallow (no sign)	4
4. Unsafe	4

Areas Boaters' felt Unsafe

Areas that respondents felt were unsafe were, again, point farthest upstream (Zone 5, 35.7%) and downstream (Zone 1, 21.4%). Reasons that respondents reported these areas to be safe primarily focused on the narrowness of the lake and submerged obstacles (e.g., stumps, sandbars, etc.) (see Table 24 below).

Figure 12. Areas Boaters' Felt Unsafe
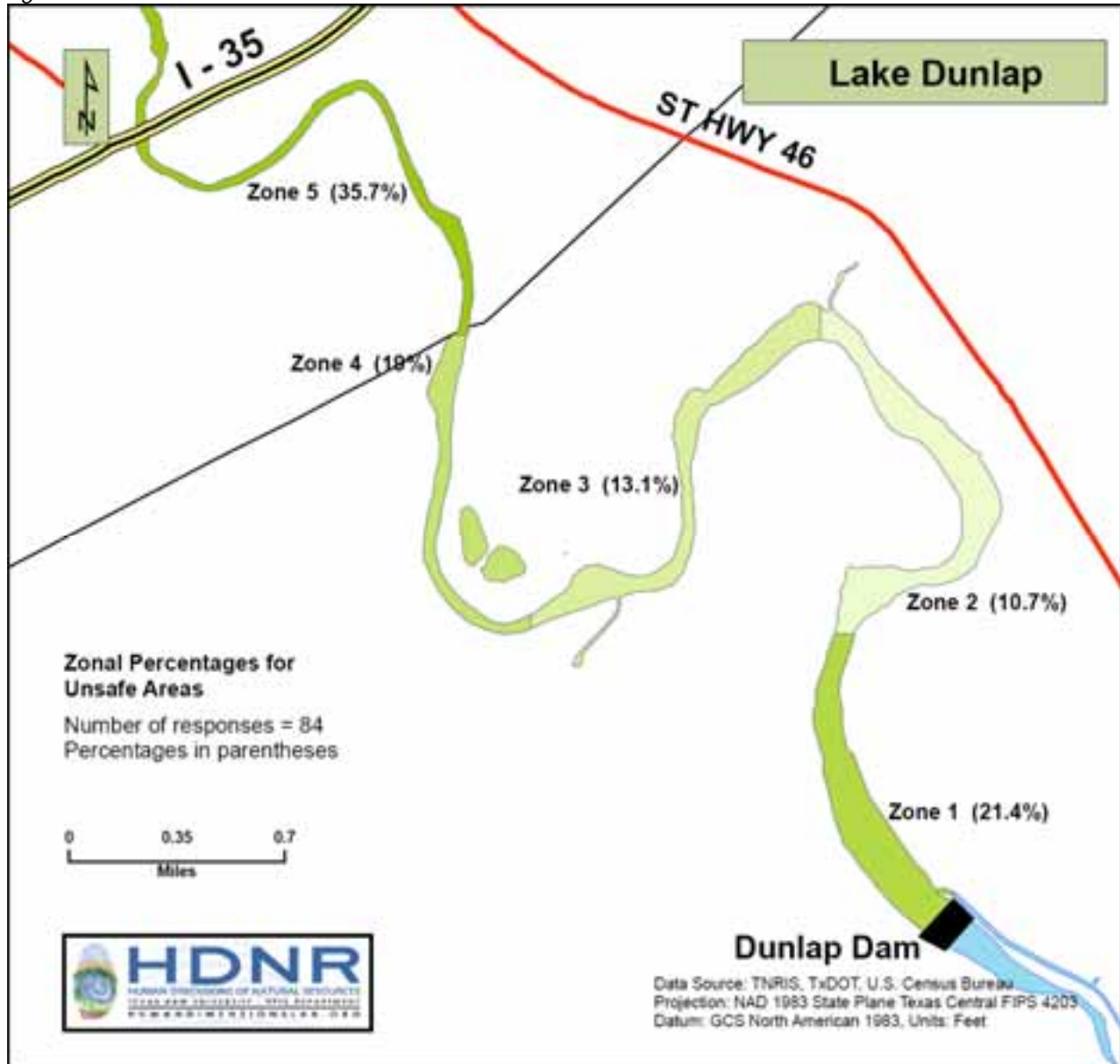
Table 24. Reasons Boaters' Felt Unsafe on Lake Travis

Five Most Cited Reasons	*N*
1. Narrow	19
2. Obstacles (e.g., stumps; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	17
3. Behavior of other boaters	11
4. Boat traffic	10
5. Unsafe	7

Perceptions of Lake Conditions

Perceptions of Setting Density

In general, respondents expressed some concern over the level and type of use occurring on Lake Dunlap (see Table 25):

- Over two thirds (69.0%) of respondents indicated that they would have liked to have seen fewer people on the lake.

- While over 47 percent (47.6%) of respondents indicated the number of people they encountered throughout the 2009 boating season was about what they had expected, more than 46 percent (46.6%) indicated seeing more than they had expected.

- More than two thirds of respondents (68.0%) reported that the number of people they saw had detracted from their boating experience. Alternately, a little less than a quarter (24.3%) indicated that the number of people they had seen had no effect on their enjoyment.

- There was some concern among respondents relating to safety in light of the number of boats on the lake and the behavior of other boaters. Approximately 40 percent indicated that Lake Dunlap was moderately safe in light of (a) the number of boats seen throughout the 2009 season (39.2%) and (b) the behavior of other boaters (40.2%).

- Almost 45 percent (44.1%) indicated feeling "moderately crowded" and a further 13 percent (13.7%) reported feeling "extremely crowded".

Table 25. Perceptions of Setting Density

	1	2	3	4	5					*M*	*SD*
How do you feel about the **number of people you encountered** on your visits to Dunlap for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people					*M*	*SD*
	0.0	1.9	29.1	40.8	28.2					3.9	0.8
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Dunlap for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected					*M*	*SD*
	0.0	5.8	47.6	17.5	29.1					3.7	1.0
How did the **number of people you saw affect your overall enjoyment** of your visits to y Dunlap for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment					*M*[1]	*SD*
	1.9	5.8	24.3	51.5	16.5					3.7	0.9
In light of the **number of boats** you saw on Dunlap this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe					*M*	*SD*
	4.9	27.5	39.2	25.5	2.9					2.9	0.9
In light of the **behavior of other boaters** on Dunlap this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe					*M*	*SD*
	8.8	26.5	40.2	22.5	2.0					2.8	0.9
Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Dunlap for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9	*M*	*SD*
	2.0	2.9	7.8	12.7	16.7	22.5	21.6	9.8	3.9	5.7	1.8

[1] Based on responses 1 through 4

Perceptions of Social Conditions

Respondents were requested to indicate their level of agreement with a series of statements examining the social conditions on Lake Dunlap for the 2009 boating season (see Table 26 below). Areas of concern include:

- The behavior of other boaters ("I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)" – Over 75 percent (75.7 %) expressed agreement.
- The music played from boats ("Other boaters played overly loud amplified music") – Sixty two percent (62.6%) expressing agreement.
- The size of boaters' wakes ("Other boaters created massive wakes") – Sixty two percent (62.3%) expressing agreement.
- Boaters encroaching on other space ("Other boats came closer than I like") – Fifty seven percent (57.6%) expressing agreement.
- Water quality ("I was bothered by poor water quality (e.g., contaminants, color)") – Fifty six percent (56.6%) expressing agreement.

Areas that received mixed levels of agreement include;

- Boaters avoided favored parts of the lake in response to the crowded conditions ("I avoided my favorite parts of the lake because there were too many boats there") – Over 43 percent (43.4%) disagreed with the statement whereas a little over 30 percent (30.3%) expressed agreement.
- The condition of the lake ("I thought the lake and its surroundings were in good condition") – While over 46 percent (46.5%) were in agreement with this statement, over 30 percent (30.3%) thought otherwise.
- The level of law enforcement on the lakes ("There was adequate law enforcement patrols on the lake") – While almost 50 percent (49.5%) indicated that law enforcement on the lake was adequate, more than 34 percent (34.4%) indicated it was inadequate.
- Boaters' perceptions of risk ("Boating in high use areas involved too much risk") – While over 30 percent of (30.3%) respondents indicated that the level of risk associated with boating in some areas of the lake was not problematic, 46 percent (46.4%) of sample differed – indicating that boating on some of the areas of the lake was risky.
- The presence of nuisance aquatic vegetation ("I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)") – 44 percent (44.0%) were in agreement, whereas 32 percent (32.0%) did not find the vegetation problematic.
- The presence of personal watercraft ("The presence of personal watercraft interfered with the quality of my boating experience") – While over 36 percent (36.3) of respondents disagreed with this statement, over 40 percent (40.4%) were in agreement.

While Table 26 does highlight some areas of concern, the data also illustrate that respondents remain satisfied with the 2009 boating season expressing strong levels of agreement with measures of their enjoyment (item "a") and the money they invested in the 2009 boating season (item "e") was well worth the investment.

Table 26. Perceptions of Social Conditions

Below are some statements about your boating experience on Lake Dunlap. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	M	SD
a. I thoroughly enjoyed my boat trips for the 2009 season	1.0	5.1	16.2	55.6	22.2	3.9	0.8
b. I avoided my favorite parts of the lake because there were too many boats there	14.1	29.3	26.3	22.2	8.1	2.8	1.2
c. I thought the lake and its surroundings were in good condition	7.1	23.2	23.2	38.4	8.1	3.2	1.1
d. Other boats came closer to my boat than I like	5.1	20.2	17.2	31.3	26.3	3.5	1.2
e. My boat trips were well worth the money I spent to take them	1.0	3.0	20.2	51.5	24.2	3.9	0.8
f. There was adequate law enforcement patrols on the lake	19.2	15.2	16.2	34.3	15.2	3.1	1.4
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	43.9	37.8	14.3	2.0	2.0	1.8	.9
h. Boating in high use areas involved too much risk	10.1	20.2	23.2	33.3	13.1	3.2	1.2
i. The weather was not favorable	27.3	41.4	21.2	9.1	1.0	2.1	1.0
j. Engine noise from other boaters was too loud	11.2	39.8	28.6	14.3	6.1	2.6	1.1
k. Other boaters created massive wakes	7.1	16.3	14.3	23.5	38.8	3.7	1.3
l. I was bothered by poor water quality (e.g., contaminants, color)	7.1	20.2	16.2	31.3	25.3	3.5	1.3
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	3.0	14.1	7.1	44.4	31.3	3.9	1.1
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	4.0	28.0	24.0	24.0	20.0	3.3	1.2
o. Other boaters played overly loud amplified music	3.0	15.2	19.2	29.3	33.3	3.7	1.2
p. I nearly had an accident on the lake because of crowded conditions	26.3	34.3	25.3	8.1	6.1	2.3	1.1
q. I was bothered by personal watercraft cutting too close to my boat	8.1	20.2	17.2	29.3	25.3	3.4	1.3
r. The presence of personal watercraft interfered with the quality of my boating experience	12.1	24.2	23.2	23.2	17.2	3.1	1.3

Coping with Adverse Conditions

Respondents were requested to indicate how they would respond to potential obstacles related to their boating activity. Respondents' agreement with indicators of temporal displacement (i.e., altering the timing of their boating activity) suggest that the most prominent obstacle boaters face on the lakes is related to the level of use. In coping with "crowded" conditions, respondents indicated adjusting the timing of their boating (items "b" and "e"), avoided certain areas of the lake (item "f") or they simply adjusted to the condition encountered (item "c" and "j").

Table 27. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Dunlap	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Dunlap	52.4	7.8	19.4	11.7	8.7	2.2	1.4
b. Decided that if I boated on Dunlap in the future, I would boat at earlier and/or later times of the day	17.3	4.8	21.2	36.5	20.2	3.4	1.3
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	12.5	17.3	32.7	30.8	6.7	3.0	1.1
d. Talked to someone who could do something concrete about the problem	45.5	13.9	25.7	9.9	5.0	2.1	1.2
e. Decided that if I boated on Dunlap in the future, I would boat on the weekdays rather than weekends	23.3	7.8	15.5	35.0	18.4	3.2	1.4
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	25.0	9.6	21.2	26.0	18.3	3.0	1.5
g. Told myself it was unreasonable to expect that things should have been different at this location	24.0	10.6	29.8	29.8	5.8	2.8	1.3
h. Planned not to return to Dunlap	86.4	7.8	2.9	0.0	2.9	1.3	0.8
i. Boated on nearby lakes	68.0	10.7	10.7	9.7	1.0	1.7	1.1
j. Tried to view this condition or situation in a positive way	17.5	8.7	35.9	23.3	14.6	3.1	1.3
k. Decided that the problem was a one-time occurrence	56.7	12.5	26.0	3.8	1.0	1.8	1.0
l. Boated less often	37.5	8.7	23.1	20.2	10.6	2.6	1.4

Perceptions of Physical Conditions

For the most part, respondents were satisfied with the physical condition of the lake (see Table 28). Issues that were of some concern included factors that were the product of the behavior of others. For example:

- "Litter on shoreline" – More than a quarter (25.5%) of respondents indicated this to be a "moderate problem" and a further 35 percent (35.7%) indicated it being a "big problem"
- "Loud music played from watercraft" – More than 26 percent (26.3%) indicated this to be a "moderate problem" and a further 33 percent (33.3%) noted referred to this as a "big problem".
- "Erosion of shoreline" – A little over 15 percent (15.2%) considered this to be a "moderate problem" and over 40 percent (41.4%) considered this to be a "big problem".
- "Large wakes from wakeboarding boats" – While 11 percent (11.1%) considered this to be a "moderate problem", almost half the sample (49.5%) considered this to be a "big problem".
- "The speed of other boaters" – A little over 26 percent (26.5%) considered this to be a "moderate problem" and a further 23 percent (23.5%) considered this to be a "big problem".
- "Aquatic vegetation" – More than 16 percent (16.3%) considered this to be a "moderate problem" and a further 32 percent (32.7%) considered this to be a "big problem".

Table 28. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Dunlap? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment	*M*[1]	*SD*
	1	2	3	4	5		
a. Litter on shoreline	10.2	26.5	25.5	35.7	2.0	2.9	1.0
b. Insufficient navigational aids on the lake	27.6	25.5	28.6	15.3	3.1	2.3	1.1
c. Improper disposal of human waste	34.3	18.2	15.2	17.2	15.2	2.2	1.2
d. Loud music played from watercraft	18.2	21.2	26.3	33.3	1.0	2.8	1.1
e. Engine noise	30.3	30.3	25.3	13.1	1.0	2.2	1.0
f. Conflicts with docks over shoreline space	62.6	16.2	5.1	6.1	10.1	1.5	0.9
g. Debris at launch ramps	29.3	19.2	21.2	13.1	17.2	2.2	1.1
h. Inadequate public toilet facilities on the lake	44.4	11.1	17.2	14.1	13.1	2.0	1.2
i. Erosion of shoreline	20.2	18.2	15.2	41.4	5.1	2.8	1.2
j. Large wakes from wakeboarding boats	19.2	16.2	11.1	49.5	4.0	2.9	1.2
k. Inflatables/water toys trailing watercraft	37.8	23.5	19.4	18.4	1.0	2.2	1.1
l. Not enough public boat ramps	79.8	6.1	5.1	6.1	3.0	1.4	0.8
m. The speed of other boaters	21.4	27.6	26.5	23.5	1.0	2.5	1.1
n. Fish habitat	46.9	17.3	12.2	9.2	14.3	1.8	1.0
o. Habitat for birds	46.9	18.4	13.3	7.1	14.3	1.8	1.0
p. Wildlife habitat	45.9	18.4	153	5.1	15.3	1.8	1.0
q. The use of inflatables/water toys along the shore	55.1	16.3	13.3	13.3	2.0	1.8	1.1
r. Aquatic vegetation	23.5	23.5	16.3	32.7	4.1	2.6	1.2

[1] Based on responses 1 through 4

Changes Over the Past Five Years

The most frequently cited "positive change" respondents report seeing on Lake Dunlap over the past 5 years referred to improving lake maintenance (*n*=10); e.g., removal of hazards/obstacles (see Table 29).

Table 29. Positive Change on Lake Dunlap Over the Past FIVE years

Have you noticed any positive changes at Lake Dunlap in the last five years? (yes, %, *n*)	22.2 (22)	*n*
If "Yes", can you describe those changes?	1. Better lake maintenance (Aesthetic improvement; cleaner; less vegetation; better monitoring (removing or marking) of hazard and obstacles – e .g., vegetation, trash, stumps, fallen tree; more bulkheads; better quality of construction (e.g., boat ramp widened and improved overall); rebuilding after the floods; better water quality; more bulkheads; more signs)	10
	2. Better law enforcement (Increased presence of law enforcement/game wardens; better regulation; restrictions of speed, others, towing inflatable under the bridge)	4
	3. More resident involvement (i.e., most homes have improved water front)	2
	4. Leadership of lake organizations (GBRA HAS TAKEN A MORE ACTIVE ROLL, The on-going efforts of the Preserve Lake Dunlap Association, an environmental group. Also GBRA is doing a better job of controlling water levels since the floods of 1998 and 2002.)	2
	5. Public access is better	1

Negative changes occurring over the past five years that were noted by respondents were issues related to water quality (*n*=30) and an increase in the number and size of boats (*n*=19) (see Table 30).

Table 30. Negative Change on Lake Dunlap Over the Past FIVE years

Have you noticed any negative changes at Lake Dunlap in the last five years? (yes, %, *n*)	62.6 (62)	*n*
If "Yes", can you describe those changes?	1. Worsen in water quality (trash, vegetation, debris, rocks)	30
	2. Increase in the number and size of boats	19
	3. Worsening lake condition (erosion of waterfront/bulkhead/land, depth reduction, caused by flood, silt)	13
	4. Increase in the number and speed of PWC	10
	5. Increase in the number and speed of Wake boats	5

Lake Management Preferences

With regard to issues related to the management of recreational boating on the study lakes, respondents' preferences varied (see Table 31). Strongest support was expressed for managing issues that are outside the jurisdiction of lake authorities or that are logistically less feasible:

- "Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)" – Over 85 percent (85.8%) of respondents expressed support, of which, more than 54 percent (54.5%) indicated "strong support".
- "Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders" – Almost 80 percent (79.0%) of respondents offered support for this law, of which, more than 50 percent (51.0%) expressed strong support.
- "Training for the operation of personal watercraft" – Eighty three percent (83.0%) of respondents expressed support, of which, 53 percent (53.0%) indicated "strong support".

Prospective actions receiving slightly less support included:

- "Provide more aggressive enforcement of safety rules and regulations" – Sixty four percent (64.0%) of respondents expressed support.
- "Cite boaters whose music can be heard within 100 feet" – Fifty three percent (53.5%) of respondents expressed agreement with this statement.
- "Training for all watercraft operators" – Fifty nine percent (59.6%) of respondents expressed support.
- "Online training for all watercraft operators" – Just over 60 percent (60.6%) expressed support.
- "Dredge the lake to improve depth" – Sixty one percent (61.0%) of respondents expressed agreement with this statement.

Issues that received opposition included:

- "Provide more improved public access to the lake" – Eight two percent (82.0%) of respondents opposed the proposition, of which 64 percent (64.0%) expressed strong opposition.
- "Install more public boat ramps" – Eighty one percent (81.0%) opposed the proposition, of which, 71 percent (71.0%) "strongly opposed".
- "Widen existing public boat ramps to accommodate more lanes" – Seventy one percent (71.0%) opposed the proposition, of which, 56 percent (56.0%) indicated "strongly oppose".
- "Expand the number of marina slips" – Over 76 percent (76.8%) of respondents opposed the proposition, of which a little less than 50 percent (48.5%) expressed strong opposition.

Table 31. Managerial Issue

Given the conditions you observed on Dunlap for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	M	SD
	1	2	3	4	5	*M*	*SD*
a. Provide more improved public access to the lake	64.0	18.0	8.0	5.0	5.0	1.7	1.1
b. Zone the waters to provide specific uses at specific places	28.3	22.2	20.2	16.2	13.1	2.6	1.4
c. Provide more aggressive enforcement of safety rules and regulations	6.0	9.0	21.0	30.0	34.0	3.8	1.2
d. Expand the number of marina slips	48.5	28.3	12.1	8.1	3.0	1.9	1.1
e. Cite boaters who's music can be heard within 100 feet	13.1	18.2	15.2	22.2	31.3	3.4	1.4
f. Restrict personal watercraft use to designated areas only	26.3	20.2	19.2	16.2	18.2	2.8	1.5
g. Establish "off limits" zones to protect sensitive resources	19.2	23.2	24.2	25.3	8.1	2.8	1.2
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	0.0	6.1	8.1	31.3	54.5	4.3	0.9
i. Training for the operation of personal watercraft	0.0	7.0	10.0	30.0	53.0	4.3	0.9
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	6.0	5.0	10.0	28.0	51.0	4.1	1.2
k. Training for all watercraft operators	3.0	13.1	24.2	23.2	36.4	3.8	1.2
l. Online training for all watercraft operators	4.0	13.1	22.2	31.3	29.3	3.7	1.1
m. Banning personal watercraft on public holidays	24.5	24.5	21.4	11.2	18.4	2.7	1.4
n. Restrict activities by day or week during peak use periods (e.g., holidays)	30.3	26.3	18.2	17.2	8.1	2.5	1.3
o. Install more public boat ramps	71.0	10.0	6.0	8.0	5.0	1.7	1.2
p. Widen existing public boat ramps to accommodate more lanes	56.0	15.0	14.0	10.0	5.0	1.9	1.2
q. Dredge the lake to improve depth	11.0	9.0	19.0	29.0	32.0	3.6	1.3

Restricting Activities/Watercraft to Specific Areas of Lake Dunlap

Respondents were requested to indicate areas of the lake where they would like to see activities/watercraft restricted; i.e. designated areas for activities and/or watercraft (see Figure 13). The pie charts below indicate the Zones to which respondents indicated that they would like to see activities/watercraft restricted (i.e., Zones where these activities/watercraft should only be permitted). As displayed, there was little zonal variation in respondents' preferences. The use of personal watercraft and towing inflatable toys were the watercraft/activities that respondents most strongly preferred to be restricted. There was, however, little consensus on the areas to which they would like these activities/watercraft restricted.

Figure 13. Activity restriction to Certain Areas
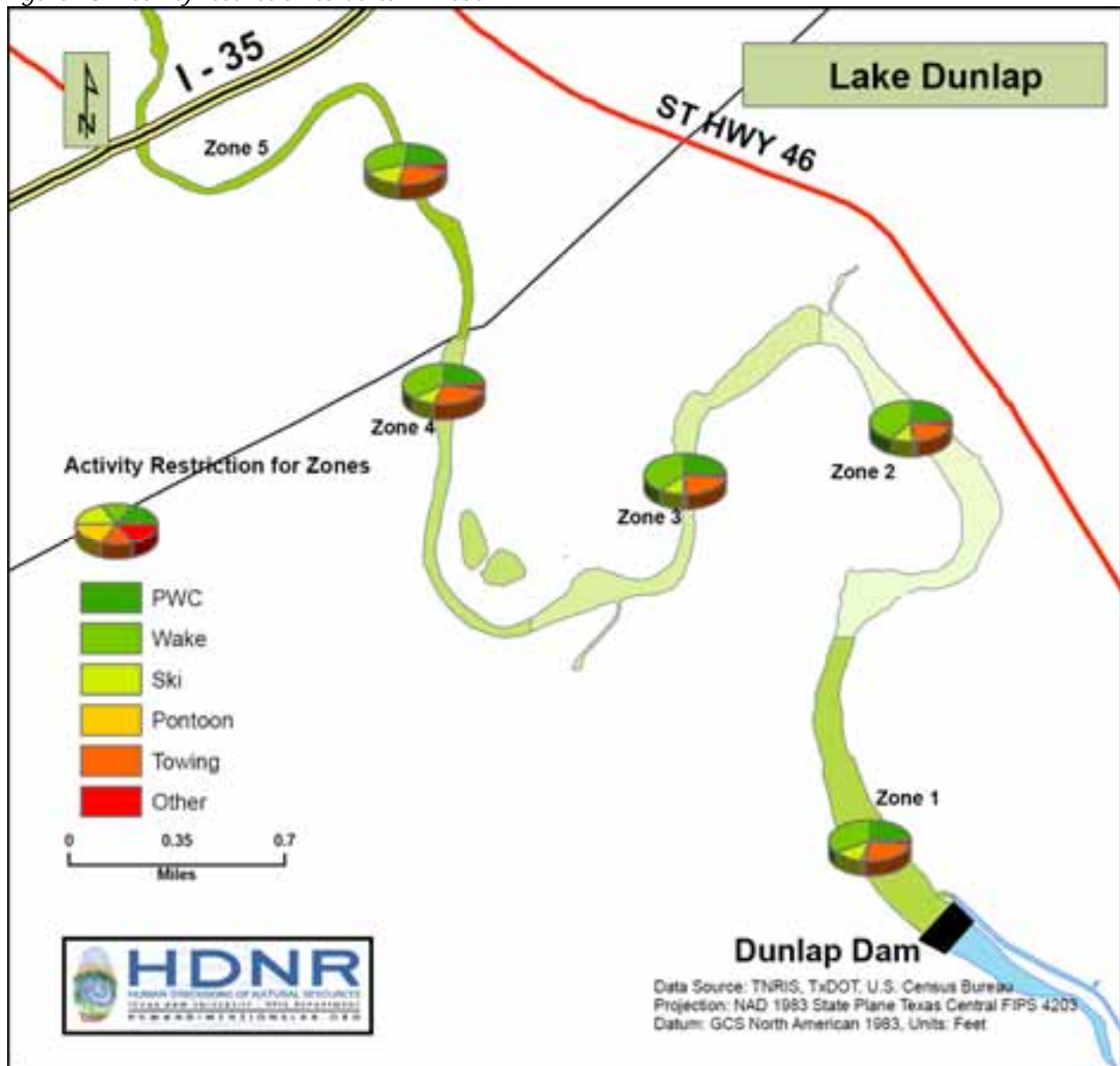
Over 46 percent (46.5%) of respondents indicated having taken a boater safety or education class (see Table 32).

Sixty two percent (62.2%) of respondents indicated that "tougher restrictions" were required to limit the size of wakes generated by some watercraft. Of those who indicated the need for tougher restrictions, banning wakeboarding was most preferred with 41 percent (41.7%) indicating the option to be the 1st priority among the four alternatives (i.e., banning the use of fat sacks, creating larger no-wake zones, banning the use of PWCs, and banning wakeboarding boats). Banning the use of fat sacks (36.4%) was the next most preferred "1st priority" followed by the creation of larger no-wake zones (29.3%).

Respondents were also asked whether or not they felt the lakes should be managed to support a variety of recreation activities. A little over 56 percent (56.1%) indicated that lakes should support various activities. While all of the activities listed (i.e., waterskiing, wakeboarding, PWC, towing inflatables) received strong support (among those indicating "yes" to the previous question) with more than 70 percent advocating their availability, respondents were almost unanimous in their support of waterskiing (98.0%) and the use of personal watercraft (92.3%). Wakeboarding received the least support (67.4%).

Table 32. Management Preferences

a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	46.5 (46)			
b. Do you feel that tougher restrictions are required on Lake Dunlap (H5) to limit the size of wakes generated by some watercraft?	62.2 (61)			
c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	Percent rating 1st or 2nd priority			
	1st	2nd	*M*	*SD*
Ban the use of "fat sacks" on the lake.	36.4 (20)	23.6 (13)	2.3	1.3
Create larger no-wake zones.	29.3 (17)	27.6 (16)	58	53
Ban the use of personal watercraft on the lake.	16.7 (9)	14.8 (8)	3.2	1.4
Ban wakeboarding boats on Dunlap.	41.7 (25)	10 (6)	2.5	1.5
d. Do you feel that GBRA should manage Dunlap to support a variety of recreational boating activities? (yes, %, *n*)	56.1 (55)			
If "Yes", which of the following activities do you feel are suitable for Dunlap?				
Waterskiing	98.1 (51)			
Wakeboarding	67.4 (31)			
PWC (e.g., Jet Ski)	92.3 (48)			
Towing Inflatables	84.3 (43)			

Perceptions of Regulation on Lake Dunlap

Respondents were requested to indicate if they felt more controls were required to prevent conflicts occurring between lake users. A little over 35 percent (35.4%) indicated, "yes," more controls were required. Of those indicating "yes", more law enforcement to manage speed was cited most often (*n*=21).

Table 33. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake Dunlap to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	35.4 (35)
What conflicts?	How should they be managed?
1. Speeders (6)	1. More restriction/law enforcement (even during holidays, weekend, night; fine; more presence of game warden/patrol, control noise, wake, pollution; zone restriction; proximity between boats) (21)
2. Other boaters (7)	2. License/Age limit/ training/education (5)
3. Wake board (4)	3.Speed limit (1)
4. Wake (4)	3. Boat size, weight, quantity limit (1)
5. PWCs (3)	3. Restriction/more regulation on wake board (1)
	3. Restriction/more regulation on high speed boat (1)

For those answering "yes" to the question of whether or not more controls required, respondents were also requested to indicate what controls might be needed to prevent damage to the environment. Erosion of shoreline was noted as the most common damage (*n*=21). To manage these issues, respondents suggested creating no wake zones and controlling boaters' speed most often (*n*=8).

Table 34. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake Dunlap to **prevent damage to the environment by boaters**? (yes, %, *n*)	38.8 (38)
What kind of damage?	How should they be controlled?
1. Erosion of waterfront, shoreline(21)	1. No wake zone; wake control; speed control (near shore to reduce erosion; install floatation devices to restrict speed and distance from shoreline in certain areas) (8)
2. Wakes (15)	2. Restrict pollution (2)
3. Wake board (5)	3. Limit wake board boats (2)
4. Trash (5)	4. Limit size, weight of boats (1)
5. Big boats (4)	5. More trashcans at ramps (1)

Service Provision

Respondents were requested to indicate whether or not they felt that the services currently offered on Lake Dunlap were adequate. A little over 27 percent (27.3%) indicated that additional services should be offered. Of those, most frequently cited suggestions included additional gas stations (*n*=17) and food outlets (*n*=10).

Table 35. Service Provision

Are there certain facilities or services that should be offered on Lake Dunlap that are currently not available? (yes, %, *n*)	27.3, 27
What kind of services or facilities?	*n*
1. Gas	17
2. Food	10
3. restroom	4
4. access	3
5. public area (i.e., public park)	1
6. better communication (i.e., A "hotline" to call to report violations)	1
7. lake maintenance (i.e., The bottom of the lake needs to be cleared of stumps or very clearly marked so boaters know where to go … and fisherman know where they can go)	1
8. Services (i.e., The lake really needs a small commercial marina to refule and **repair boats** right at the water's edge. Check out the Old Guadalupe Cattle Company boathouse across from southbank. It would be perfect!)	1

Shoreline Property

Almost 90 percent (89.7%) of respondents were shoreline property owners. On average, they indicated having owned their home for 17 years (*M*=17.2) with 60 percent (60.9%) indicating that their lakeshore property was their primary residence. For those for whom their lake home was a secondary residence, they averaged 65 (*M*=65.6) visits over the 2009 season.

Over 90 percent (93.1%) of shoreline property owners also indicated owning a dock, bulkhead or slip. Of these, 47 percent (47.0%) indicated that their bulkhead/dock/slip had been damaged by boating activities occurring on the lake resulting in an average cost of repair of around $8,155. Large wakes from boats was the most commonly cited reason for the damage (*n*=27).

Table 36. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake Dunlap (yes, *n,* %)		89.7 (87)
b.	How long have your owned the residence on Dunlap (*M, SD*)		17.2, 14.9
c.	Is your home on Dunlap your primary residence? (yes, %, *n*)		60.9 (53)
	If not, approximately how many days did you spend there during the past 12 months? (days *M, SD*)		65.6, 72.2
d.	Does your property on Dunlap have a bulkhead, dock or slip? (yes, %, *n*)		93.1 (81)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake in the last three years? (yes, %, *n*)		47.0 (39)
	What has been the total cost of repairs? ($, *M, SD*)		$8,155, $13,784
	Cause of damage	Most Cited	
		Big/constant wake (erosion from large wake; by water craft especially boats; behind the bulkhead) (27) Erosion (7) Boats (Speed/distance; no mention of wake) (3)	

LAKE McQUEENEY

Respondents' Personal Information

As displayed below in Table 37, overall, the sample was comprised of respondents who were older (*M*=57.8 years), very well educated (80.1% with college degrees), white (94.7%) men (72.2%). While just under half (48.9%) were employed full time, over 30 percent (32.2%) indicated being retired. Last, household incomes were relatively high with over three quarters of the Lake McQueeney sample (76.7%) reporting incomes in excess of $100,000.

Table 37. Household Information

Characteristic	
Age (years, *M, SD*)	57.8, 11.1
Gender (%, *n*)	
Male	72.2 (161)
Female	27.8 (62)
Education (%, *n*)	
8th grade or less	0
9th to 11th grade	0
12th grade (high school graduate)	3.5 (8)
13-15 years (some college	16.4 (37)
16 years (college graduate)	11.5 (26)
17+ years (some graduate work)	35.4 (80)
Masters, Doctoral, or Professional Degree	33.2 (75)
Race/Ethnicity (%, *n*)	
Hispanic	1.3 (3)
White, not Hispanic	94.7 (215)
Black or African-American	.9 (2)
Native American or Alaskan Native	0
Asian or Pacific Islander	3.1 (3.1)
Employment Status (%, *n*)	
Employed, full time	48.9 (111)
Homemaker	6.2 (14)
Employed, part time	3.5 (8)
Retired, but working full time	4.4 (10)
Retired, working part time	10.6 (24)
Retired, not working	21.6 (49)
Unemployed	.4 (1)
Student	.4 (1)
Other	4.9 (9)

Table 37. Household Information (cont.)

Household Income (%, *n*)	
Less than $25,000	1.5 (3)
$25,000 - $49,999	3.0 (6)
$50,000 - $74,999	9.9 (20)
$75,000 - $99,999	8.9 (18)
$100,000 - $149,999	18.3 (37)
$150,000 - $199,999	14.9 (30)
$200,000 - $249,999	7.9 (16)
$250,000 – $299,999	5.9 (12)
$300,000 or more	29.7 (60)

Boating Experience

Most respondents (89.5%) indicated being active boaters with extensive experience (*M*=26.3 years) (see Table 38). The most popular watercraft used on the lake was a speed/ski boat (60.5%) followed by the use of personal watercraft (22.1%), the towing of inflatables behind other boats (18.8%) and pontoon boats (18.5%).

In terms of respondents preferred activities, cruising was cited most frequently (47.2%) followed by skiing (30.4%) and then wakeboarding (10.0%). Respondents tended to enjoy the lake in groups of four to five (*M*=4.5) consisting of family and friends (54.0%).

Table 38. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	89.5 (247)	
How many years have you been boating? (years, *M, SD*)	26.3, 17.1	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	54.51, 57.0	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	Number Used *M, SD*
Speed boat, ski boat	60.5 (167)	1.1, 2.5
Fishing or bass boat	14.5 (40)	.6, 2.4
Pontoon boat	18.5 (51)	.4, .7
Inflatable pulled behind another watercraft	18.8 (52)	.7, .9
Wakeboard boat	15.9 (44)	.3, .5
High performance boat	2.2 (6)	.1, .2
Personal Watercraft (PWC; e.g., Jet Ski)	22.1 (61)	1.0, 1.0
Other (Please specify	8.7 (24)	.8, 2.3

Table 38. Experience Characteristics (cont.)

Which of these watercraft do you use **most often**? (%, *n*)	
Speed boat, ski boat	57.0 (142)
Fishing or bass boat	6.8 (17)
Pontoon boat	12.0 (30)
Inflatable pulled behind another watercraft	0
Wakeboard boat	11.2 (28)
High performance boat	0
Personal Watercraft (PWC; e.g., Jet Ski)	7.6 (19)
Other (Please specify	5.2 (13)
What activity do you **most often** use your boat for? (*%*, n)	
Skiing	30.4 (76)
Cruising	47.2 (118)
Wakeboarding	10.0 (25)
Towing inflatables/water toys	2.0 (5)
Fishing	6.0 (15)
Racing up and down the lake	4.4 (11)
Other	0
How many people are usually in your boating group? (*M, SD*)	4.5, 2.0
Which of the following best describes your boating group?	
By yourself	.8 (2)
Family	33.6 (89)
Multiple families	3.8 (10)
Family and friends	54.0 (143)
Friends	5.3 (14)
Organized outing group	2.6
Business associates	0
Other	0

Respondents were requested to identify factors they liked most about Lake McQueeney. The characteristics they cited as being most enjoyable on the lake were the opportunity to spend time with friends and family (n=75), the fun and relaxing opportunities afforded by the lake (*n*=62) and the opportunity to enjoy a favored pastime (*n*=53).

Table 39. Characteristics Most Liked about Lake McQueeney

What did you like *best* about your visits to Lake McQueeney?	Five Most Cited Characteristics	*n*
	2. Social Bonding (e.g., spending time with friends and family)	75
	3. Affective (e.g., fun, enjoyment, exciting, thrill)	62
	4. Activities (e.g., being able to enjoy favored past times)	53
	5. Nature/Outdoor (e.g., getting outside, being close to nature)	43
	6. Convenience (e.g., accessibility)	40

Characteristics that respondents indicated liking least about Lake McQueeney primarily concerned: (1) the volume of boat traffic – especially on holiday weekends (*n*=111), (2) the behavior of other boaters (*n*=50), and personal watercraft (*n*=41).

Table 40. Characteristics Least Liked about Lake McQueeney

What did you like *least* about your visits to Lake McQueeney?	Five Most Cited Characteristics	*n*
	2. Boat traffic (e.g., too many boats, too many boats on public holidays)	111
	3. Behavior of others (e.g., boaters are inconsiderate, dangerous)	50
	4. PWCs (e.g., jet skis, wave runners)	41
	5. Wakeboard boats (e.g., throw too large of a wake)	21
	6. Water quality	16

Constraints to Boating on Lake McQueeney

While most respondents (89.5%) indicated being active boaters, only a little over 25 percent (26.9%) indicated that they boated as often as they would like (see Table 41 below). Respondents who indicated that they did not boat as often as they would like were then instructed to indicate their level of agreement with a series of statements that reflected potential reasons for not boating. Factors that boaters cited as reasons for not boating as often as they would prefer tended to center on the social conditions extant on the lakes and other commitments:

- "It's too crowded" – Seventy two percent (72.0%) of respondents expressed agreement.
- "The behavior of other boaters is unsafe" – A little under 60 percent (59.1%) of respondents expressed agreement.
- "At times, the water surface is too rough" – Over 70 percent (71.8%) of the sample were in agreement.

On four items, respondents disagreed on the extent of the issue constraining the boating behavior:

- "The lake is too shallow" – perhaps a function of where respondents reside, 36 percent (36.2%) of respondents agreed with this statement and almost 37 percent (36.7%) disagreed.
- "Other boaters are inconsiderate" – Forty four percent (44.7%) of respondents were in agreement and over 26 percent (26.5%) disagreed.
- While potentially a product of their employment status (e.g., employed vs. retired), respondents also cited time as a factor constraining their boating behavior. While over 50 percent (51.6%) disagreed with the statement – "I no longer have enough time" – thirty two (32.2%) indicated that this was a constraining factor. Additionally, almost 40 percent (39.4%) cited work commitments ("Work commitments keep me away from boating on the Lake") as a constraining factor, 46 percent (46.7%) indicated that this was not constraining.

Table 41. Constraints to Boating

Do you boat as often as you would like? (yes, %, *n*)	26.9 (29)						
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
I don't boat as often as I would like because... (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	72.8	16.7	6.1	3.3	1.1	1.4	0.8
b. I can't afford to go boating	63.3	23.9	8.9	3.9	0	1.5	0.8
c. It's too hot in summer	51.1	24.4	14.4	8.9	1.1	1.8	1.0
d. It's too crowded	8.8	8.8	10.4	43.4	28.6	3.7	1.2
e. I have no way to access the Lake	66.7	18.3	6.7	3.3	5.0	1.6	1.1
f. The Lake is too narrow	28.9	18.9	28.3	20.0	3.9	2.5	1.2
g. The behavior of other boaters is unsafe	8.3	12.2	20.4	39.8	19.3	3.5	1.2
h. The Lake is too shallow	13.9	22.8	27.2	25.6	10.6	3.0	1.2
i. Poor water quality	22.1	35.9	25.4	13.3	3.3	2.4	1.1
j. Other boaters are inconsiderate	8.3	18.2	28.7	33.1	11.6	3.2	1.1
k. Public access is inconvenient	44.4	12.2	24.4	8.3	10.6	2.3	1.4
l. I no longer have enough time	32.2	19.4	16.1	28.3	3.9	2.5	1.3
m. Work commitments keep me away from boating on the Lake	27.8	18.9	13.9	32.2	7.2	2.7	1.4
n. My family no longer has an interest in boating	51.4	33.0	14.0	1.7	0	1.7	0.8
o. Shoreline owners/residents are inconsiderate	53.3	25.6	14.4	2.2	4.4	1.8	1.1
p. At times, the water surface is too rough	6.1	7.7	14.4	34.8	37.0	3.9	1.2
q. There's too much vegetation in the water	19.9	32.6	28.2	14.9	4.4	2.5	1.1

Use of Area Lakes

Almost all respondents indicated that Lake McQueeney was their primary lake (98.9%) and the lake they most frequently used (97.1%) with an average of over 47 days (M=47.7) of boating over the 2009 season (see Table 42).

Table 42. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*)	90.6 (96)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	4.3 (12)	1.5, 2.9	.4 (1)
Lake McQueeney	97.1 (268)	47.7, 51.7	98.9 (272)
Lake Placid	4.7 (13)	1.0, 2.2	.4 (1)
Meadow Lake (Nolte)	.4 (1)	.1, .5	0
Lake Gonzales (H4)	.4 (1)	0, 0	0
Lake Wood (H5)	.7 (2)	.1, .4	0
Canyon Lake	10.5 (29)	2.3, 5.0	0
Other	2.5 (7)	3.1, 10.0	.4 (1)
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			16.3, 44.3, 0

Lake Attachment

Overall, respondents expressed strong attachment to Lake McQueeney (see Table 43) While they expressed agreement with most of the statements, enjoyment and the opportunity to spend time with family and friends were key to their lake affection.

Table 43. Feelings about Area Lakes

Considering Lake McQueeney please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	*M*	*SD*
	1	2	3	4	5	*M*	*SD*
a. Lake McQueeney is the best lake for the activities that I enjoy most	1.9	10.2	13.6	37.7	36.6	4.0	1.0
b. I have a strong emotional bond to the lake	.8	3.8	9.8	36.2	49.4	4.3	0.9
c. I can't imagine a better lake for what I like to do	7.6	17.0	23.9	23.1	28.4	3.5	1.3
d. I feel the lake is a part of me	3.4	5.7	18.5	33.2	39.2	4.0	1.1
e. I feel a strong sense of belonging to the lake	2.3	3.8	14.0	37.7	42.3	4.1	0.9
f. The lake is one of the few places where I can be myself	5.7	10.9	34.3	26.8	22.3	3.5	1.1
g. I really enjoy the lake	.8	.8	3.8	38.9	55.8	4.5	0.7
h. The lake means a lot to me	1.1	.4	7.2	35.8	55.5	4.4	0.7
i. The time spent boating on the lake allows me to bond with my family and friends	1.1	1.5	7.5	32.1	57.7	4.4	0.8
j. I associate special people in my life with the lake	.4	3.0	12.5	33.3	50.8	4.3	0.8

Boater's Starting Location

Consistent with the location of boaters' shoreline property, the starting point for respondents was spread between Zones 2 through 5 (total=87.0%) (see Figure 14).

Figure 14. Normal Starting Location
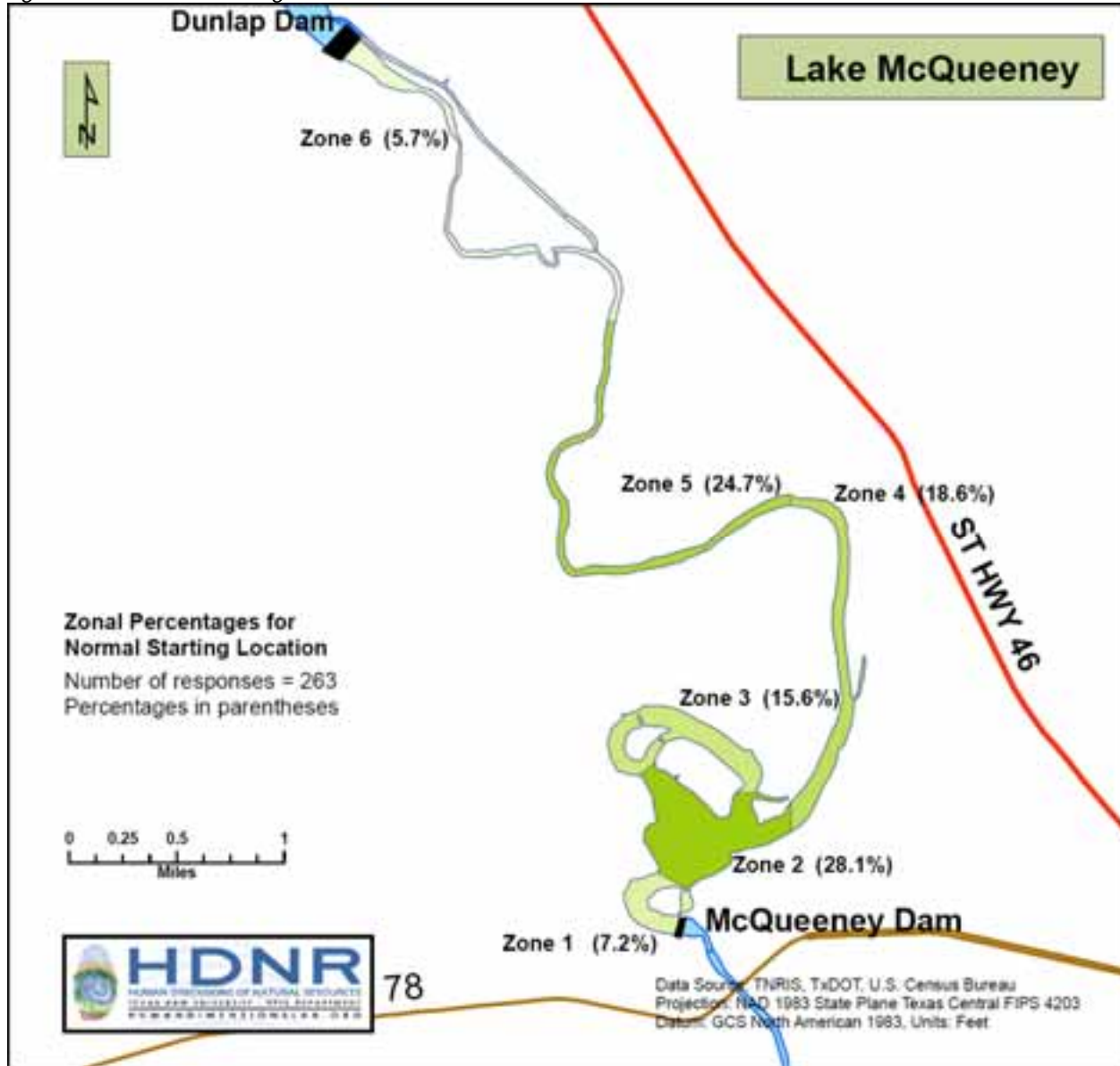
Traveling Upstream

The farthest upstream respondents reported visiting was Zones 5 (38.2%) and 6 (47.7%) (see Figure 15).

Figure 15. Farthest Traveled Upstream
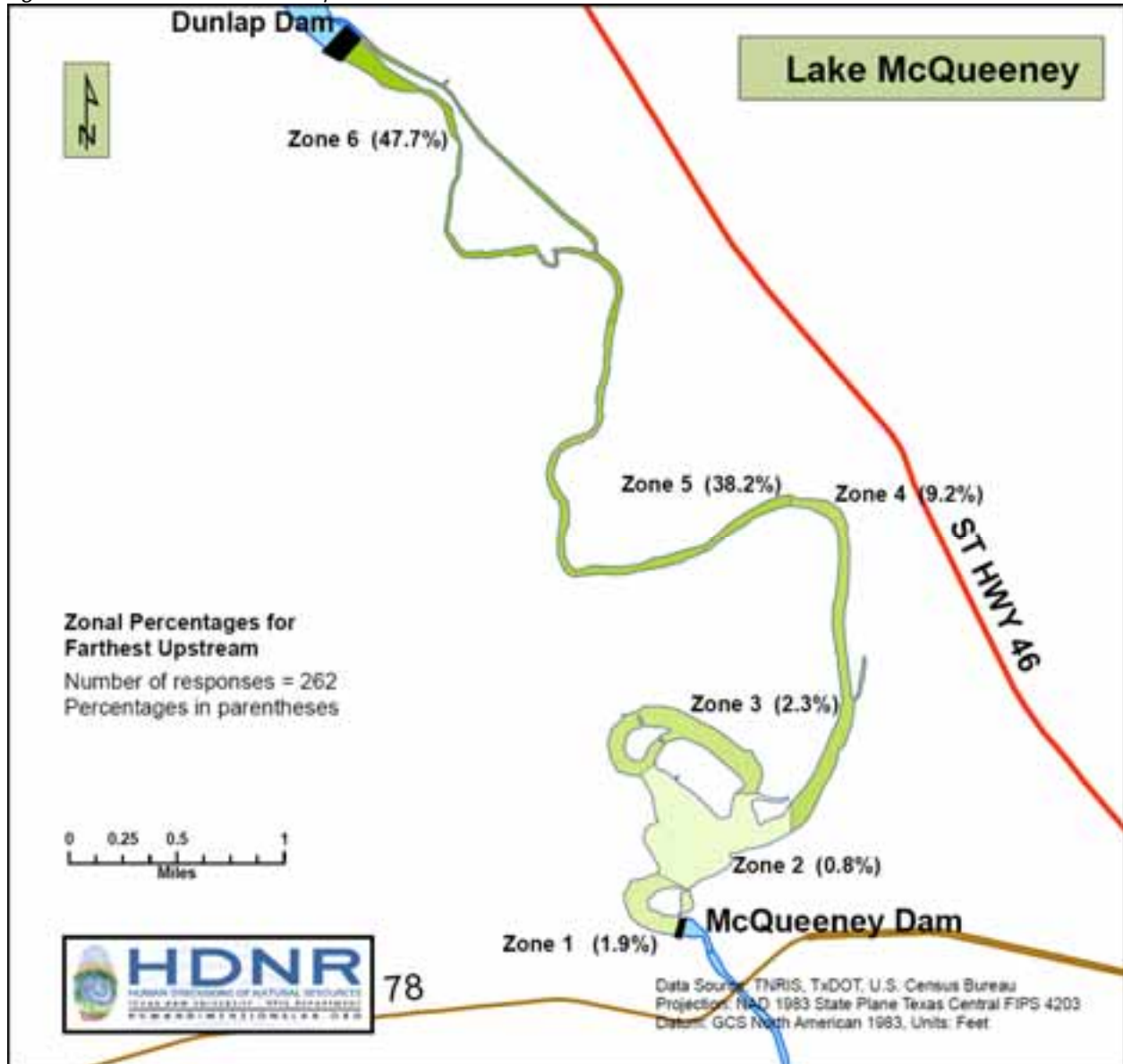
Traveling Downstream

The farthest downstream boaters would travel was to Zone 1 (82.0%) (see Figure 16).

Figure 16. Farthest Traveled Downstream
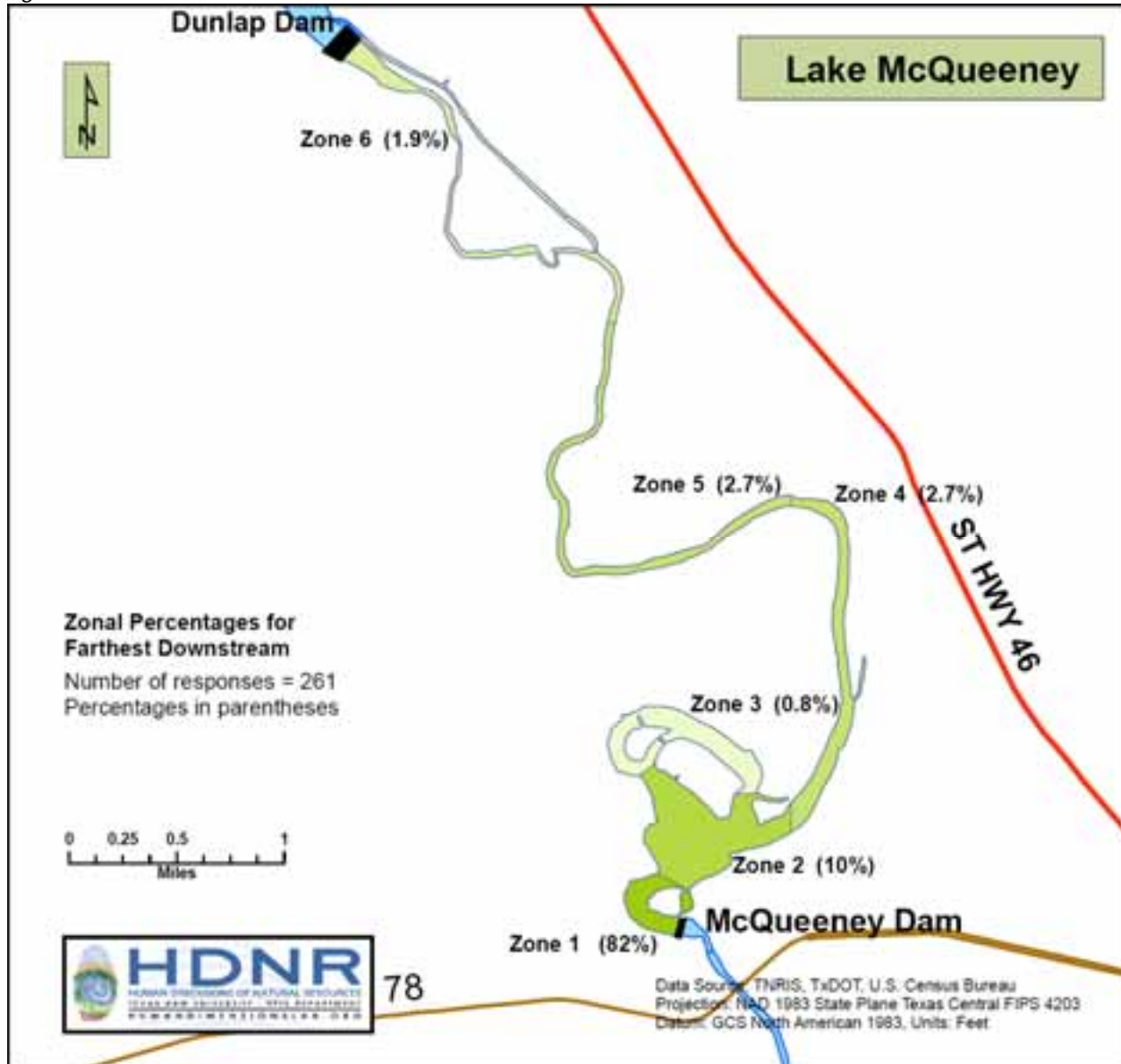
Areas Where Boaters Spent Most Time

The areas respondents indicated spending most time were spread between Zones 2 through 5 (total=85.6%) (see Figure 17).

Figure 17. Area Spent Most Time
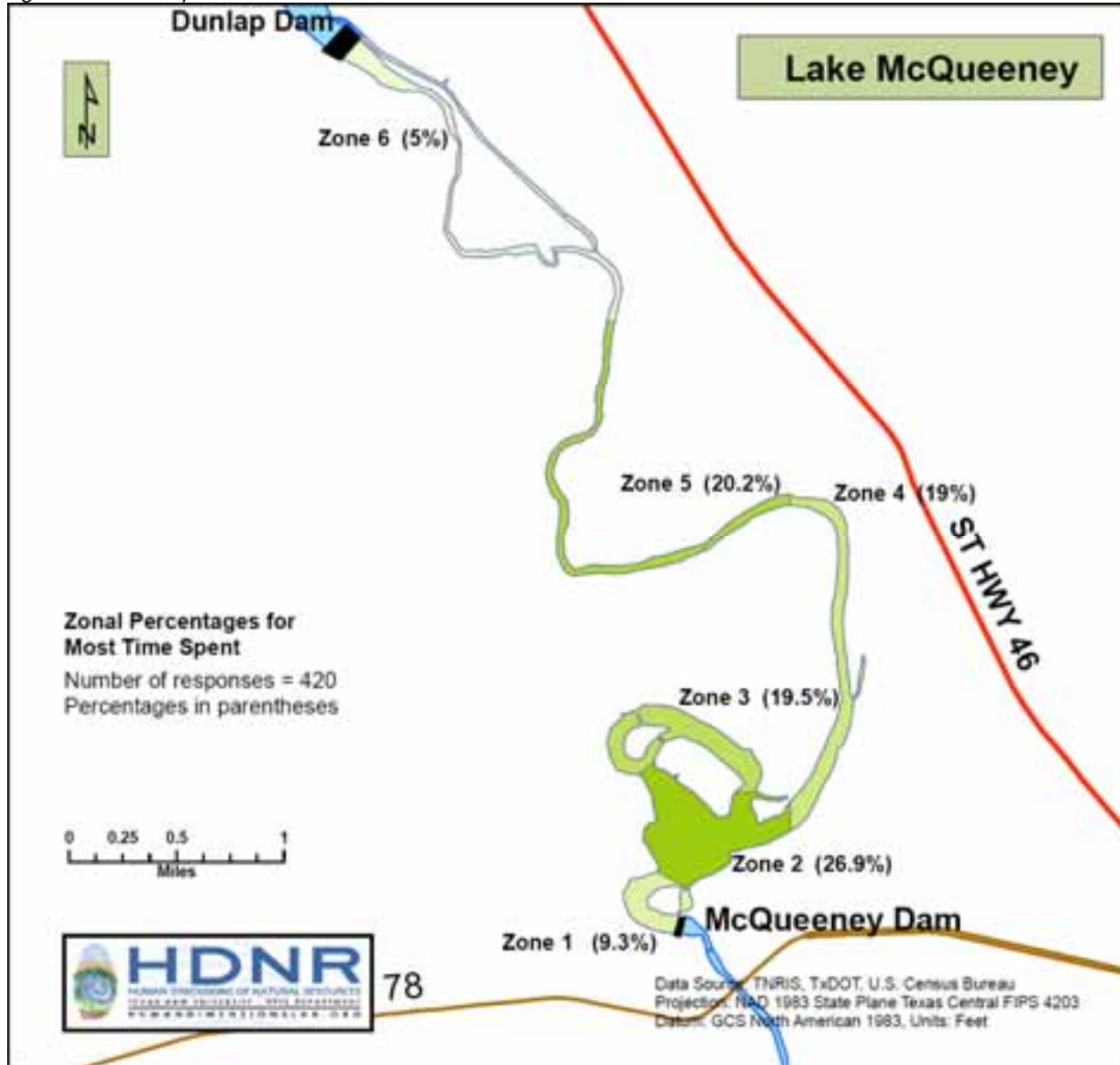
Areas Avoided

Areas that boaters avoided were situated at points farthest upstream in Zone 6 (60.3%) (see Figure 18). The most commonly cited reasons respondents reported for avoiding these areas concerned inadequate depth (*n*=111) (see Table 44 below).

Figure 18. Areas Avoided
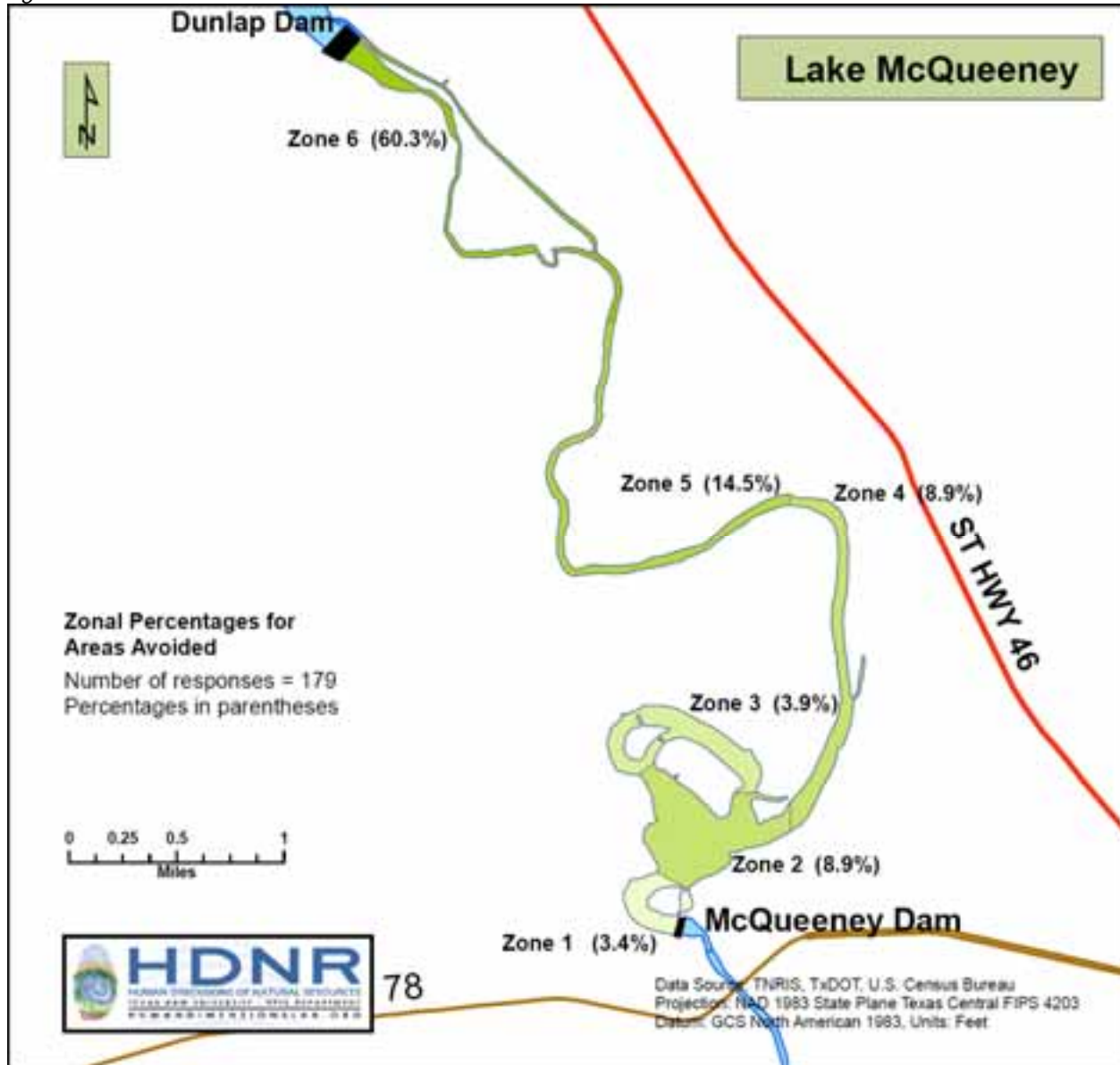
Table 44. Reasons for Avoiding Areas on Lake McQueeney

Five Most Cited Reasons	N
1. Shallow	111
2. Boat traffic	27
3. Narrow	27
4. Obstacles	18
5. Water quality	8

Areas Boaters' Felt Unsafe

Areas that respondents felt unsafe were situated farthest upstream in Zones 4 (19.7%), Zone 5 (21.9%), and Zone 6 (30.3%) (see Figure 19). Reasons that respondents reported these areas to be unsafe included the lake's narrowness (*n*=37), the volume of boat traffic (n=37), and the inadequate depth in some areas (*n*=37) (see Table 45).

Figure 19. Areas Boaters' Felt Unsafe
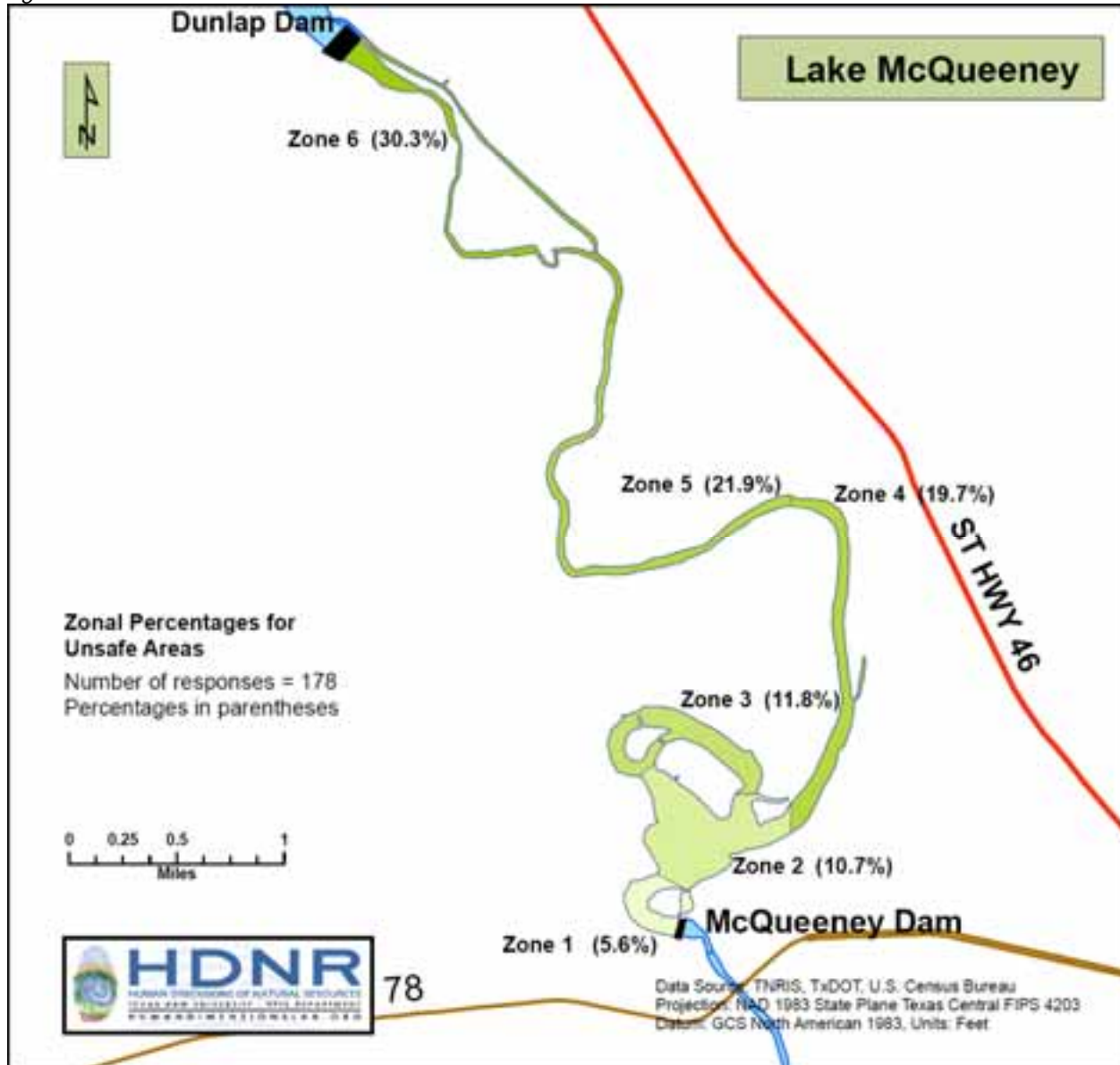
Table 45. Reasons Boaters' Felt Unsafe on Lake Travis

Five Most Cited Reasons	*N*
1. Narrow	37
2. Boat traffic	37
3. Shallow	37
4. Behavior of others 13	13
5. Jet skis 11	11

Perceptions of Lake Conditions

Perceptions of Setting Density

In general, respondents expressed some concern over the level and type of use occurring on Lake McQueeney (see Table 46):

- Almost three quarters (74.0%) of respondents indicated that they would have liked to have seen fewer people on the lake.
- While over 55 percent (55.4%) of respondents indicated the number of people they encountered throughout the 2009 boating season was about what they had expected, 33 percent (33.0%) indicated seeing more than they had expected.
- Sixty three percent (63.0%) of respondents reported that the number of people they saw had detracted from their boating experience. Alternately, 27 percent (27.0%) indicated that the number of people they had seen had no effect on their enjoyment.
- There was some concern among respondents relating to safety in light of the number of boats on the lake and the behavior of other boaters. More than 40 percent indicated that Lake McQueeney was moderately safe in light of (a) the number of boats seen throughout the 2009 season (43.6%) and (b) the behavior of other boaters (43.2%). Additionally, approximately 10 percent of respondents indicated that the lake was "not at all safe" in light of the volume of use (8.0%) and the behavior of other boaters (11.4%).
- Over 45 percent (45.6%) indicated feeling "moderately crowded" and a further 26 percent (26.0%) reported feeling "extremely crowded".

Table 46. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake McQueeney for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	.4	1.5	24.0	39.3	34.7	4.1	.8
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake McQueeney for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	.8	10.9	55.4	15.9	17.1	3.4	.9

Table 46. Perceptions of Setting Density (cont.)

How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake McQueeney for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment		*M*[1]	*SD*
	4.2	5.7	27.0	39.5	23.5		3.7	1.0
In light of the **number of boats** you saw on Lake McQueeney this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe		*M*	*SD*
	8.0	20.1	43.6	21.6	6.8		3.0	1.0
In light of the **behavior of other boaters** on Lake McQueeney this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe		*M*	*SD*
	11.4	23.1	43.2	18.9	3.4		2.8	1.0
Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake McQueeney for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded	
	1	2	3	4	5	6	7	8	9	*M*	*SD*
	.8	1.2	1.2	7.8	17.5	26.1	19.5	13.2	12.8	6.4	1.6

[1] Based on responses 1 through 4

Perceptions of Social Conditions

Respondents were requested to indicate their level of agreement with a series of statements examining the social conditions on Lake McQueeney for the 2009 boating season (see Table 47 below). Areas of concern include:

- Boaters encroaching on other space ("Other boats came closer than I like") – Just under 60 percent (59.9%) expressed agreement.
- The wakes thrown by passing boats ("Other boats created massive wakes") – Over 70 percent (72.5%) expressed agreement.
- The behavior of other boaters ("I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)" – Over two thirds (68.1%) expressed agreement.

Areas that received mixed levels of agreement include;

- Boaters avoided favored parts of the lake in response to the crowded conditions ("I avoided my favorite parts of the lake because there were too many boats there") – While a little over 35 percent (35.7%) disagreed with the statement, almost 40 percent (39.4%) expressed agreement.
- The level of law enforcement on the lakes ("There was adequate law enforcement patrols on the lake") – While over 50 percent (51.0%) indicated that law enforcement on the lake was adequate, more than 32 percent (32.9%) indicated it was inadequate.
- Boaters' perceptions of risk ("Boating in high use areas involved too much risk") – While 46 percent (46.0%) of respondents indicated that the level of risk associated with boating in some areas of the lake was problematic, 30 percent (30.3%) of sample differed – indicating that boating on the lake was not risky.
- The level of amplified music ("Other boaters played overly loud amplified music") – While slightly more than 42 percent (42.2%) of respondents expressed concern over the noise from other boaters' stereos, 27 percent (27.7%) did not consider this to be problematic.
- The presence of personal watercraft ("The presence of personal watercraft interfered with the quality of my boating experience") – While more than 42 percent (42.8) of respondents agreed with this statement, over 32 percent (32.6%) disagreed.

While Table 47 does highlight some areas of concern, the data also illustrate that respondents remain satisfied with the 2009 boating season expressing strong levels of agreement with measures of their enjoyment (item "a"), the condition of the lake (item "c"), and the money they invested in the 2009 boating season (item "e") was well worth the investment.

Table 47. Perceptions of Social Conditions

Below are some statements about boating experience on your Lake McQueeney. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	1.2	5.6	13.7	60.6	18.9	3.9	0.8
b. I avoided my favorite parts of the lake because there were too many boats there	11.2	24.5	24.9	24.9	14.5	3.1	1.2
c. I thought the lake and its surroundings were in good condition	3.6	10.4	21.7	52.2	12.0	3.6	1.0
d. Other boats came closer to my boat than I like	5.6	12.0	22.5	38.2	21.7	3.6	1.1
e. My boat trips were well worth the money I spent to take them	1.2	2.8	22.5	52.2	21.3	3.9	0.8
f. There was adequate law enforcement patrols on the lake	10.8	22.1	16.1	39.0	12.0	3.2	1.2
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	45.2	34.7	14.5	2.8	2.8	1.8	1.0
h. Boating in high use areas involved too much risk	9.7	20.6	23.8	35.5	10.5	3.2	1.2
i. The weather was not favorable	31.6	35.6	27.5	4.5	.8	2.1	0.9
j. Engine noise from other boaters was too loud	20.2	33.5	28.2	12.5	5.6	2.5	1.1
k. Other boaters created massive wakes	4.5	9.7	13.4	39.3	33.2	3.9	1.1
l. I was bothered by poor water quality (e.g., contaminants, color)	12.1	37.9	26.2	18.1	5.6	2.7	1.1
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	4.4	11.7	15.7	38.7	29.4	3.8	1.1
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	25.8	40.7	17.7	10.1	5.6	2.3	1.1
o. Other boaters played overly loud amplified music	7.6	20.1	30.1	23.3	18.9	3.3	1.2
p. I nearly had an accident on the lake because of crowded conditions	23.4	32.7	24.6	14.5	4.8	2.4	1.1
q. I was bothered by personal watercraft cutting too close to my boat	9.3	19.8	17.7	29.4	23.8	3.4	1.3
r. The presence of personal watercraft interfered with the quality of my boating experience	15.3	17.3	24.6	21.0	21.8	3.2	1.4

Coping with Adverse Conditions

Respondents were requested to indicate how they would respond to potential obstacles related to their boating activity. Respondents' agreement with indicators of temporal displacement (i.e., altering the timing of their boating activity) suggest that the most prominent obstacle boaters face on the lakes is related to the level of use. In coping with "crowded" conditions, respondents indicated adjusting the timing of their boating (items "b" and "e"), avoided certain areas of the lake (item "f") or they simply adjusted to the condition encountered (item "c" and "j").

Table 48. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake McQueeney	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake McQueeney	60.1	5.3	14.4	14.1	6.1	2.0	1.4
b. Decided that if I boated on Lake McQueeney in the future, I would boat at earlier and/or later times of the day	13.5	10.2	15.0	33.8	27.4	3.5	1.3
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	17.0	10.9	25.7	35.1	11.3	3.1	1.3
d. Talked to someone who could do something concrete about the problem	44.9	13.6	22.3	11.7	7.5	2.2	1.3
e. Decided that if I boated on Lake McQueeney in the future, I would boat on the weekdays rather than weekends	18.0	7.5	12.8	36.5	25.2	3.4	1.4
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	22.7	10.2	20.8	26.5	19.7	3.1	1.4
g. Told myself it was unreasonable to expect that things should have been different at this location	27.2	14.0	30.2	17.4	11.3	2.7	1.3
h. Planned not to return to Lake McQueeney	87.2	5.3	4.5	1.5	1.5	1.2	0.7
i. Boated on nearby lakes	75.4	9.1	9.5	4.5	1.5	1.5	0.9
j. Tried to view this condition or situation in a positive way	20.8	9.1	31.3	27.2	11.7	3.0	1.3
k. Decided that the problem was a one-time occurrence	62.5	15.5	15.2	4.9	1.9	1.7	1.0
l. Boated less often	31.4	12.1	17.8	24.6	14.0	2.8	1.5

Perceptions of Physical Conditions

For the most part, respondents were satisfied with the physical condition of the lake (see Table 49). Issues that were of some concern included factors that were the product of the behavior of others. For example:

- "Large wakes from wakeboarding boats" – Almost 20 percent (19.4%) considered this to be a "moderate problem", and a further 41 percent (41.8%) of the sample considered this to be a "big problem".
- "Inflatables/water toys trailing watercraft" – Slightly less than 20 percent (19.8%) of respondents indicated this to be a "moderate problem" and a further 28 percent (28.4%) referred to this as a "big problem".
- "Erosion of shoreline" – Related to the size of wakes thrown by passing boats, 17 percent (17.8%) of respondents suggested this issue was a "moderate problem" and an additional 25 percent (25.7%) indicated that this was a "big problem".

Other issues that were less problematic but of some concern to respondents included:

- "Litter on shoreline" – Almost 30 percent (29.3%) considered this to be a "moderate problem" and a further seven percent (6.9%) considered this to be a big problem.
- "Loud music played from watercraft" – Almost a quart of the sample (24.7%) of respondents indicated this issue to be a "moderate problem" and a further 19 percent (19.0%) percent suggested this was a "big problem".
- "The speed of other boaters" – Over 20 percent (21.6%) of respondents indicated this to be a "moderate problem" and a further 14percent (14.2%) indicated it being a "big problem".
- "The use of inflatables/water toys along the shore" – While 14 percent (13.8%) of respondents considered this to be a "moderate problem" and a further 20 percent (20.7%) considered this to be a "big problem".

Table 49. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake McQueeney? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment	M^1	SD
	1	2	3	4	5	*M* [1]	*SD*
a. Litter on shoreline	22.0	32.8	29.3	6.9	9.1	2.2	0.9
b. Insufficient navigational aids on the lake	39.0	24.2	19.0	6.5	11.3	1.9	1.0
c. Improper disposal of human waste	47.2	9.1	14.3	4.8	24.7	1.7	1.0
d. Loud music played from watercraft	24.7	21.6	24.7	19.0	10.0	2.4	1.1
e. Engine noise	37.2	26.0	20.3	8.2	8.2	2.0	1.0
f. Conflicts with docks over shoreline space	55.4	11.3	10.8	5.2	17.3	1.6	0.9
g. Debris at launch ramps	35.7	21.3	17.0	7.8	18.3	2.0	1.0
h. Inadequate public toilet facilities on the lake	48.1	10.8	12.1	8.2	20.8	1.8	1.1
i. Erosion of shoreline	21.7	23.0	17.8	25.7	11.7	2.5	1.2
j. Large wakes from wakeboarding boats	9.9	19.8	19.4	41.8	9.1	3.0	1.1
k. Inflatables/water toys trailing watercraft	24.6	18.5	19.8	28.4	8.6	2.6	1.2
l. Not enough public boat ramps	69.0	6.0	6.0	7.8	11.2	1.5	1.0
m. The speed of other boaters	22.8	33.2	21.6	14.2	8.2	2.3	1.0
n. Fish habitat	45.5	10.4	13.9	10.8	19.5	1.9	1.1
o. Habitat for birds	48.9	12.1	13.4	7.4	18.2	1.7	1.0
p. Wildlife habitat	47.2	12.1	13.4	7.8	19.5	1.8	1.0
q. The use of inflatables/water toys along the shore	38.8	18.1	13.8	20.7	8.6	2.2	1.2
r. Aquatic vegetation	42.0	20.3	18.6	6.9	12.1	1.9	1.0

[1] Based on responses 1 through 4

Changes Over the Past Five Years

Over 35 percent (36.1%) of respondents reported seeing positive change on Lake McQueeney over the previous five years. The most frequently cited "positive change" respondents reported seeing over the past 5 years referred to better lake maintenance (n=29; e.g., removal of hazards/obstacles) and minimizing public access (n=16) (see Table 50).

Table 50. Positive Change on Lake McQueeney Over the Past FIVE years

Have you noticed any positive changes at Lake McQueeney in the last five years? (yes, *n*)	36.1 (84)	*n*
If "Yes", can you describe those changes?	1. Better lake maintenance • Aesthetic improvement; cleaner; less vegetation; better monitoring (removing or marking) of hazard and obstacles – e .g., vegetation, trash, stumps, fallen tree; more bulkheads; better quality of construction (e.g., boat ramp widened and improved overall); rebuilding after the floods; better water quality; more bulkheads; more signs	29
	2. Reduced/limited access (Elimination of (public) boat ramp or limited (public) access (which is positive given the size of the lake)	16
	3. Better law enforcement • Increased presence of law enforcement/game wardens; better regulation; restrictions of speed, others, towing inflatable under the bridge	10
	4. Leadership of lake organizations/GBRA/FOLM/ • Being more active and responsive; FOLM doing good job- e.g., informing lake condition	8
	4. More involved and pro-active residents • Improvement to private property by owners; Improved water fronts and lake front property homes	8

Almost half (48.9%) of the sample indicated having seen negative change occur over the past five years. The most cited issue of concern was the increase in the number and size of watercraft (n=54) (see Table 51).

Table 51. Negative Change on Lake McQueeney Over the Past FIVE years

Have you noticed any negative changes at Lake McQueeney in the last five years? (yes, %, *n*)	48.9 (115)	*n*
If "Yes", can you describe those changes?	1. Increase in the number and size of boats	54
	2. Worse in lake condition (erosion of waterfront/bulkhead/land, depth reduction, caused by flood, silt)	17
	3. Wore in water quality (trash, vegetation, debris, rocks)	15
	4. Behavior of others (dangerous/inexperienced/ Increase in under age operators)	14
	5. Increase in wake boats	14

Lake Management Preferences

With regard to issues related to the management of recreational boating on the study lakes, respondents' preferences varied (see Table 52). Strongest support was expressed for managing issues that are outside the jurisdiction of lake authorities or that are logistically less feasible:

- "Provide more aggressive enforcement of safety rules and regulations" – Almost 65 percent (64.6%) of respondents expressed support.
- "Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)" – Almost 80 percent (79.9%) of respondents expressed support, of which, almost half (49.0%) indicated "strongly support".
- "Training for the operation of personal watercraft" – Almost 86 percent (85.9%) of respondents supported this proposition, of which, more than 50 percent (51.4%) offered strong support.
- "Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders" – Over 80 percent (83.0%) of respondents offered support for this proposition, of which, almost 55 percent (54.8%) expressed strong support.
- "Training for all watercraft operators" – Sixty three percent (63.0%) of respondents expressed support, of which, 32 percent (32.5%) indicated "strongly support".
- "Online training for all watercraft operators" – Almost 60 percent (59.3%) percent of respondents expressed support, of which 27 percent (27.0%) checked "strongly support".

Prospective actions receiving mixed support included:

- "Zone the waters to provide specific uses at specific places" – While over 40 percent (40.3%) of respondents expressed support for the proposition, more than 38 percent (38.4%) opposed.
- "Cite boaters whose music can be heard within 100 feet" – While over 40 percent (41.4%) of respondents expressed support for this proposition, more than 32 percent (32.6%) opposed.
- "Establish "off limits" zones to protect sensitive resources" – More than 38 percent (38.7%) of respondents opposed this action and 31 percent (31.1%) expressed support.
- "Banning personal watercraft on public holidays" – Thirty eight percent (38.6%) of respondents opposed the proposed action, whereas 40 percent (40.1%) supported the proposition.
- "Restrict activities by day or week during peak use periods (e.g., holidays)" – Almost 45 percent (44.6%) opposed the proposition and a little over 33 percent (33.8%) supported the idea.

Issues that received opposition included:

- "Provide more improved public access to the lake" – More than 80 percent (82.4%) opposed the proposition with more than 68 percent (68.7%) expressing strong opposition.
- "Install more public boat ramps" – More than 80 percent (83.1%) opposed the proposition, of which, almost 70 percent (69.8%) "strongly opposed".
- "Widen existing public boat ramps to accommodate more lanes" – More than three quarters of the sample (76.2%) opposed the proposition, of which, 61 percent (61.3%) indicated "strongly oppose".

Table 52. Managerial Issue

Given the conditions you observed on Lake McQueeney for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	*M*	*SD*
	1	2	3	4	5	*M*	*SD*
a. Provide more improved public access to the lake	68.7	13.7	5.2	5.6	6.8	1.7	1.2
b. Zone the waters to provide specific uses at specific places	19.4	19.0	21.4	24.6	15.7	3.0	1.4
c. Provide more aggressive enforcement of safety rules and regulations	8.0	6.4	20.9	36.1	28.5	3.7	1.2
d. Expand the number of marina slips	48.8	20.6	19.4	7.7	3.6	2.0	1.1
e. Cite boaters who's music can be heard within 100 feet	14.5	18.1	26.1	23.3	18.1	3.1	1.3
f. Restrict personal watercraft use to designated areas only	24.6	14.1	18.1	19.4	23.8	3.0	1.5
g. Establish "off limits" zones to protect sensitive resources	24.6	14.1	30.2	19.8	11.3	2.8	1.3
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	4.8	6.4	8.8	30.9	49.0	4.1	1.1
i. Training for the operation of personal watercraft	20.0	4.4	7.6	34.5	51.4	4.3	0.9
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	4.8	5.2	6.9	28.2	54.8	4.2	1.1
k. Training for all watercraft operators	6.0	8.0	22.9	30.5	32.5	3.8	1.2
l. Online training for all watercraft operators	8.9	7.3	24.6	32.3	27.0	3.6	1.2
m. Banning personal watercraft on public holidays	22.5	16.1	21.3	12.0	28.1	3.1	1.5
n. Restrict activities by day or week during peak use periods (e.g., holidays)	24.9	19.7	21.7	16.9	16.9	2.8	1.4
o. Install more public boat ramps	69.8	13.3	5.6	5.6	5.6	1.6	1.2
p. Widen existing public boat ramps to accommodate more lanes	61.3	14.9	14.5	4.8	4.4	1.8	1.1
q. Dredge the lake to improve depth	2.8	2.8	9.2	24.5	60.6	4.4	1.0

Restricting Activities/Watercraft to Specific Areas of Lake McQueeney

Respondents were requested to indicate areas of the lake where they would like activities/watercraft restricted; i.e. designated areas for activities and/or watercraft (see Figure 20). The pie charts below indicate the Zones to which respondents indicated that they would like to see activities/watercraft restricted (i.e., Zones where these activities/watercraft should only be permitted). As displayed, there was little zonal variation in respondents' preferences. The use of personal watercraft and towing inflatable toys were the watercraft/activities that respondents most strongly preferred to be restricted. There was, however, little consensus on the areas to which they would like these activities/watercraft restricted.

Figure 20. Activity restriction to Certain Areas
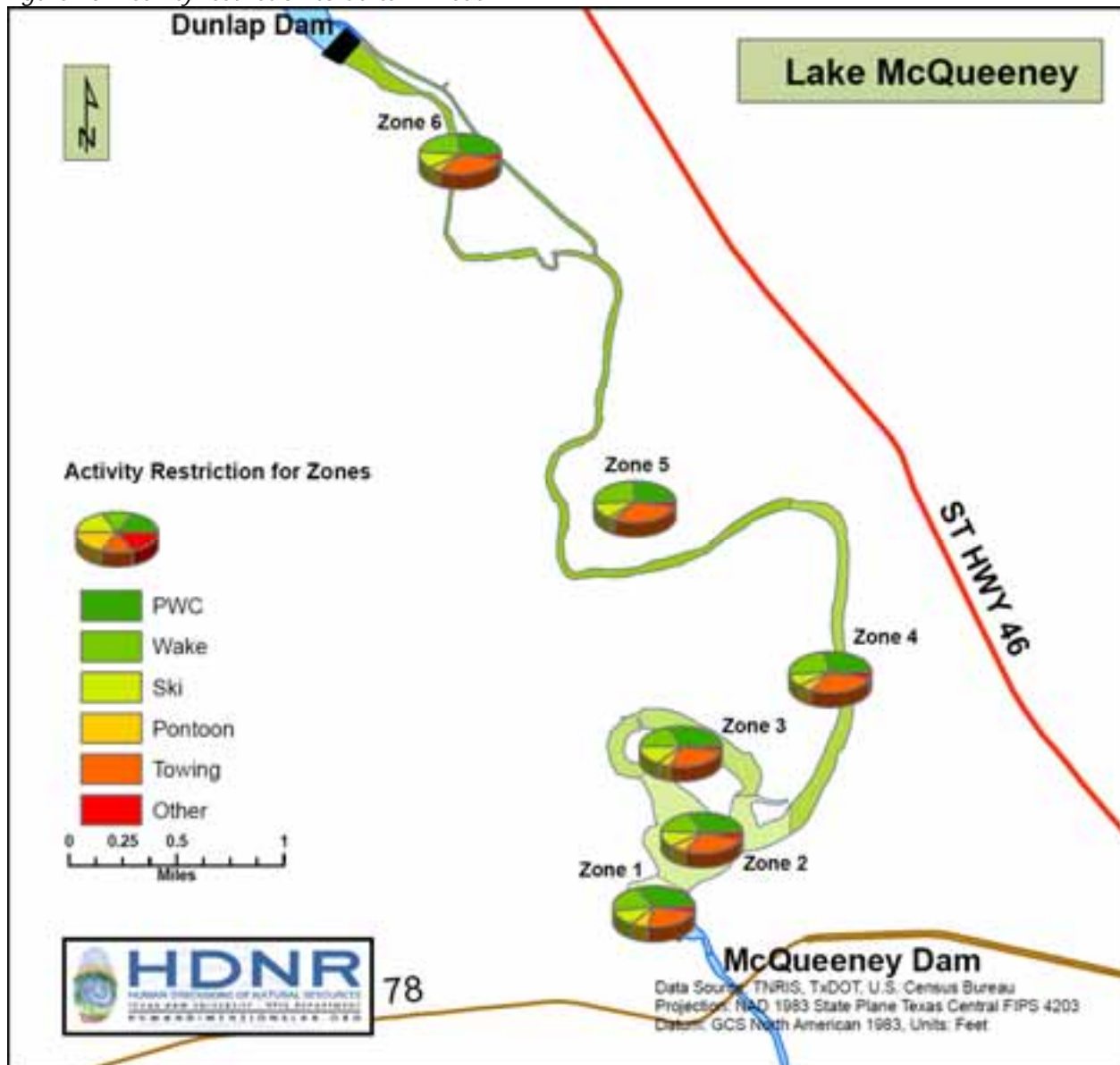
Additional Management Preferences

Almost 50 percent (48.5%) of respondents indicated having taken a boater safety or education class (see Table 53).

Sixty three percent (63.2%) of respondents indicated that "tougher restrictions" were required to limit the size of wakes generated by some watercraft. Of those who indicated the need for tougher restrictions, banning the use of "fat sacks" was most preferred with more than 55 percent (55.5%) indicating the option to be the 1st priority among the four alternatives (i.e., banning the use of fat sacks, creating larger no-wake zones, banning the use of PWCs, and banning wakeboarding boats). Creating larger no-wake zones (24.6%) was the next most commonly checked priority followed by banning wakeboarding outright (21.7%).

Respondents were also asked whether or not they felt the lakes should be managed to support a variety of recreation activities. Over 60 percent (62.3%) of respondents indicated that lakes should support various activities. While all of the activities listed (i.e., waterskiing, wakeboarding, PWC, towing inflatables) received strong support (among those indicating "yes" to the previous question) with more than 70 percent advocating their availability, respondents expressed strongest support for waterskiing (97.3%) followed by wakeboarding (76.6%).

Table 53. Management Preferences

a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	48.5 (112)			
b. Do you feel that tougher restrictions are required on Lake McQueeney to limit the size of wakes generated by some watercraft?	63.2 (146)			
	Percent rating 1st or 2nd priority			
c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	1st	2nd	*M*	*SD*
Ban the use of "fat sacks" on the lake.	55.5 (71)	16.4 (21)	1.9	1.1
Create larger no-wake zones.	24.6 (33)	28.4 (38)	2.5	1.2
Ban the use of personal watercraft on the lake.	15.5 (20)	10.1 (13)	3.3	1.3
Ban wakeboarding boats on Lake McQueeney.	21.7 (28)	15.5 (20)	2.9	1.3
d. Do you feel that GBRA should manage Lake McQueeney to support a variety of recreational boating activities? (yes, %, *n*)	62.3 (142)			
If "Yes", which of the following activities do you feel are suitable for Lake McQueeney?				
Waterskiing	97.3 (145)			
Wakeboarding	76.6 (105)			
PWC (e.g., Jet Ski)	75.5 (108)			
Towing Inflatables	73.4 (102)			

Perceptions of Regulation on Lake McQueeney

Respondents were requested to indicate if they felt more controls were required to prevent conflicts occurring between lake users. A little over 32 percent (32.5%) indicated, "yes," more controls were required. Of those indicating "yes", more law enforcement to manage speed was cited most often (*n*=26) in response to the behavior of other boaters (*n*=12).

Table 54. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake McQueeney to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	32.5 (78)
What conflicts?	How should they be managed?
1. Other boaters (noisy, unsafe driving, drinking; reckless; Under age drivers; too close) (12)	1. More restriction/law enforcement (even during holidays, weekend, night; fine; more presence of game warden/patrol, control noise, wake, pollution; zone restriction; proximity between boats; allow pictures/movies from citizens to be enough "proof" for conviction; keep boaters.pwc from too close encounters on the water; different restriction for home/boat owners and visitors; PWC's, blatter boats, water toys should be managed by those who own land on the lake; Physical separation of different boating activities especially during peak summer season and holiday weekend; I would like to see a one way lake - all boats go one way and boating and fishing on different days.) (26)
2. PWCs (e.g., skis, wave runners) (10)	2. Restriction/more regulation on PWCs, jet skis, (GBRA should set the rules and guideline for the ski jump) (11)
3. Wakeboard (8)	3. License/Age limit/ training/education (6)
4. Inflatable toys, tubes, towable (4)	4. Restriction/more regulation on wakeboard (5)
5. Wake (3)	5. Restriction/more regulation on inflatable toys, tubes (4)

Respondents were also requested to indicate if the felt more controls were required to prevent damage to the environment. A little over 30 percent (31.2%) indicated "yes". For those answering "yes" to the question of whether or not more controls required, respondents were also requested to indicate what controls might be needed to prevent damage to the environment. Controls of boaters' wakes (*n*=9) to manage shoreline damage/erosion was cited most often (*n*=36).

Table 55. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake McQueeney to **prevent damage to the environment by boaters**? (yes, %, *n*)	31.2 (73)
What kind of damage?	How should they be controlled?
1. Erosion of water front and shoreline (36)	1. No wake zone; wake control; speed control (near shore to reduce erosion; install floatation devices to restrict speed and distance from shoreline in certain areas) (9)
2. Wakes (21)	2. Limit size and weight of boats (5)
3. Wakeboard (8)	3. Limit wakeboard (1)
4. Behavior of others (7)	4. --
5. Trash (6)	5. --

Service Provision

Respondents were requested to indicate whether or not they felt that the services currently offered on Lake McQueeney were adequate. Less than a quarter (23.0%) of respondents indicated that additional services should be offered. Of those, the most frequently cited suggestions included additional gas stations (*n*=26) and food outlets (*n*=15).

Table 56. Service Provision

Are there certain facilities or services that should be offered on Lake McQueeney that are currently not available? (yes, %, *n*)	23.0 (54)
What kind of services or facilities?	*n*
1. Gas Station	26
2. Food service areas (convenient store; restaurants; drive-in; public)	15
3. Ramp access/marina (most said need public ones, better, more)	15
4. More law enforcement	4
5. Service (Battery charging, repair; rental; bait shop	3
6. Better lake maintenance (Control water quality; dredging, lower water; Sign for hazards; more trash can)	3
7. Better communication (Hotline to report violations; Training; Education; guidelines)	3

Shoreline Property

Almost 60 percent (58.4%) of respondents were shoreline property owners. On average, they indicated having owned their home for 15 years (*M*=15.1) with over 50 percent (51.5%) indicating that their lakeshore property was their primary residence. For those for whom their lake home was a secondary residence, they averaged over 77 (*M*=77.7) visits over the 2009 season.

Almost 95 percent (94.7%) of shoreline property owners also indicated owning a dock, bulkhead or slip. Of these, almost 50 percent (48.4%) indicated that their bulkhead/dock/slip had been damaged by boating activities occurring on the lake resulting in an average cost of repair of around $16,419. Wakes from boats was the most commonly cited reason for the damage (*n*=41).

Table 57. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake *McQueeney* (yes, *n*, %)	58.4 (132)
b.	How long have your owned the residence on Lake McQueeney (*M*, *SD*)	15.1, 14.9
c.	Is your home on Lake McQueeney your primary residence? (yes, %, *n*)	51.5 (68)
	If not, approximately how many days did you spend there during the past 12 months? (days *M*, *SD*)	77.7, 45.1
d.	Does your property on Lake McQueeney have a bulkhead, dock or slip? (yes, %, *n*)	94.7 (125)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake? (yes, %, *n*)	48.4 (61)
	What has been the total cost of repairs? ($, *M*, *SD*)	$16,419, $32,040
Cause of damage	Most Cited	
	Big/constant wake (erosion from large wake; by water craft especially boats; behind the bulkhead) (41)	

LAKE PLACID

Respondents' Personal Information

As displayed below in Table 58, overall, the sample was comprised of respondents who were older (M=55.9 years), well educated (69.0% with college degrees), white (92.0%) men (75.8%). While more than half were employed full time (55.4%),over 30 percent (30.7%) indicated being retired. Last, household incomes were relatively high with two thirds of the Lake Dunlap sample (66.7%) of respondents reporting incomes in excess of $100,000.

Table 58. Household Information

Characteristic	
Age (years, *M, SD*)	55.9, 12.5
Gender (*n*, %)	
Male	75.8 (75)
Female	24.2 (24)
Education (%, *n*)	
8th grade or less	1.0 (1)
9th to 11th grade	0
12th grade (high school graduate)	4.0 (4)
13-15 years (some college	26.0 (26)
16 years (college graduate)	17.0 (17)
17+ years (some graduate work)	25.0 (25)
Masters, Doctoral, or Professional Degree	27.0 (27)
Race/Ethnicity (%, *n*)	
Hispanic	2.0 (2)
White, not Hispanic	92.0 (92)
Black or African-American	2.0 (2)
Native American or Alaskan Native	0
Asian or Pacific Islander	4.0 (4)
Employment Status (%, *n*)	
Employed, full time	55.4 (56)
Homemaker	4.0 (4)
Employed, part time	5.0 (5)
Retired, but working full time	1.0 (1)
Retired, working part time	5.9 (6)
Retired, not working	24.8 (25)
Unemployed	0
Student	1.0 (1)
Other	3.0 (3)

Table 58. Household Information (cont.)

Household Income (%, *n*)	
Less than $25,000	2.2 (2)
$25,000 - $49,999	8.6 (8)
$50,000 - $74,999	12.9 (12)
$75,000 - $99,999	9.7 (9)
$100,000 - $149,999	28.0 (26)
$150,000 - $199,999	6.5 (6)
$200,000 - $249,999	8.6 (8)
$250,000 – $299,999	3.2 (3)
$300,000 or more	20.4 (19)

Boating Experience

Most respondents (87.2%) indicated being active boaters with extensive experience (*M*=24.6 years) (see Table 59). The most popular watercraft used on the lake was a speed/ski boat (62.1%) followed by pontoon boats (43.4%), fishing/bass boats (42.6%), personal watercraft (36.4%), and the towing of inflatables behind other boats (32.4%).

In terms of respondents preferred activities, cruising was cited most frequently (54.1%) followed by skiing (21.4%) and wakeboarding (9.2%). Respondents tended to enjoy the lake in groups of four to five (*M*=4.3) consisting of family and friends (56.2%).

Table 59. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	87.2 (95)	
How many years have you been boating? (years, *M, SD*)	24.6, 16.9	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	44.7, 51.5	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	Number Used *M, SD*
Speed boat, ski boat	62.1 (54)	.62, .5
Fishing or bass boat	42.6 (29)	.49, .6
Pontoon boat	43.4 (33)	.43, .5
Inflatable pulled behind another watercraft	32.4 (22)	.41, .6
Wakeboard boat	18.3 (13)	.18, .4
High performance boat	3.2 (2)	.03, .2
Personal Watercraft (PWC; e.g., Jet Ski)	36.4 (24)	.64, .8
Other (Please specify	18.2 (10)	.38, .7

Table 59. Experience Characteristics (cont.)

Which of these watercraft do you use **most often**? (%, *n*)	
Speed boat, ski boat	40.6 (39)
Fishing or bass boat	17.7 (17)
Pontoon boat	19.8 (19)
Inflatable pulled behind another watercraft	0
Wakeboard boat	10.4 (10)
High performance boat	0
Personal Watercraft (PWC; e.g., Jet Ski)	6.2 (6)
Other (Please specify	5.2 (5)
What activity do you **most often** use your boat for? (*%*, n*)*	
Skiing	21.4 (21)
Cruising	54.1 (53)
Wakeboarding	9.2 (9)
Towing inflatables/water toys	4.1 (4)
Fishing	6.1 (6)
Racing up and down the lake	4.1 (4)
Other	1.0 (1)
How many people are usually in your boating group? (*M, SD*)	4.3, 2.0
Which of the following best describes your boating group?	
By yourself	4.8 (5)
Family	31.4 (33)
Multiple families	1.9 (2)
Family and friends	56.2 (59)
Friends	3.8 (4)
Organized outing group	0
Business associates	0
Other	1.9 (2)

Respondents were requested to indicate factors they liked most about Lake Placid. The characteristics they cited as being most enjoyable on Lake Placid concerned the fun and relaxing opportunities afforded by the lake ($n=29$),the opportunity to enjoy a favored pastime ($n=24$), and opportunities to spend time with friends and family ($n=17$).

*Table 60. Characteristics **Most Liked** about Lake Placid*

What did	Five Most Cited Characteristics	*n*
you like	1. Affective (Escape, tranquility, peaceful, get away, solitude, relaxed, fun)	29
best about	2. Activities (swimming, fishing, boating, wakeboarding, pontoon boat cruising, skiing, cruising, entertainment; picnic, bird watching, etc.)	24
your	3. Social bonding (with friends, family, meeting people)	17
visits to Lake	4. Water/Lake (beautiful, calm, clean, being by the water/lake, constant water level, easy paddling)	15
Placid?	5. Nature/outdoors (Being outdoors, enjoy outdoors/nature, Enjoy aesthetics of nature/landscape	13

Characteristics that respondents indicated liking least about Lake Dunlap primarily concerned: (1) the volume of boat traffic – especially on holiday weekends ($n=36$), (2) personal watercraft ($n=28$), and the behavior of other boaters ($n=21$).

*Table 61. Characteristics **Least Liked** about Lake Placid*

What did	Five Most Cited Characteristics	*n*
you like	1. Boat traffic, crowded, holiday crowds	36
least about	2. Jet skiers, wave runners, PWCs (e.g., racing jet skiers doing donuts!!!)	28
your	3. Behavior of others/drivers (inconsiderate, inexperienced, dangerous, discourteous, drunk, noisy)	21
visits to	4. Wake board boats	9
Lake Placid?	5. Wake created by others	5

Constraints to Boating on Lake Placid

While most respondents (87.2%) indicated being active boaters, only a little over 25 percent (26.9%) indicated that they boated as often as they would like (see Table 62 below). Respondents who indicated that they did not boat as often as they would like were then instructed to select their level of agreement with a series of statements that reflected potential reasons for not boating. Factors that boaters cited as reasons for not boating as often as they would prefer tended to center on the social conditions extant on the lake and other commitments:

- "It's too crowded" – Over 57 percent agreement (57.3%).
- "The behavior of other boaters is unsafe" – Over 55 percent (55.9%) agreement.
- "At times, the water surface is too rough" – Over 50 percent (53.3%) in agreement.
- "Other boaters are inconsiderate" – Forty three percent (43.6%) in agreement.
- "Work commitments keep me away from boating on the lake" – Forty three percent (43.6%) in agreement.

Table 62. Constraints to Boating

Do you boat as often as you would like? (yes, %, *n*)						26.9 (29)	
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
I don't boat as often as I would like because... (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	73.8	18.8	5.0	1.2	1.2	1.4	0.8
b. I can't afford to go boating	70.4	19.8	4.9	2.5	2.5	1.5	0.9
c. It's too hot in summer	54.3	32.1	11.1	2.5	0	1.6	0.8
d. It's too crowded	17.1	14.6	11.0	30.5	26.8	3.4	1.5
e. I have no way to access the Lake	68.4	17.7	308	6.3	3.8	1.6	1.1
f. The Lake is too narrow	38.0	22.8	24.1	12.7	2.5	2.2	1.2
g. The behavior of other boaters is unsafe	14.3	11.9	17.9	34.5	21.4	3.4	1.3
h. The Lake is too shallow	34.2	38.0	20.3	6.3	1.3	2.0	1.0
i. Poor water quality	40.3	35.1	18.2	6.5	0	1.9	0.9
j. Other boaters are inconsiderate	16.7	21.8	17.9	28.2	15.4	3.0	1.3
k. Public access is inconvenient	47.4	21.8	12.8	11.5	6.4	2.1	1.3
l. I no longer have enough time	26.0	22.1	27.3	16.9	7.8	2.6	1.3
m. Work commitments keep me away from boating on the Lake	23.1	14.1	19.2	33.3	10.3	2.9	1.4
n. My family no longer has an interest in boating	53.8	30.8	6.4	9.0	0	1.7	0.9
o. Shoreline owners/residents are inconsiderate	62.3	26.0	6.5	2.6	2.6	1.6	0.9
p. At times, the water surface is too rough	15.6	18.2	13.0	39.0	14.3	3.2	1.3
q. There's too much vegetation in the water	33.8	35.1	24.7	5.2	1.3	2.2	1.6

Use of Area Lakes

Respondents indicated that Lake Placid was their primary lake (100.0%) and the lake they most frequently used (93.6%) with an average of over 36 days (M=36.2) of boating over the 2009 season (see Table 63).

Table 63. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*	90.6 (96)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	6.4 (7)	.6, 1.4	-
Lake McQueeney	16.4 (18)	2.7, 5.6	-
Lake Placid	93.6 (103)	36.2, 45.7	100.0 (107)
Meadow Lake (Nolte)	3.6 (4)	.8, 3.4	-
Lake Gonzales (H4)	1.8 (2)	.1, .5	-
Lake Wood (H5)	1.8 (2)	.1, .5	-
Canyon Lake	11.8 (13)	1.0, 3.2	-
Other	3.6 (4)	1.7, 5.2	-
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			8.1, 27.2, 0

Lake Attachment

Overall, respondents expressed strong attachment to Lake Placid (see Table 64). While they expressed agreement with most of the statements, enjoyment and the opportunity to spend time with family and friends were key to their lake affection.

Table 64. Feelings about Area Lakes

Considering Lake Placid please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. Lake Placid is the best lake for the activities that I enjoy most	1.0	6.7	20.0	37.1	35.2	4.0	1.0
b. I have a strong emotional bond to the lake	1.9	10.7	13.6	29.1	44.7	4.0	1.1
c. I can't imagine a better lake for what I like to do	4.8	16.3	26.0	25.0	27.9	3.5	1.2
d. I feel the lake is a part of me	2.9	5.8	19.2	42.3	29.8	3.9	1.0
e. I feel a strong sense of belonging to the lake	1.0	5.8	17.3	40.4	35.6	4.0	0.9
f. The lake is one of the few places where I can be myself	2.9	15.4	31.7	27.9	22.1	3.5	1.1
g. I really enjoy the lake	0	0	4.8	38.5	56.7	4.5	0.6
h. The lake means a lot to me	0	2.9	8.7	32.7	55.8	4.4	0.8
i. The time spent boating on the lake allows me to bond with my family and friends	0	1.9	7.7	39.4	51.0	4.4	0.7
j. I associate special people in my life with the lake	1.0	7.6	18.1	26.7	46.7	4.1	1.0

Boater's Starting Location

Most respondents began boating in Zone 1 (61.8%) (see Figure 21).

Figure 21. Normal Starting Location
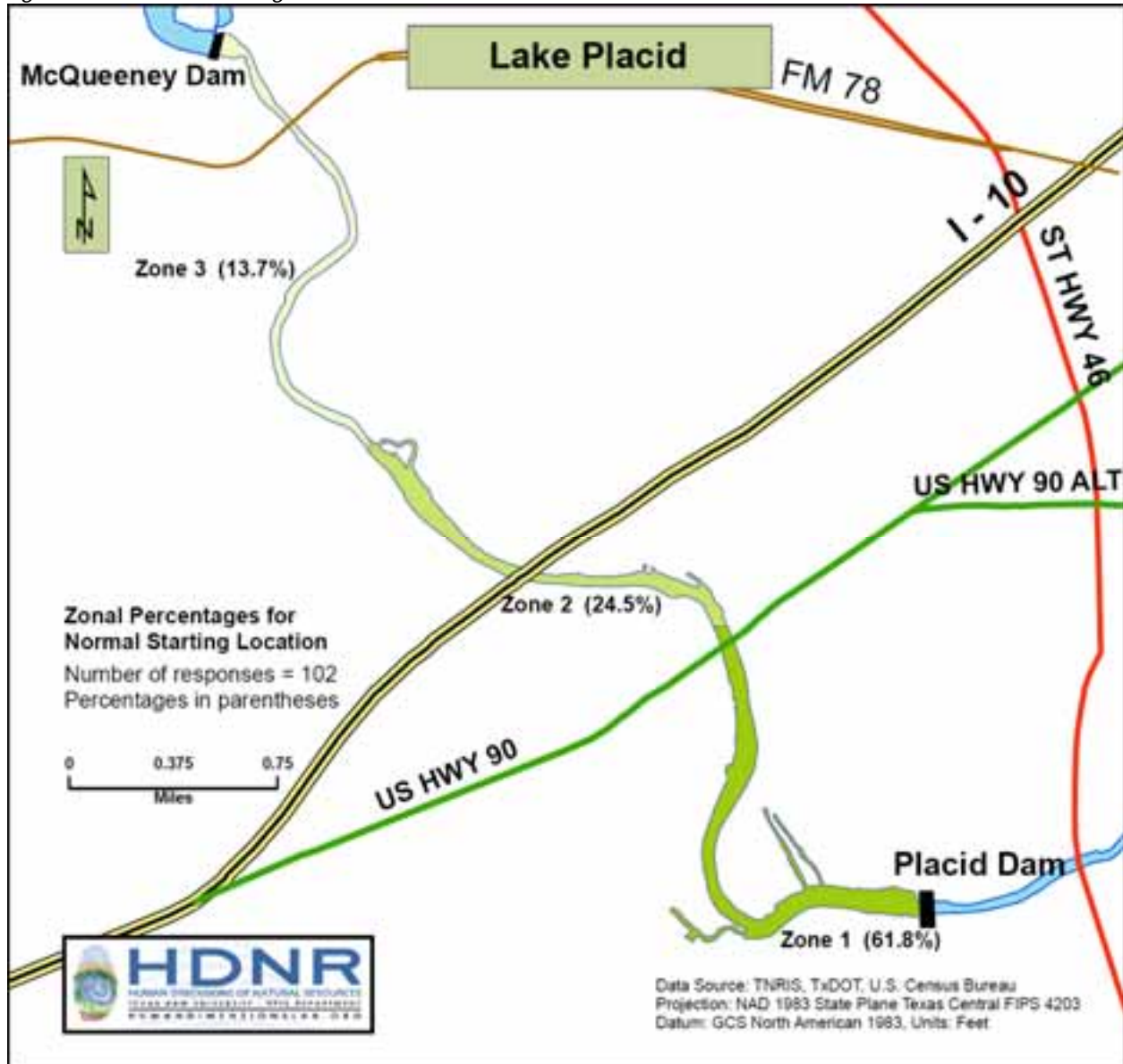
Traveling Upstream

The farthest upstream boaters reported visiting was Zone 3 (71.3%) (see Figure 22).

Figure 22. Farthest Traveled Upstream

Traveling Downstream

The farthest downstream boaters traveled was to Zone 1 (87.0%) (see Figure 23).

Figure 23. Farthest Traveled Downstream
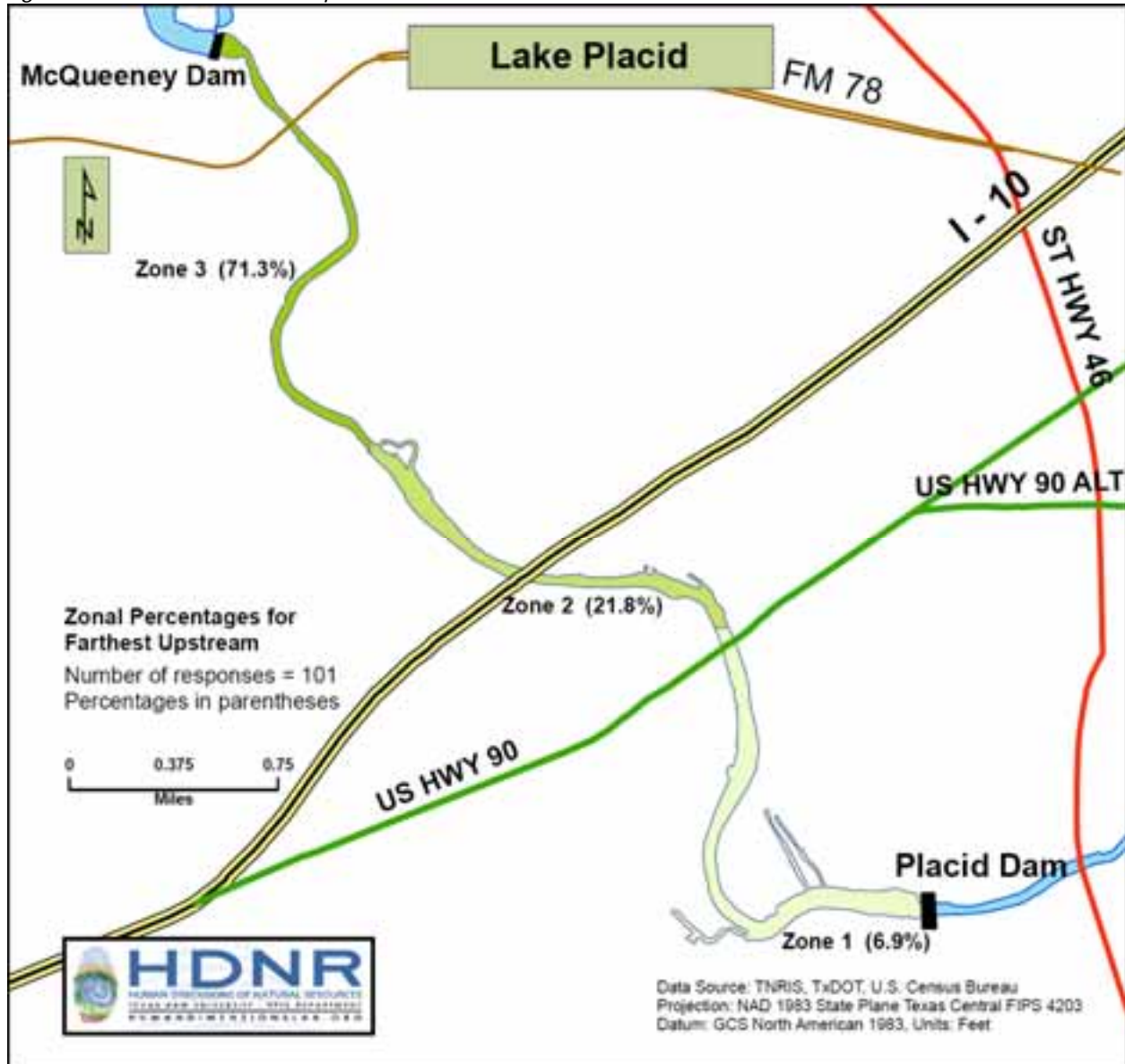
Areas Where Boaters Spend Most Time

Boaters spent most time in Zones 1 (50.8%), and 2 (32.5%) (see Figure 24).

Figure 24. Area Spent Most Time
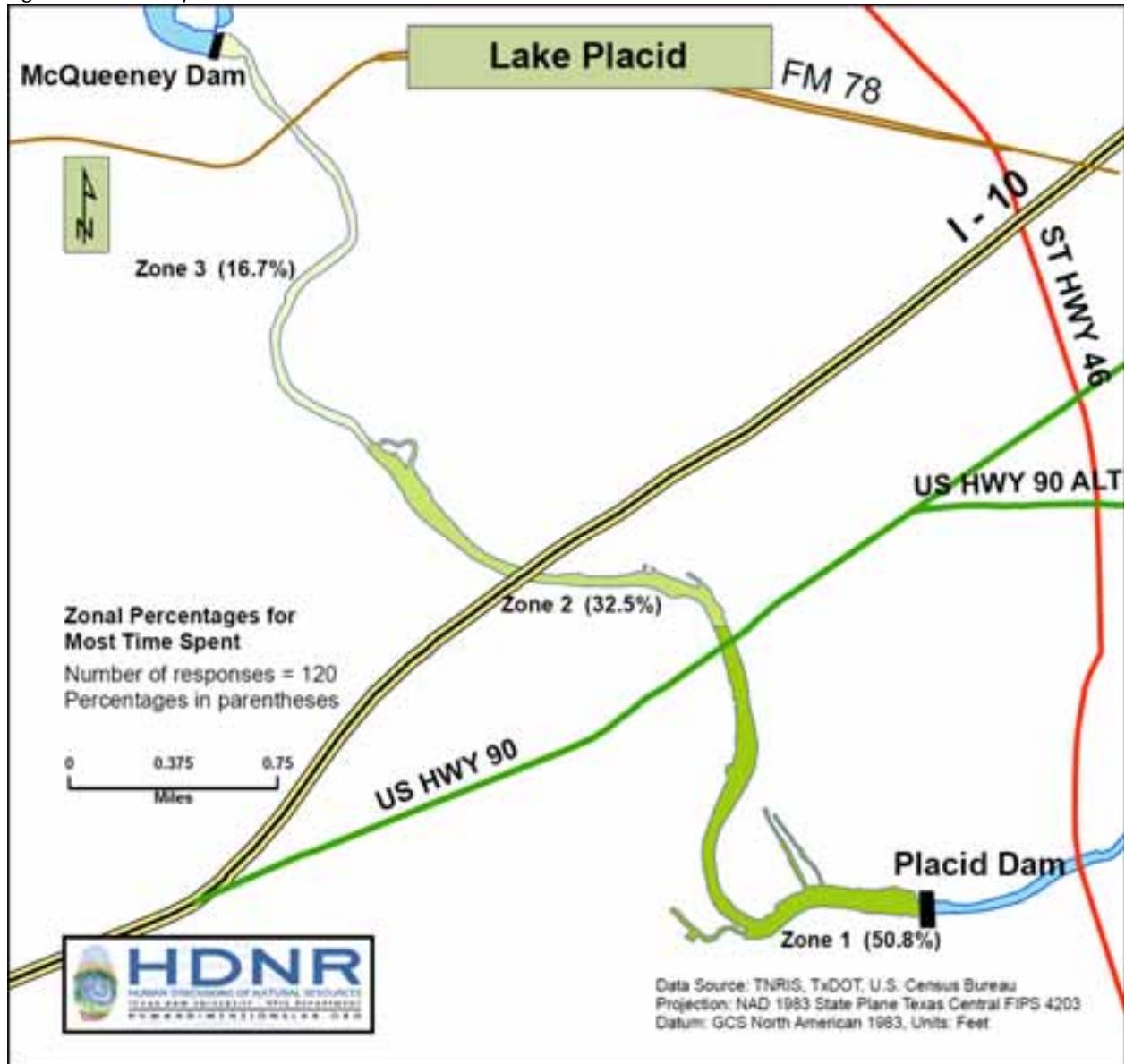
Areas Avoided

Areas that boaters avoided were situated at points farthest upstream in Zone 3 (55.3%) and 2 (31.9%) (see Figure 25). The most commonly cited reasons respondents reported for avoiding these areas concerned inadequate depth and submerged obstacles (e.g., stumps, sandbars, etc.) (see Table 65 below).

Figure 25. Areas Avoided
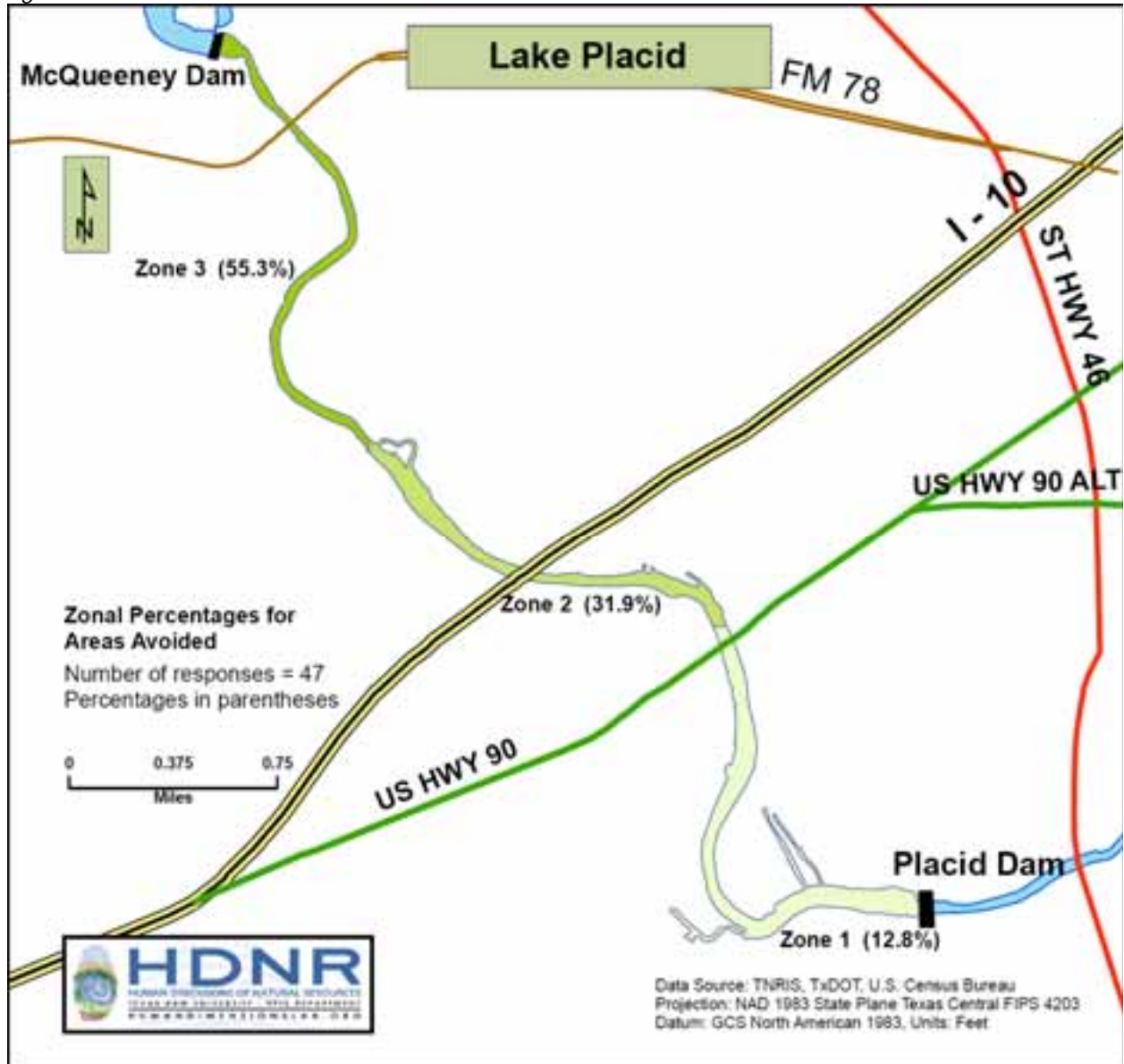
Table 65. Reasons for Avoiding Areas on Lake Placid

Five Most Cited Reasons	N
1. Shallow (no sign)	20
2. Obstacles (STUMPS; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	14
3. Boat traffic	7
4. Narrow	6
5. Unsafe	4

Areas Boaters' Felt Unsafe

Areas that respondents felt unsafe were primarily situated in Zone 2 (44.9%). Additionally, over a quarter of respondents also expressed concern in Zone 1 (28.6%) and Zone 3 (26.5%). Reasons that respondents reported these areas to be unsafe primarily focused on the volume of boat traffic, the narrowness of the lake, and the inadequate depth in some areas.

Figure 26. Areas Boaters' Felt Unsafe

124
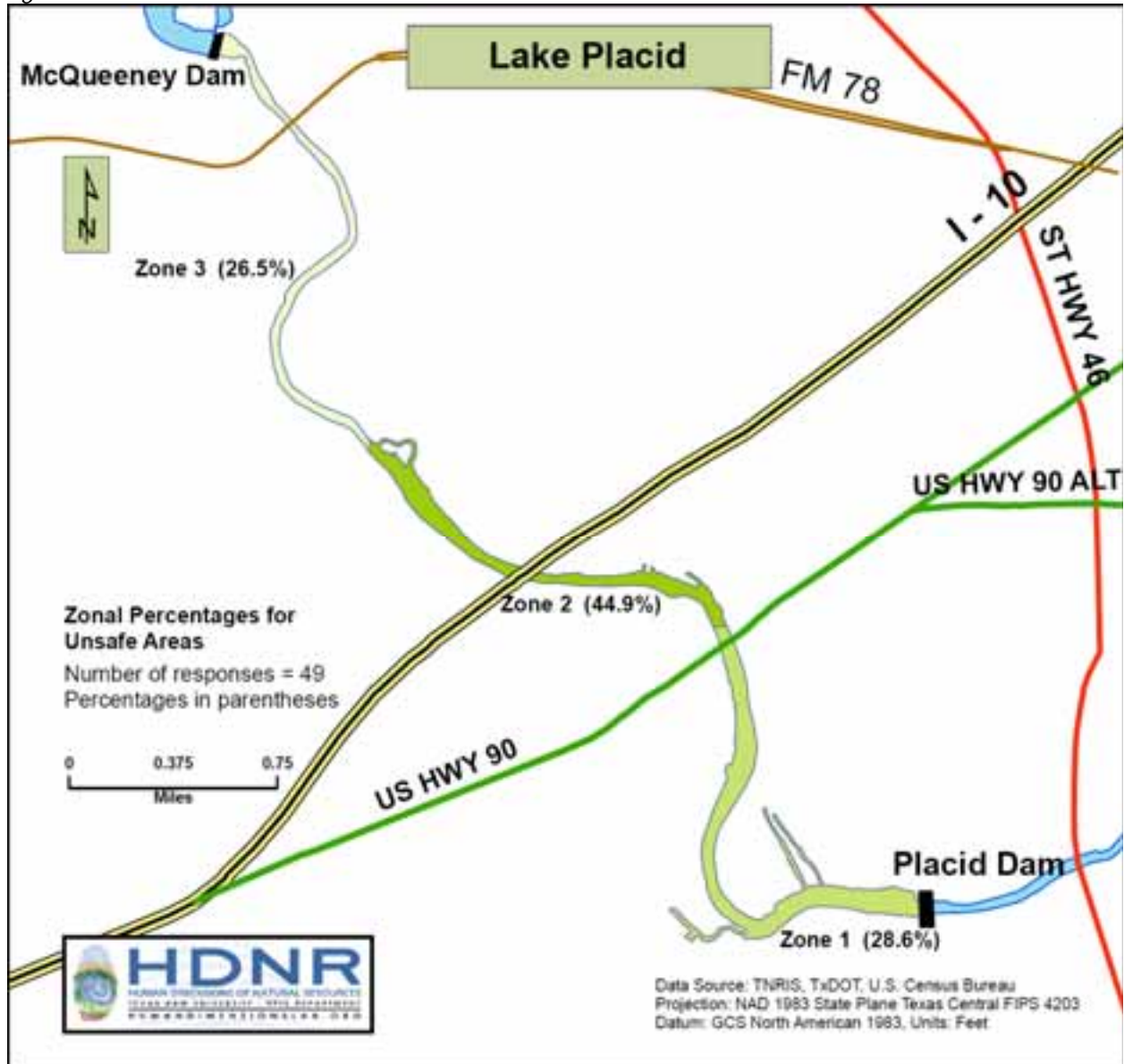
Table 66. Reasons Boaters' Felt Unsafe on Lake Travis

Five Most Cited Reasons	*N*
1. Boat traffic	14
2. Narrow	12
3. Shallow	12
4. Obstacles (STUMPS; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	9
5. Jet skiers, wave runners, PWCs (e.g., racing jet skiers doing donuts!!!)	9

Perceptions of Lake Conditions

Perceptions of Setting Density

In general, respondents expressed some concern over the level and type of use occurring on Lake Placid (see Table 67):
- Almost two thirds (62.1%) of respondents indicated that they would have liked to have seen fewer people on the lake.
- While over 45 percent (45.3%) of respondents indicated the number of people they encountered throughout the 2009 boating season was about what they had expected, 40 percent (40.0%) indicated seeing more than they had expected.
- Fifty eight percent (58.2%) of respondents reported that the number of people they saw had detracted from their boating experience. Alternately, a third (34.0%) indicated that the number of people they had seen had no effect on their enjoyment.
- There was some concern among respondents relating to safety in light of the number of boats on the lake and the behavior of other boaters. Approximately 40 percent indicated that Lake Placid was moderately safe in light of (a) the number of boats seen throughout the 2009 season (40.2%) and (b) the behavior of other boaters (39.2%). Additionally, approximately 10 percent of respondents indicated that the lake was "not at all safe" in light of the volume of use (10.8%) and the behavior of other boaters (11.8%).
- Approximately 30 percent (31.3%) indicated feeling "moderately crowded" and a further 25 percent (25.2%) reported feeling "extremely crowded".

Table 67. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake Placid for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	1.0	2.9	34.0	29.1	33.0	3.9	.9
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake Placid for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	3.2	11.6	45.3	12.6	27.4	3.0	.71

Table 67. Perceptions of Setting Density (cont.)

How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake Placid for the 2009 season? (%)	Added a lot to my enjoyment		Added a little to my enjoyment		No effect on my enjoyment		Detracted a little from my enjoyment		Detracted a lot from my enjoyment		M^{1}	SD
	1.9		5.8		34.0		33.0		25.2		3.7	1.0
In light of the **number of boats** you saw on Lake Placid this season, please rate how safe you felt while boating (%)	Not at all safe				Moderately safe				Extremely safe		M	SD
	10.8		17.6		40.2		25.5		5.9		3.0	1.1
In light of the **behavior of other boaters** on Lake Placid this season, please rate how safe you felt while boating	Not at all safe				Moderately safe				Extremely safe		M	SD
	11.8		21.6		39.2		24.5		2.9		2.9	1.0
Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake Placid for the 2009 season? (%)	Not at all crowded		Slightly crowded				Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9		M	SD
	4.0	6.1	5.1	9.1	19.2	19.2	12.1	14.1	11.1		5.8	2.1

[1] Based on responses 1 through 4

Perceptions of Social Conditions

Respondents were requested to indicate their level of agreement with a series of statements examining the social conditions on Lake Placid for the 2009 boating season (see Table 68 below). Areas of concern include:

- Boaters encroaching on other space ("Other boats came closer than I like") – Fifty percent (50.0%) expressed agreement.
- The wakes thrown by passing boats ("Other boats created massive wakes") – Two thirds (66.7%) expressed agreement.
- The behavior of other boaters ("I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)") – Two thirds (66.0%) expressed agreement.
- The music played from boats ("Other boaters played overly loud amplified music") – Fifty four percent (54.1%) expressed agreement.
- Personal watercraft operators cutting too close ("I was bothered by personal watercraft cutting too close") – Sixty two percent (62.0%) expressed agreement.

Areas that received mixed levels of agreement include;

- Boaters avoided favored parts of the lake in response to the crowded conditions ("I avoided my favorite parts of the lake because there were too many boats there") – While 37 percent (37.7%) disagreed with the statement an additional 37 percent (36.8%) expressed agreement.
- The level of law enforcement on the lakes ("There was adequate law enforcement patrols on the lake") – While over 57 percent (57.6%) indicated that law enforcement on the lake was adequate, more than 36 percent (36.3%) indicated it was inadequate.
- Boaters' perceptions of risk ("Boating in high use areas involved too much risk") – While over 50 percent (51.6%) of respondents indicated that the level of risk associated with boating in some areas of the lake was problematic, 28 percent (28.3%) of the sample differed – indicating that boating on the lake was not risky.
- The noise from other boaters' engines ("Engine noise from other boaters was too loud") – While 38 percent (38.0%) of respondents expressed concern over other the noise from other boaters' engines, 47 percent (47.0) did not consider this to be problematic.
- The presence of personal watercraft ("The presence of personal watercraft interfered with the quality of my boating experience") – While more than 50 percent (51.0) of respondents agreed with this statement, over 30 percent (31.0%) disagreed.

While Table 68 does highlight some areas of concern, the data also illustrate that respondents remain satisfied with the 2009 boating season expressing strong levels of agreement with measures of their enjoyment (item "a"), the condition of the lake (item "c"), and the money they spent in the 2009 boating season (item "e") was well worth the investment.

Table 68. Perceptions of Social Conditions

Below are some statements about boating experience on your Lake Placid. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	4.1	2.0	16.3	54.1	23.5	3.9	0.9
b. I avoided my favorite parts of the lake because there were too many boats there	15.3	22.4	25.5	23.5	13.3	3.0	1.3
c. I thought the lake and its surroundings were in good condition	0	15.2	13.1	59.6	12.1	3.7	0.9
d. Other boats came closer to my boat than I like	6.0	13.0	31.0	28.0	22.0	3.5	1.1
e. My boat trips were well worth the money I spent to take them	1.0	3.1	14.3	55.1	26.5	4.0	0.8
f. There was adequate law enforcement patrols on the lake	13.1	23.2	6.1	40.4	17.2	3.3	1.3
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	39.2	40.2	15.5	1.0	4.1	1.9	1.0
h. Boating in high use areas involved too much risk	12.1	16.2	20.2	36.4	15.2	3.3	1.3
i. The weather was not favorable	28.6	35.7	30.6	3.1	2.0	2.1	0.9
j. Engine noise from other boaters was too loud	19.0	28.0	15.0	22.0	16.0	2.9	1.4
k. Other boaters created massive wakes	11.1	11.1	11.1	30.3	36.4	3.7	1.4
l. I was bothered by poor water quality (e.g., contaminants, color)	21.2	42.4	22.2	12.1	2.0	2.3	1.0
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	7.0	5.0	22.0	34.0	32.0	3.8	1.2
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	25.5	44.9	20.4	7.1	2.0	2.2	1.0
o. Other boaters played overly loud amplified music	8.2	18.4	19.4	27.6	26.5	3.5	1.3
p. I nearly had an accident on the lake because of crowded conditions	27.3	34.3	17.2	11.1	10.1	2.4	1.3
q. I was bothered by personal watercraft cutting too close to my boat	11.0	15.0	12.0	38.0	24.0	3.5	1.3
r. The presence of personal watercraft interfered with the quality of my boating experience	14.0	17.0	18.0	28.0	23.0	3.3	1.4

Coping with Adverse Conditions

Respondents were requested to indicate how they would respond to potential obstacles related to their boating activity. Respondents' agreement with indicators of temporal displacement (i.e., altering the timing of their boating activity) suggest that the most prominent obstacle boaters face on the lakes is related to the level of use. In coping with "crowded" conditions, respondents indicated they adjusted the timing of their boating (items "b" and "e"), avoided certain areas of the lake (item "f") or they simply adjusted to the condition encountered (item "c").

Table 69. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake Placid.	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake Placid	51.4	2.9	22.9	20.0	2.9	2.2	1.3
b. Decided that if I boated on Lake Placid in the future, I would boat at earlier and/or later times of the day	16.2	5.7	16.2	31.4	30.5	3.5	1.4
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	21.9	7.6	28.6	27.6	14.3	3.0	1.3
d. Talked to someone who could do something concrete about the problem	42.9	9.5	30.5	10.5	6.7	2.3	1.3
e. Decided that if I boated on Lake Placid in the future, I would boat on the weekdays rather than weekends	20.0	9.5	20.0	25.7	24.8	3.3	1.4
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	23.8	11.4	21.9	27.6	15.2	3.0	1.4
g. Told myself it was unreasonable to expect that things should have been different at this location	33.0	19.4	29.1	15.5	2.9	2.4	1.2
h. Planned not to return to Lake Placid	84.6	5.8	7.7	0	1.9	1.3	0.8
i. Boated on nearby lakes	74.8	5.8	7.8	7.8	3.9	1.6	1.2
j. Tried to view this condition or situation in a positive way	58.3	16.5	17.5	4.9	2.9	2.9	1.4
k. Decided that the problem was a one-time occurrence	58.3	16.5	17.5	4.9	2.9	1.8	1.1
l. Boated less often	33.3	10.5	18.1	28.6	9.5	2.7	1.4

Perceptions of Physical Conditions

For the most part, respondents were satisfied with the physical condition of the lake (see Table 70). Issues that were of some concern included factors that were the product of the behavior of others. For example:

- "Loud music played from watercraft" – Over 18 percent (18.6%) of respondents indicated this issue to be a "moderate problem" and a further 35 percent (35.1%) percent suggested this was a "big problem".
- "Erosion of shoreline" – Twenty three percent (23.5%) of respondents suggested this issue was a "moderate problem" and an additional 33 percent (33.7%) indicated that this was a "big problem".
- "Large wakes from wakeboarding boats" – While 14 percent (14.3%) considered this to be a "moderate problem", over 40 percent the sample (41.8%) considered this to be a "big problem".

Other issues that were less problematic but of some concern to respondents included:

- "Insufficient navigational aids on the lake" – Just under 30 percent (28.9%) indicated that is issue was a moderate problem and a further 11 percent (11.3%) indicated the issue to be a "big problem."
- "Engine noise" – Twenty three percent (23.5%) of respondents noted this to be a "moderate problem" and a further 18 percent (18.4%) indicated a "big problem".
- "Debris at launch ramps" – Almost 20 percent (19.6%) of respondents indicated this issue to be a "moderate problem" and 15 percent (15.5%) checked "big problem."
- "Inadequate public toilet facilities on the lake" – Fifteen percent (15.5%) of respondents indicated this to be a "moderate problem" and a further 22 percent (22.7%) indicated it being a "big problem".
- "Inflatables/water toys trailing watercraft" – Slightly less than 24 percent (23.7%) of respondents indicated this to be a "moderate problem" and a further 17 percent (17.5%) referred to this as a "big problem".
- "The speed of other boaters" – Over 30 percent (30.9%) of respondents considered this to be a "moderate problem" and a further 16 percent (16.5%) considered this to be a "big problem".

Table 70. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake Placid? (%)	Not a problem	Slight problem	Moderate problem	Big problem
	1	2	3	4
a. Litter on shoreline	39.2	34.0	17.5	6.2
b. Insufficient navigational aids on the lake	32.0	24.7	28.9	11.3
c. Improper disposal of human waste	63.9	11.3	6.2	4.1
d. Loud music played from watercraft	26.8	17.5	18.6	35.1
e. Engine noise	38.8	17.3	23.5	18.4
f. Conflicts with docks over shoreline space	68.8	12.5	8.3	1.0
g. Debris at launch ramps	24.7	27.8	19.6	15.5
h. Inadequate public toilet facilities on the lake	38.1	9.3	15.5	22.7
i. Erosion of shoreline	19.4	15.3	23.5	33.7
j. Large wakes from wakeboarding boats	22.4	15.3	14.3	41.8
k. Inflatables/water toys trailing watercraft	28.9	23.7	23.7	17.5
l. Not enough public boat ramps	72.2	8.2	5.2	7.2
m. The speed of other boaters	30.9	18.6	30.9	16.5
n. Fish habitat	43.3	10.3	19.6	12.4
o. Habitat for birds	53.1	10.2	13.3	7.1
p. Wildlife habitat	53.1	10.2	15.3	6.1
q. The use of inflatables/water toys along the shore	55.7	12.4	15.5	10.3
r. Aquatic vegetation	47.9	26.0	14.6	6.2

[1] Based on responses 1 through 4

Changes Over the Past Five Years

Almost 30 percent (29.9%) reported seeing positive change over the previous five years. The most frequently cited "positive change" respondents report seeing on Lake Placid over the past 5 years referred to better lake maintenance (*n*=9; e.g., removal of hazards/obstacles) and law enforcement (*n*=8) (see Table 71).

Table 71. Positive Change on Lake Placid Over the Past FIVE years

Have you noticed any positive changes at Lake Placid in the last five years? (yes, %, *n*)	29.9 (29)	*n*
If "Yes", can you describe those changes?	1. Better lake maintenance: Aesthetic improvement; cleaner; less vegetation; better monitoring (removing or marking) of hazard and obstacles – e .g., vegetation, trash, stumps, fallen tree; more bulkheads; better quality of construction (e.g., boat ramp widened and improved overall); rebuilding after the floods; better water quality; more bulkheads; more signs	9
	2. Better law enforcement: Increased presence of law enforcement/game wardens; better regulation; restrictions of speed, others, towing inflatable under the bridge	8
	3. More resident involvement	4
	4. Better behavior of others	3
	5. Reduced/limited access (Elimination of (public) boat ramp or limited (public) access (which is positive given the size of the lake	2
	6. Leadership of lake organizations/GBRA/FOLM	2

Over 50 percent (53.1) of the sample indicated having seen negative change occur over the past five years. Most often cited by respondents were issues related to increases in the number and size of watercraft (*n*=23) and the behavior of other boaters (*n*=14) (see Table 72).

Table 72. Negative Change on Lake Placid Over the Past FIVE years

Have you noticed any negative changes at Lake Placid in the last five years? (yes, %, *n*)	53.1 (51)	*n*
If "Yes", can you describe those changes?	1. Increase in the number and size of boats	23
	2. Behaviors of others (dangerous/inexperienced/ Increase in under age operators	14
	3. Worsening lake condition (erosion of waterfront/bulkhead/land, depth reduction, caused by flood, silt)	9
	4. Increase in the number and speed of PWC ks	9
	5. Worsening water quality (trash, vegetation, debris, roc	6

Lake Management Preferences

With regard to issues related to the management of recreational boating on the study lakes, respondents' preferences varied (see Table 73). Strongest support was expressed for managing issues that are outside the jurisdiction of lake authorities or that are logistically less feasible:

- "Provide more aggressive enforcement of safety rules and regulations" – Sixty five percent (65.0%) of respondents expressed support.
- "Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)" – Eighty one percent (81.0%) of respondents expressed support, of which, 55 percent (55.0%) indicated "strongly support".
- "Training for the operation of personal watercraft" – Eighty six percent (86.0%) of respondents supported this proposition, of which, 50 percent (50.0%) offered strong support.
- "Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders" – Almost 80 percent (78.0%) of respondents offered support for this propostition, of which, more than 50 percent (52.0%) expressed strong support.
- "Training for all watercraft operators" – Sixty six percent (66.0%) of respondents expressed support, of which, 30 percent (30.0%) indicated "strongly support".
- "Online training for all watercraft operators" – Over 60 percent (62.0%) percent of respondents expressed support, of which 26 percent (26.0%) checked "strongly support".

Prospective actions receiving mixed support included:

- "Cite boaters whose music can be heard within 100 feet" – Fifty three percent (53.6%) of respondents expressed agreement with this statement and 31 percent (31.4%) opposed.
- "Restrict personal watercraft use to designated areas only" – almost 40 percent (39.8%) support the action whereas over 36 percent (36.7%) opposed.
- "Establish "off limits" zones to protect sensitive resources" – Thirty eight percent (38.0%) of respondents opposed this action and 36 percent (36.0%) expressed support.
- "Banning personal watercraft on public holidays" – Forty six percent (46.0%) of respondents opposed the proposed action, whereas 41 percent (41.0%) supported the proposition.
- "Restrict activities by day or week during peak use periods (e.g., holidays)" – Almost 47 percent (46.5%) opposed the proposition and 34 percent (34.4%) supported the idea.

Issues that received opposition included:

- "Install more public boat ramps" – Eighty percent (80.0%) opposed the proposition, of which, 67 percent (67.0%) "strongly opposed".
- "Widen existing public boat ramps to accommodate more lanes" – 75 percent (75.0%) opposed the proposition, of which, 53 percent (53.0%) indicated "strongly oppose".

Table 73. Managerial Issue

Given the conditions you observed on Lake Placid for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	*M*	*SD*
	1	2	3	4	5		
a. Provide more improved public access to the lake	55.0	16.0	5.0	18.0	6.0	2.0	1.4
b. Zone the waters to provide specific uses at specific places	26.0	18.0	15.0	30.0	11.0	2.8	1.4
c. Provide more aggressive enforcement of safety rules and regulations	8.0	6.0	21.0	38.0	27.0	3.7	1.2
d. Expand the number of marina slips	41.0	16.0	28.0	10.0	5.0	2.2	1.2
e. Cite boaters who's music can be heard within 100 feet	15.2	16.2	15.2	28.3	25.3	3.3	1.4
f. Restrict personal watercraft use to designated areas only	24.5	12.2	23.5	14.3	25.5	3.0	1.5
g. Establish "off limits" zones to protect sensitive resources	19.0	19.0	26.0	17.0	19.0	3.0	1.4
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	5.0	1.0	13.0	26.0	55.0	4.3	1.1
i. Training for the operation of personal watercraft	3.0	4.0	7.0	36.0	50.0	4.3	1.0
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	7.0	4.0	11.0	26.0	52.0	4.1	1.2
k. Training for all watercraft operators	6.0	6.0	22.0	36.0	30.0	3.8	1.1
l. Online training for all watercraft operators	7.0	5.0	26.0	36.0	26.0	3.7	1.1
m. Banning personal watercraft on public holidays	28.0	18.0	13.0	13.0	28.0	3.0	1.6
n. Restrict activities by day or week during peak use periods (e.g., holidays)	30.3	16.2	19.2	18.2	16.2	2.7	1.5
o. Install more public boat ramps	67.0	13.0	7.0	11.0	2.0	1.7	1.1
p. Widen existing public boat ramps to accommodate more lanes	53.0	22.0	10.	8.0	7.0	1.9	1.3
q. Dredge the lake to improve depth	13.1	9.1	27.3	21.2	29.3	3.4	1.3

Restricting Activities/Watercraft to Specific Areas of Lake Dunlap

Respondents were requested to indicate areas of the lake where they would like to see activities/watercraft restricted; i.e. designated areas for activities and/or watercraft (see Figure 27). The pie charts below indicate the Zones to which respondents indicated that they would like to see activities/watercraft restricted (i.e., Zones where these activities/watercraft should only be permitted). As displayed, there was little zonal variation in respondents' preferences. The use of personal watercraft and towing inflatable toys were the watercraft/activities that respondents most strongly preferred to be restricted. There was, however, little consensus on the areas to which they would like these activities/watercraft restricted.

Figure 27. Activity restriction to Certain Areas
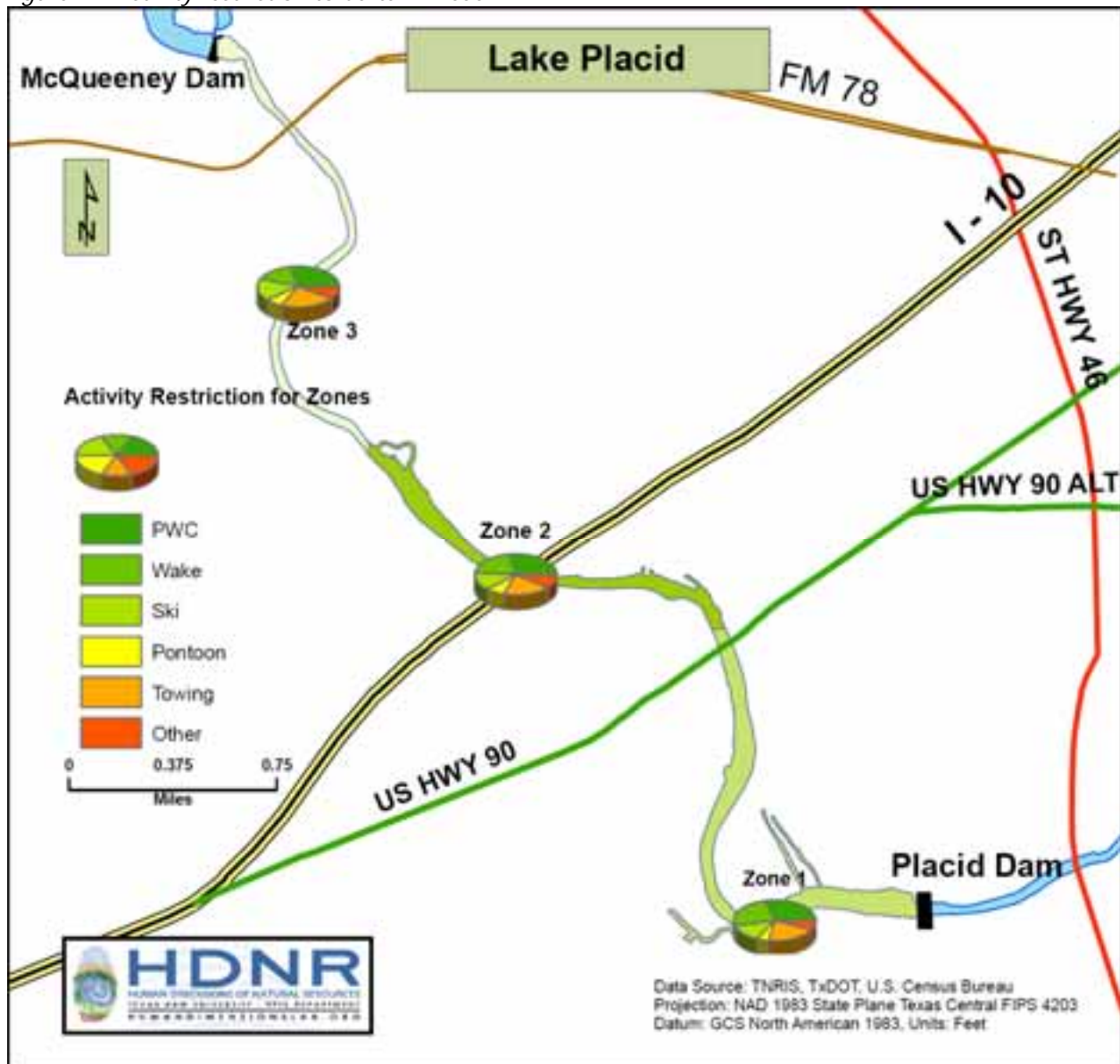
Additional Management Preferences

A little less than a third (37.8%) of respondents indicated having taken a boater safety or education class (see Table 74).

Sixty one percent (61.2%) of respondents indicated that "tougher restrictions" were required to limit the size of wakes generated by some watercraft. Of those who indicated the need for tougher restrictions, banning the use of "fat sacks" was most preferred with more than 60 percent (60.8%) indicating the option to be the 1st priority among the four alternatives (i.e., banning the use of fat sacks, creating larger no-wake zones, banning the use of PWCs, and banning wakeboarding boats). Creating larger no-wake zones (44.6%) was the next most commonly checked priority followed by banning wakeboarding outright (21.6%).

Respondents were also asked whether or not they felt the lake should be managed to support a variety of recreation activities. Almost two thirds (65.3%) of respondents indicated that the lake should support various activities. While all of the activities listed (i.e., waterskiing, wakeboarding, PWC, towing inflatables) received strong support (among those indicating "yes" to the previous question) with more than 60 percent advocating their availability, respondents expressed strongest support for waterskiing (90.9%) followed by wakeboarding (74.6%).

Table 74. Management Preferences

	1st	2nd	*M*	*SD*
a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	37.8 (37)			
b. Do you feel that tougher restrictions are required on Lake Placid to limit the size of wakes generated by some watercraft?	61.2 (60)			
c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	Percent rating 1st or 2nd priority			
	1st	2nd	*M*	*SD*
Ban the use of "fat sacks" on the lake.	60.8 (31)	21.6 (11)	1.7	1.0
Create larger no-wake zones.	44.6 (25)	16.1 (9)	2.2	1.3
Ban the use of personal watercraft on the lake.	17.3 (9)	11.5 (6)	3.1	1.3
Ban wakeboarding boats on Lake Placid.	21.6 (11)	23.5 (10.9)	2.8	1.3
d. Do you feel that GBRA should manage Lake Placid to support a variety of recreational boating activities? (yes, %, *n*)	65.3 (62)			
If "Yes", which of the following activities do you feel are suitable for Lake Placid?				
Waterskiing	90.9 (60)			
Wakeboarding	74.6 (44)			
PWC (e.g., Jet Ski)	69.5 (41)			
Towing Inflatables	60.0 (36)			

Perceptions of Regulation on Lake Placid

Respondents were requested to indicate if they felt more controls were required to prevent conflicts occurring between lake users. A little over 35 percent (35.4%) indicated, "yes," more controls were required. Of those indicating "yes", more law enforcement to manage speed was cited most often (*n*=12).

Table 75. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake Placid to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	35.4 (35)
What conflicts?	How should they be managed?
1. PWCs (4)	1. More restriction/law enforcement (even during holidays, weekend, night; fine; more presence of game warden/patrol, control noise, wake, pollution; zone restriction; proximity between boats) (12)
2. Wakeboard (3)	2. Regulation on PWCs (7)
2. Too crowded (3)	3. License/Age limit/ training/education (5)
3. Other boaters (2)	4. Speed limit (3)
4. Speeders (1)	4. Regulation on wakeboard (3)

For those answering "yes" to the question of whether or not more controls required, respondents were also requested to indicate what controls might be needed to prevent damage to the environment. Controls of boaters' wakes to manage shoreline damage/erosion was cited most often (*n*=19).

Table 76. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake Placid to **prevent damage to the environment by boaters**? (yes, %, *n*)	38.8 (38)
What kind of damage?	How should they be controlled?
1. Erosion of shoreline and waterfronts (19)	1. No wake zone; wake control; speed control (12)
2. Wakes (9)	2. Limit wake board (5)
3. Wakeboard (7)	3. Limit size/weight of boats (2)
4. Wakes (5)	4. Restrict traffic (1)
5. Trash (4)	5. others (i.e., All environmental protection should be used) (1)

Service Provision

Respondents were requested to indicate whether or not they felt that the services currently offered on Lake Dunlap were adequate. A little over 32 percent (32.3%) indicated that additional services should be offered. Of those, most frequently cited suggestions included additional gas stations (*n*=21) and food outlets (*n*=11).

Table 77. Service Provision

Are there certain facilities or services that should be offered on Lake Placid that are currently not available? (yes, %, *n*)	32.3 (31)
What kind of services or facilities?	*n*
1. Gas stations	21
2. Food service (e.g., restaurants, kiosks)	11
3. Great public access	4
4. Improved lake maintenance	2
5. More restrooms	2

Shoreline Property

A little over 70 percent (70.1%) of respondents were shoreline property owners. On average, they indicated having owned their home for 18 years (*M*=18.2) with almost 60 percent (59.4%) indicating that their lakeshore property was their primary residence. For those for whom their lake home was a secondary residence, they averaged 65 (*M*=65.1) visits over the 2009 season.

Over 90 percent (94.2%) of shoreline property owners also indicated owning a dock, bulkhead or slip. Of these, 43 percent (43.3%) indicated that their bulkhead/dock/slip had been damaged by boating activities occurring on the lake resulting in an average cost of repair of around $6,295. Wakes from boats was the most commonly cited reason for the damage (*n*=25).

Table 78. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake Wood (yes, *n, %*)	70.1 (68)
b.	How long have your owned the residence on Lake Placid (*M, SD*)	18.2, 14.6
c.	Is your home on Lake Placid your primary residence? (yes, *n, %*)	59.4 (41)
	If not, approximately how many days did you spend there during the past 12 months? (days *M, SD*)	65.1, 42.8
d.	Does your property on Lake Placid have a bulkhead, dock or slip? (yes, *n, %*)	94.2 (65)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake? (yes, *n, %*)	43.3 (29)
	What has been the total cost of repairs? ($, *M, SD*)	$6,295.45, $6,145.88
Cause of damage	Most Cited	
	Wakes from boats (25) Others (i.e., 95% of it from GBRA letting out all the water after floods! 5% wake damage; Sinkage undermining bulkhead over; weather) (3)	

Respondents' Personal Information

As displayed below in Table 79, overall, the sample was comprised of respondents who were older (*M*=55.0 years), well educated (75.0% with college degrees), white (95.0%) men (70.0%). While 40 percent (40.0%) were employed full time, 40 percent (40.0%) also indicated being retired. Last, household incomes were above average with just under half (47.4%) reporting incomes in excess of $100,000.

Table 79. Household Information

Characteristic	
Age (years, *M, SD*)	55.0, 15.8
Gender (%, *n*)	
Male	70.0 (14)
Female	30.0 (6)
Education (%, *n*)	
8th grade or less	0
9th to 11th grade	0
12th grade (high school graduate)	10.0 (2)
13-15 years (some college	15.0 (3)
16 years (college graduate)	20.0 (4)
17+ years (some graduate work)	20.0 (4)
Masters, Doctoral, or Professional Degree	35.0 (7)
Race/Ethnicity (%, *n*)	
Hispanic	5.0 (1)
White, not Hispanic	95.0 (19)
Black or African-American	0
Native American or Alaskan Native	0
Asian or Pacific Islander	0
Employment Status (%, *n*)	
Employed, full time	40.0 (8)
Homemaker	5.0 (1)
Employed, part time	5.0 (1)
Retired, but working full time	5.0 (1)
Retired, working part time	15.0 (3)
Retired, not working	25.0 (5)
Unemployed	0
Student	0
Other	5.0 (1)

Table 79. Household Information (cont.)

Household Income (%, *n*)	
Less than $25,000	0
$25,000 - $49,999	10.5 (2)
$50,000 - $74,999	21.1 (4)
$75,000 - $99,999	21.1 (
$100,000 - $149,999	10.5 (2)
$150,000 - $199,999	5.3 (1)
$200,000 - $249,999	0
$250,000 – $299,999	21.1 (4)
$300,000 or more	10.5 (2)

Boating Experience

Most respondents (86.4%) indicated being active boaters with extensive experience (*M*=26.1 years) (see Table 80). The most popular watercraft used on the lake was a fishing or bass boat (45.5%) followed by personal watercraft (36.4%), and pontoon boats (31.8%).

In terms of respondents preferred activities, cruising was cited most frequently (31.6%) followed by wakeboarding (26.3%). Respondents tended to enjoy the lake in groups of three to four (*M*=3.7) consisting of family and friends (52.4%).

Table 80. Experience Characteristics

	% (*n*)	Number Used *M, SD*
Are you an active boater on area lake? (%, *n*)	86.4 (19)	
How many years have you been boating? (years, *M, SD*)	26.1, 15.1	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	55.2, 69.0	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	Number Used *M, SD*
Speed boat, ski boat	13.6 (3)	.2, .4
Fishing or bass boat	45.5 (10)	.6, .5
Pontoon boat	31.8 (7)	.4, .5
Inflatable pulled behind another watercraft	25.0 (7)	.3, .4
Wakeboard boat	18.2 (4)	.2, .4
High performance boat	4.5 (1)	.1, .3
Personal Watercraft (PWC; e.g., Jet Ski)	36.4 (8)	.7, .9
Other (Please specify	18.2 (4)	.3, .6

Table 80. Experience Characteristics (cont.)

Which of these watercraft do you use **most often**? (%, *n*)	
Speed boat, ski boat	5.3 (1)
Fishing or bass boat	36.8 (7)
Pontoon boat	15.8 (3)
Inflatable pulled behind another watercraft	0
Wakeboard boat	21.1 (4)
High performance boat	0
Personal Watercraft (PWC; e.g., Jet Ski)	21.1 (4)
Other (Please specify	0
What activity do you **most often** use your boat for? (*%*, n*)*	
Skiing	5.3 (1)
Cruising	31.6 (6)
Wakeboarding	26.3 (5)
Towing inflatables/water toys	10.5 (2)
Fishing	15.8 (3)
Racing up and down the lake	10.5 (2)
Other	0
How many people are usually in your boating group? (*M, SD*)	3.7, 1.9
Which of the following best describes your boating group?	
By yourself	9.5 (2)
Family	33.3 (7)
Multiple families	0
Family and friends	52.4 (11)
Friends	4.8 (1)
Organized outing group	0
Business associates	0
Other	0

Respondents were requested to identify factors they liked most about Lake Nolte. The characteristics they cited as being most enjoyable on the lake was the absence of crowds (n=7), the water quality (n=5) and a combination of pristine condition (n=4), and the fun associated with enjoying favored past times (n=4).

Table 81. Characteristics Most Liked about Lake Nolte

What did you like ***best*** about your visits to Lake Nolte?	Six Most Cited Characteristics	n
	1. Less crowded (weekend, late night)	7
	2. Water/lake (beautiful, calm, clean, being by the water/lake, constant water level, easy paddling)	5
	3. Affective (Escape, tranquility, peaceful, get away, solitude, relaxed, fun)	4
	4. Nature/outdoor (Being outdoors, enjoy outdoors/nature, Enjoy aesthetics of nature/landscape)	4
	5. Social bonding (with friends, family, meeting people)	4
	6. Activities (swimming, fishing, boating, wakeboarding, pontoon boat cruising, skiing, cruising, entertainment; picnic, bird watching, etc.)	4

Characteristics that respondents indicated liking least about Lake Nolte primarily concerned the water quality (n=8).

Table 82. Characteristics Least Liked about Lake Nolte

What did you like ***least*** about your visits to Lake Nolte?	Five Most Cited Characteristics	n
	1. Water quality (vegetation – e.g., algae growth, hydroplant, lily pads; obstacles – e.g., debris, floating trash; scummy surface; dirty water; gravel beds across/under the water; sewer comes into it; silted areas; NBU dumping sewer water in lake)	8
	2. Water condition (Choppy, Rough; warm, cold, dangerous, stagnant, smell, water; upstream lake; low water level; too small or narrow)	5
	3. Boat traffic	5
	4. Wakes created by others	1
	5. PWCs	
	6. Wake board boats	
	7. Inflatable toys, tubes	
	8. High speed boats, ski boats	
	9. Problem with access	

Constraints to Boating on Lake Placid

While most respondents (86.4%) indicated being active boaters, less than 20 percent (18.2%) indicated that they boated as often as they would like (see Table 83 below). Respondents who indicated that they did not boat as often as they would like were then instructed to select their level of agreement with a series of statements that reflected potential reasons for not boating. The most commonly reported reason for not boating was the lack of time (i.e., item "k" – 64.7% agreeing with the statement).

Table 83. Constraints to Boating

Do you boat as often as you would like? (yes, %, *n*)						18.2 (4)	
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
I don't boat as often as I would like because... (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	64.7	0	17.6	0	17.6	1.9	1.3
b. I can't afford to go boating	52.9	5.9	23.5	17.6	0	2.1	1.2
c. It's too hot in summer	41.2	29.4	11.8	11.8	5.9	2.1	1.3
d. It's too crowded	23.5	23.5	29.4	23.5	0	2.5	1.1
e. I have no way to access the Lake	35.3	23.5	17.6	23.5	0	2.3	1.2
f. The Lake is too narrow	17.6	17.6	41.2	17.6	5.9	2.8	1.1
g. The behavior of other boaters is unsafe	5.9	23.5	47.1	23.5	0	2.9	0.9
h. The Lake is too shallow	23.5	11.8	35.3	29.4	0	2.7	1.2
i. Poor water quality	29.4	17.6	29.4	17.6	5.9	2.5	1.3
j. Other boaters are inconsiderate	11.8	17.6	41.2	29.4	0	2.9	1.0
k. Public access is inconvenient	25.0	25.0	6.2	31.2	12.5	2.8	1.5
l. I no longer have enough time	11.8	5.9	17.6	52.9	11.8	3.5	1.2
m. Work commitments keep me away from boating on the Lake	29.4	0	17.6	52.9	0	2.9	1.3
n. My family no longer has an interest in boating	41.2	17.6	29.4	11.8	0	2.1	1.1
o. Shoreline owners/residents are inconsiderate	41.2	23.5	35.3	0	0	1.9	0.9
p. At times, the water surface is too rough	35.3	17.6	23.5	17.6	5.9	2.4	1.3
q. There's too much vegetation in the water	17.6	23.5	35.3	17.6	5.9	2.7	1.2

Use of Area Lakes

Almost all respondents indicated that Lake Nolte was their primary lake (100.0%) and the lake they most frequently used (86.4%) with an average of 39 days (*M*=39.0) of boating over the 2009 season (see Table 84).

Table 84. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*	70.0 (14)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	9.1 (2)	5.8, 15.0	0
Meadow Lake (Nolte)	86.4 (19)	39.0, 51.7	100.0 (22)
Lake McQueeney	22.7 (5)	5.4, 11.8	0
Lake Placid	31.8 (7)	4.1, 5.5	0
Lake Gonzales (H4)	0	0	0
Lake Wood (H5)	4.5 (1)	.5, 1.8	0
Canyon Lake	4.5 (1)	0	0
Other	0	0	0
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			.9, 2.4, 0

Lake Attachment

Overall, respondents expressed strong attachment to Lake Nolte (see Table 85). While they expressed agreement with most of the statements, enjoyment and the opportunity to spend time with family and friends were key to their lake affection.

Table 85. Feelings about Area Lakes

Considering Lake Nolte please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	*M*	*SD*
	1	2	3	4	5	*M*	*SD*
a. Lake Nolte is the best lake for the activities that I enjoy most	9.1	9.1	22.7	27.3	31.8	3.6	1.3
b. I have a strong emotional bond to the lake	13.6	9.1	9.1	45.5	22.7	3.5	1.3
c. I can't imagine a better lake for what I like to do	22.7	13.6	27.3	9.1	27.3	3.0	1.5
d. I feel the lake is a part of me	9.1	13.6	22.7	40.9	13.6	3.4	1.2
e. I feel a strong sense of belonging to the lake	9.1	9.1	22.7	40.9	18.2	3.5	1.2
f. The lake is one of the few places where I can be myself	13.6	18.2	36.4	18.2	13.6	3.0	1.2
g. I really enjoy the lake	4.5	4.5	9.1	36.4	45.5	4.1	1.1
h. The lake means a lot to me	9.1	4.5	13.6	31.8	40.9	3.9	1.3
i. The time spent boating on the lake allows me to bond with my family and friends	9.1	9.1	13.6	18.2	50.0	3.9	1.4
j. I associate special people in my life with the lake	9.1	13.6	27.3	18.2	31.8	3.5	1.3

Boater's Starting Location

Almost all boaters started from either Zone 2 (57.1%) or 1 (38.1%) (see Figure 28).

Figure 28. Normal Starting Location
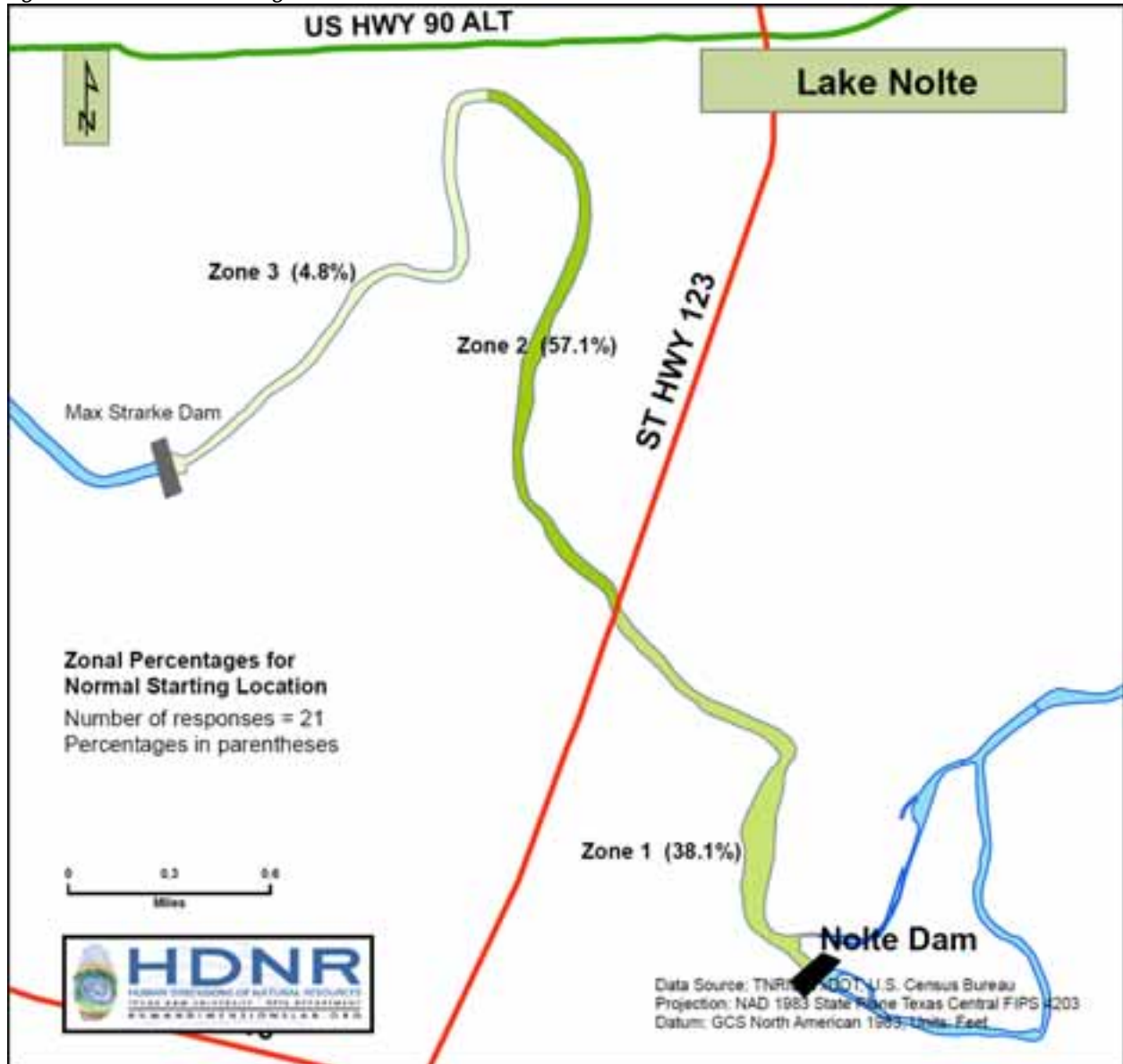
Traveling Upstream

Two thirds (66.7%) of respondents indicated traveling as far upstream as Zone 3 (see Figure 29).

Figure 29. Farthest Traveled Upstream
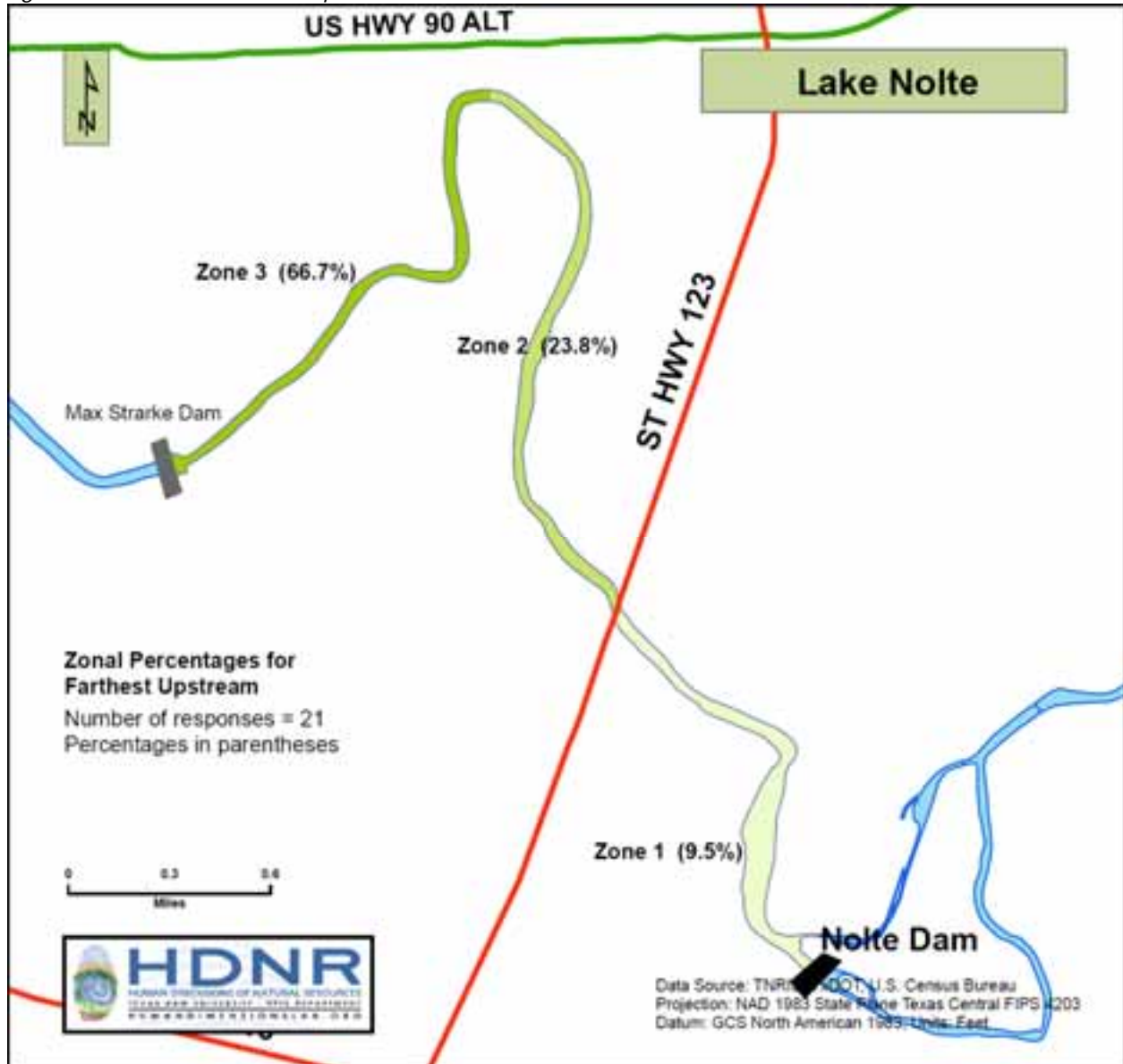
Travelling Downstream

Almost all respondents indicated traveling downstream to Zone 1 (95.2%) (see Figure 30).

Figure 30. Farthest Traveled Downstream
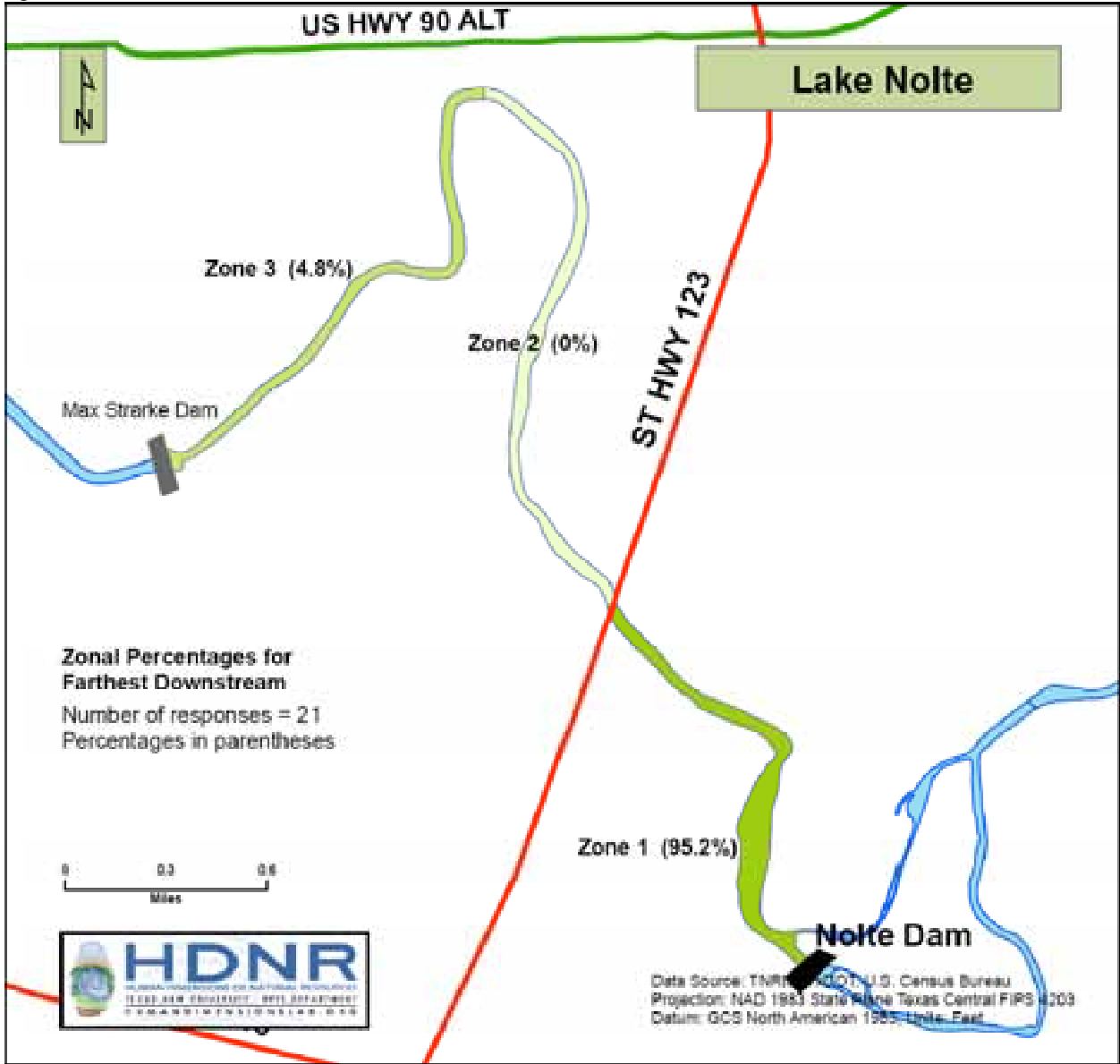
Areas Where Boaters Spent Most Time

Respondents spent most time in Zones 2 (51.7%) through 1 (total=86.2%) (see Figure 31).

Figure 31. Area Spent Most Time
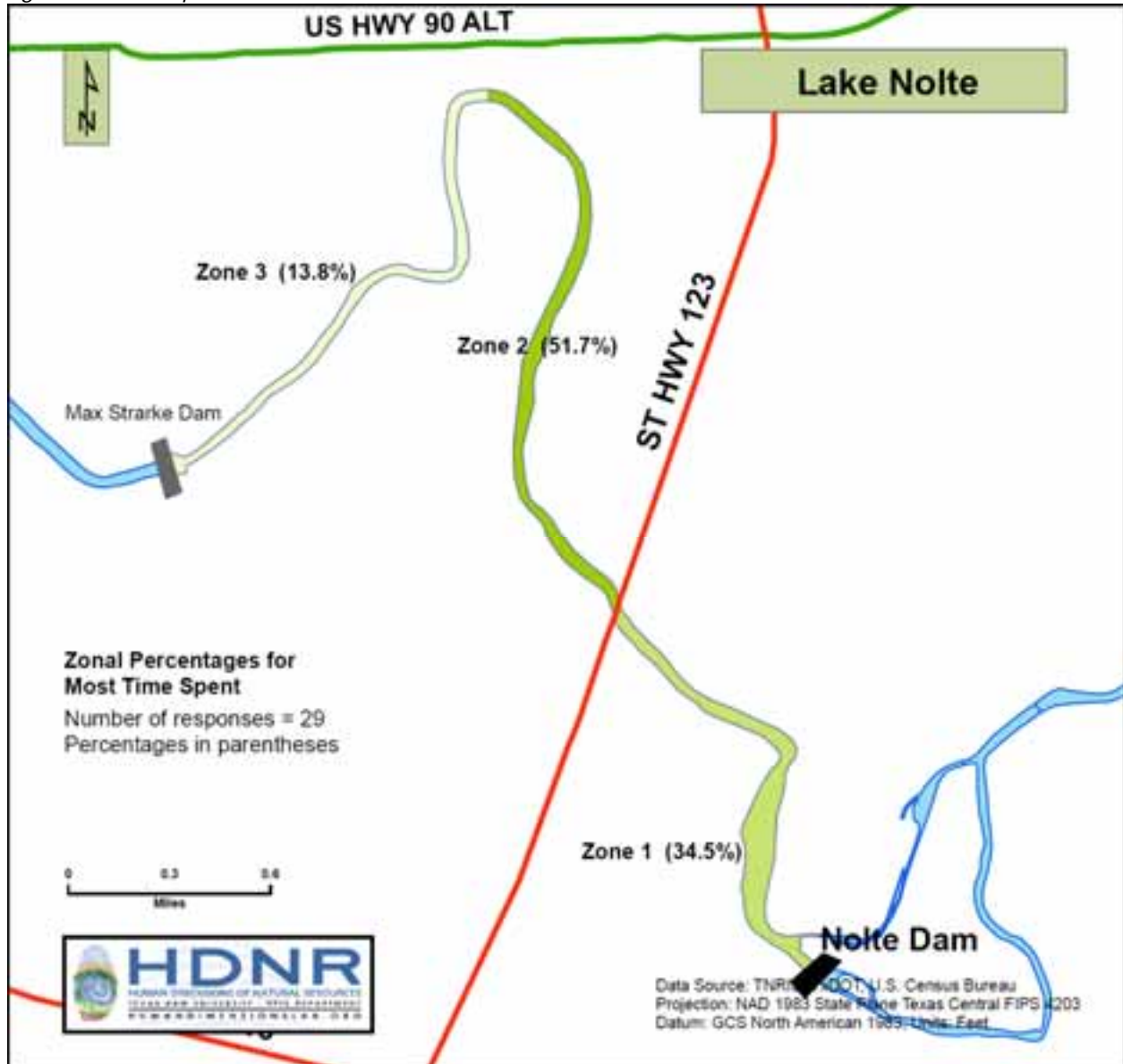
Areas Avoided

All respondents indicated avoiding Zone 3 (see Figure 32). They indicated the Zone to be too shallow and contained obstacles (see Table 86 below).

Figure 32. Areas Avoided
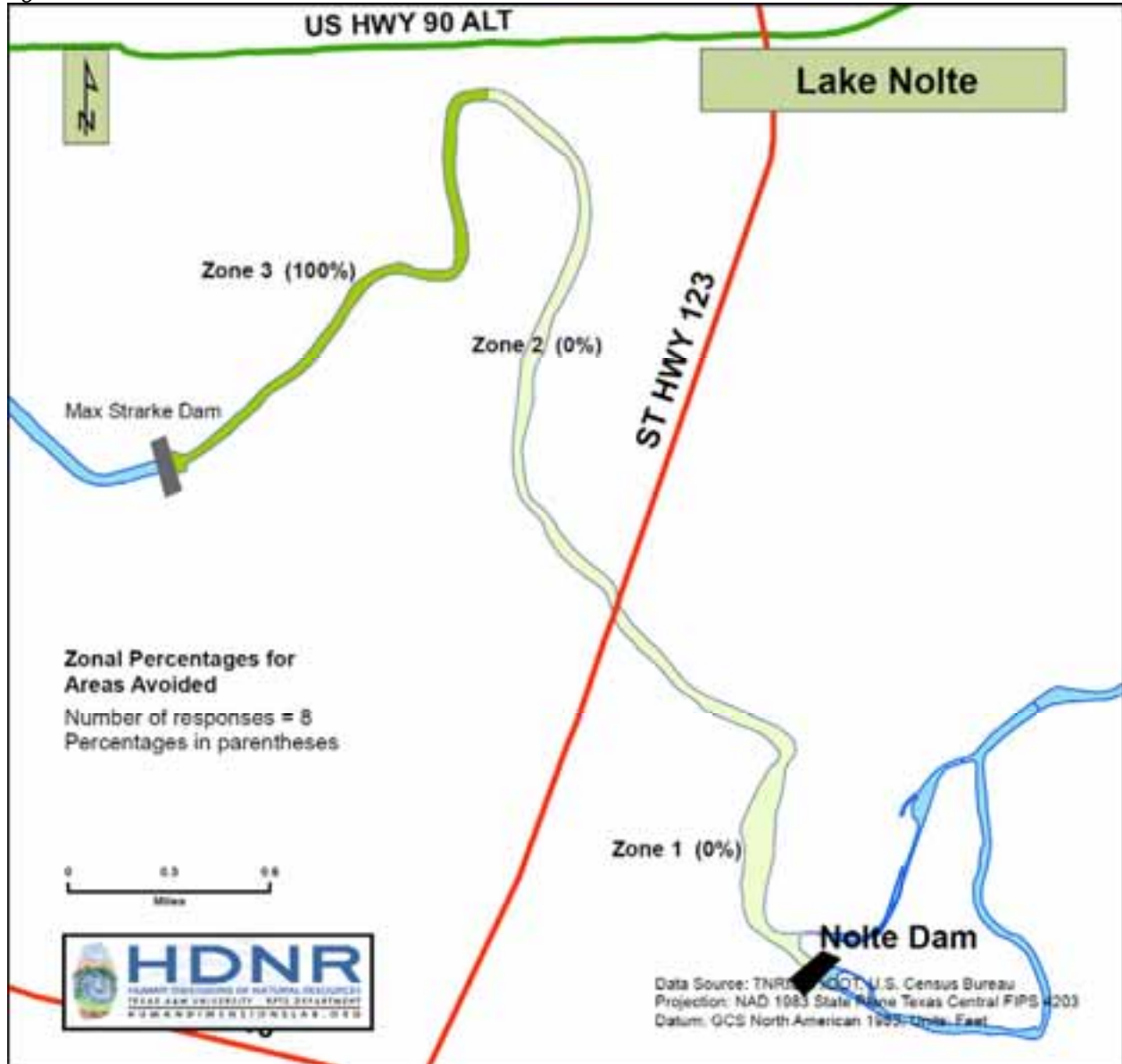
Table 86. Reasons for Avoiding Areas on Lake Nolte

Two Most Cited Reasons	N
1. Shallow	6
2. Obstacles	3

Areas Boaters' Felt Unsafe

Areas that respondents felt unsafe were situated in Zone 1 (40.0%), and 3 (40.0%) (see Figure 33). Reasons that respondents reported these areas to be unsafe related to Zone 3's depth (*n*=3), submerged obstacles (*n*=2) and width (*n*=1) and the boat traffic in Zone 1 (*n*=1) (see Table 87).

Figure 33. Areas Boaters' Felt Unsafe
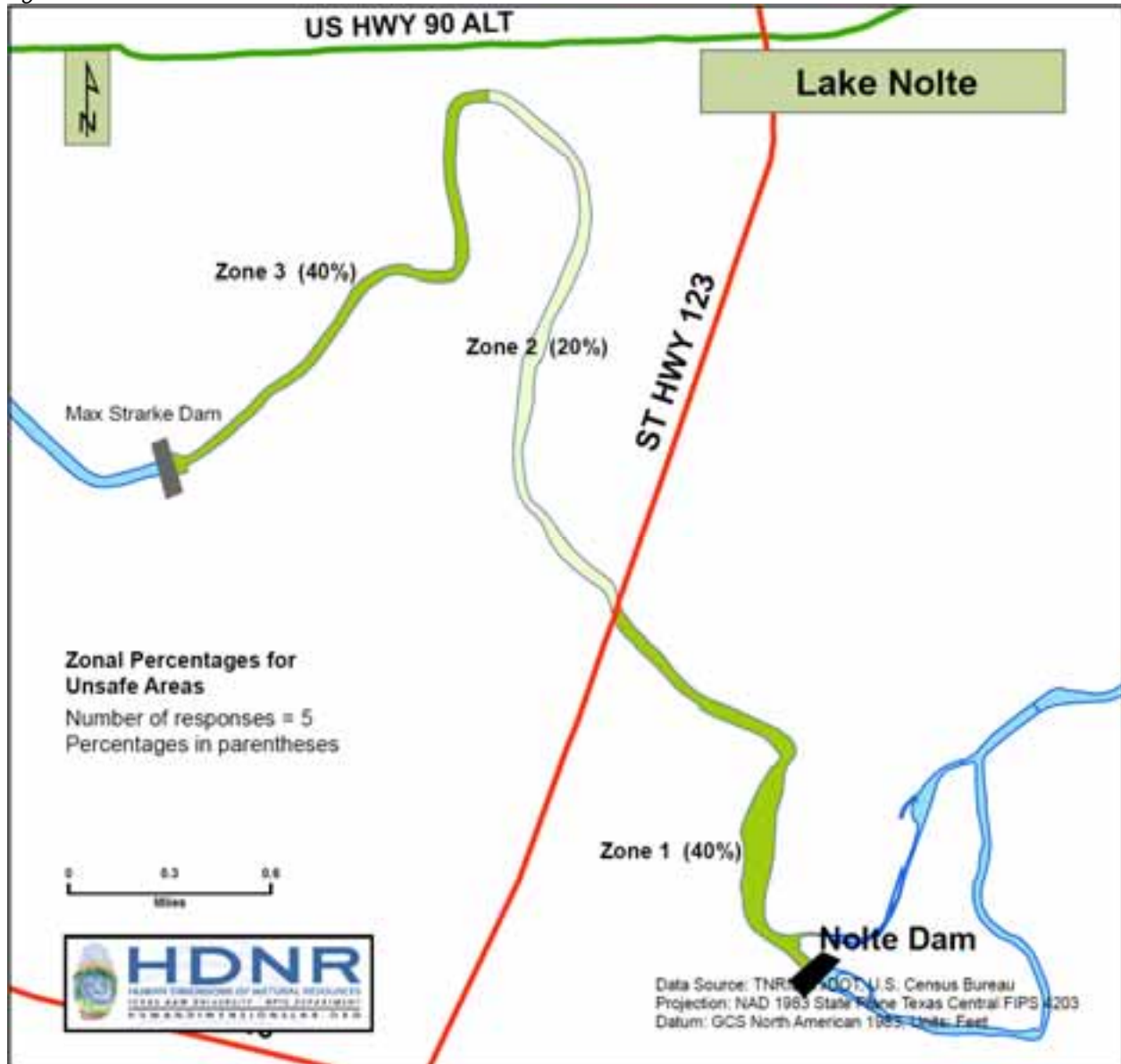
Table 87. Reasons Boaters' Felt Unsafe on Lake Travis

Four Most Cited Reasons	N
1. Shallow	3
2. Obstacles	2
3. Narrow	1
4. Boat traffic	1

Perceptions of Lake Conditions

Perceptions of Setting Density

In general, respondents expressed some concern over the level and type of use occurring on Lake Nolte (see Table 88):

- While half the sample (50.0%) indicated there was neither too few of too many people, a little over 45 percent (45.4%) indicated that they would have preferred seeing fewer people.
- Almost 70 percent (68.2%) indicated that the number of people they had seen on the lake over the 2009 season was about what they had expected. Over 22 percent (22.7%) indicated that that the number of people on the lake was a little more than they had expected.
- While 18 percent (18.2%) of respondents indicated that the number of people encountered over the 2009 season added little to their enjoyment, 36 percent (36.4%) indicated the number of people encountered had no effect on their enjoyment and a further 22 percent (22.7%) indicated that the number of people encountered detracted a little from their experience.
- Overall, there appeared to be little concern over safety in light of the use occurring on the lake. Thirty six percent (36.4%) indicated that they thought the lake was moderately safe in light of the number of boats on the lake. A further 22 percent (22.7%) indicated that they felt the lake was "extremely safe".
- With regard to respondents' perception of safety in light of the behavior of other boaters 28 percent (28.6%) indicated feeling "moderately safe". Less than five percent (4.8%) indicated feeling "not at all safe" in light of the behavior of other boaters.
- A little over 42 percent (42.8%) indicated feeling "not at all crowded".

Table 88. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake Nolte for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	0	4.5	50.0	22.7	22.7	3.6	.9
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake Nolte for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	4.5	0	68.2	22.7	4.5	3.2	.8

Table 88. Perceptions of Setting Density (cont.)

How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake Nolte for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment	M^1	SD
	9.1	18.2	36.4	22.7	13.6	3.1	1.2
In light of the **number of boats** you saw on Lake Nolte this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe	M	SD
	0	18.2	36.4	22.7	22.7	3.5	1.1
In light of the **behavior of other boaters** on Lake Nolte this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe	M	SD
	4.8	19.0	28.6	38.1	9.5	3.3	1.1

Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake Nolte for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9	M	SD
	19.0	23.8	19.0	4.8	9.5	19.0	4.8	0	0	3.4	2.0

[1] Based on responses 1 through 4

Perceptions of Social Conditions

Overall, the data presented in Table 89 illustrate that boaters on Lake Nolte saw few areas of concern regarding recreational uses occurring on the lake. While there was some concern over the size of wakes thrown by boats (item "k"), water quality (item "l"), and reckless boating (item "m"), respondents indicated enjoying their lake experience.

While Table 89 does highlight some areas of concern, the data also illustrate that respondents remain satisfied with the 2009 boating season expressing strong levels of agreement with measures of their enjoyment (item "a"), the condition of the lake (item "c"), and the money they spent during the 2009 boating season (item "e") was well worth the investment.

Table 89. Perceptions of Social Conditions

Below are some statements about boating experience on your Lake Nolte. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	4.5	0	28.6	28.6	38.1	4.0	1.1
b. I avoided my favorite parts of the lake because there were too many boats there	33.3	28.6	23.8	9.5	4.8	2.2	1.2
c. I thought the lake and its surroundings were in good condition...	9.5	14.3	28.6	33.3	14.3	3.3	1.2
d. Other boats came closer to my boat than I like	14.3	28.6	38.1	14.3	4.8	2.7	1.1
e. My boat trips were well worth the money I spent to take them	0	0	19.0	38.1	42.9	4.2	0.8
f. There was adequate law enforcement patrols on the lake	23.8	4.8	23.8	38.1	9.5	3.0	1.4
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	4.09	31.8	27.3	0	0	1.9	0.8
h. Boating in high use areas involved too much risk	27.3	18.2	22.7	22.7	9.1	2.7	1.4
i. The weather was not favorable	19.0	19.0	42.9	14.3	4.8	2.7	1.1
j. Engine noise from other boaters was too loud	22.7	22.7	18.2	31.8	4.5	2.7	1.3
k. Other boaters created massive wakes	13.6	13.6	22.7	18.2	31.8	3.4	1.4
l. I was bothered by poor water quality (e.g., contaminants, color)	14.3	23.8	14.3	33.3	14.3	3.1	1.3
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	4.5	18.2	45.5	22.7	9.1	3.1	1.0

Table 89. Perceptions of Social Conditions (cont.)

n.	I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	27.3	27.3	27.3	9.1	9.1	2.5	1.3
o.	Other boaters played overly loud amplified music	13.6	18.2	31.8	27.3	9.1	3.0	1.2
p.	I nearly had an accident on the lake because of crowded conditions	45.5	18.2	36.4	0	0	1.9	0.9
q.	I was bothered by personal watercraft cutting too close to my boat	27.3	13.6	31.8	13.6	13.6	2.7	1.4
r.	The presence of personal watercraft interfered with the quality of my boating experience	36.4	13.6	18.2	27.3	4.5	2.5	1.4

Coping with Adverse Conditions

Respondents were requested to indicate how they would respond to potential obstacles related to their boating activity. The data below indicate that respondents did not consider crowding a serious issue on the lake and, consequently, did not alter their boating activity.

Table 90. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake Nolte	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake Nolte	42.9	4.8	33.3	19.0	0	2.3	1.2
b. Decided that if I boated on Lake Nolte in the future, I would boat at earlier and/or later times of the day	33.3	9.5	38.1	14.3	4.8	2.5	1.2
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	14.3	14.3	23.8	33.3	14.3	3.2	1.3
d. Talked to someone who could do something concrete about the problem	33.3	0	42.9	19.0	4.8	2.6	1.3
e. Decided that if I boated on Lake Nolte in the future, I would boat on the weekdays rather than weekends	42.9	4.8	19.0	33.3	0	2.4	1.4
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	35.0	5.0	20.0	20.0	20.0	2.9	1.6
g. Told myself it was unreasonable to expect that things should have been different at this location	28.6	9.5	28.6	23.8	9.5	2.8	1.4
h. Planned not to return to Lake Nolte	81.0	0	19.0	0	0	1.4	0.8
i. Boated on nearby lakes	47.6	4.8	33.3	14.3	0	2.1	1.2
j. Tried to view this condition or situation in a positive way	14.3	9.5	33.3	33.3	9.5	3.1	1.2
k. Decided that the problem was a one-time occurrence	60.0	10.0	20.0	10.0	0	1.8	1.1
l. Boated less often	38.1	14.3	19.0	23.8	4.8	2.4	1.4

For the most part, respondents were satisfied with the physical condition of the lake (see Table 91). Issues that were of some concern included factors that were the product of the behavior of others. For example:

- "Erosion of shoreline" – Forty percent (40.0%) considered this to be a "big problem", and a further 35 percent (35.0%) of the sample considered this to be a "moderate problem".
- "Large wakes from wakeboarding boats" – Thirty five percent (35.0%) of respondents indicated this to be "a big problem" and a further 25 percent (25.0%) referred to this as a "moderate problem".
- "Inflatables/water toys trailing watercraft " – Twenty five percent (25.0%) of respondents suggested this issue was a "big problem" and an additional 40 percent (40.0%) indicated that this was a "moderate problem".
- "Litter on shoreline" – Twenty five percent (25.0%) indicated this issue to be a "big problem" and an additional 35 percent (35.0%) thought it to be a "moderate problem".

Table 91. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake Nolte? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment	M^1	SD
	1	2	3	4	5		
a. Litter on shoreline	15.0	25.0	35.0	25.0	0	2.7	1.0
b. Insufficient navigational aids on the lake	40.0	25.0	20.	15.0	0	2.1	1.1
c. Improper disposal of human waste	45.0	10.0	15.0	10.0	20.0	1.9	1.1
d. Loud music played from watercraft	45.0	20.0	20.0	15.0	0	2.1	1.1
e. Engine noise	40.0	25.0	10.0	25.0	0	2.2	1.2
f. Conflicts with docks over shoreline space	70.0	15.0	5.0	0	10.0	1.3	0.6
g. Debris at launch ramps	40.0	30.0	25.0	0	5.0	1.8	0.8
h. Inadequate public toilet facilities on the lake	45.0	10.0	15.0	20.0	10.0	2.1	1.3
i. Erosion of shoreline	20.0	0	35.0	40.0	5.0	3.0	1.2
j. Large wakes from wakeboarding boats	30.0	5.0	25.0	35.0	5.0	2.7	1.3
k. Inflatables/water toys trailing watercraft	25.0	10.0	40.0	25.0	0	2.7	1.1
l. Not enough public boat ramps	65.0	15.0	5.0	10.0	5.0	1.6	1.0

Table 91. Perceptions of Physical Conditions (cont.)

m. The speed of other boaters	30.0	25.0	20.0	25.0	0	2.4	1.2
n. Fish habitat	45.0	10.0	25.0	15.0	5.0	2.1	1.2
o. Habitat for birds	65.0	10.0	10.0	10.0	5.0	1.6	1.1
p. Wildlife habitat	65.0	5.0	15.0	10.0	5.0	1.7	1.1
q. The use of inflatables/water toys along the shore	50.0	10.0	20.0	15.0	5.0	2.0	1.2
r. Aquatic vegetation	50.0	20.0	20.0	5.0	5.0	1.8	1.0

[1] Based on responses 1 through 4

Changes Over the Past Five Years

Twenty percent (20.0%) of respondents reported seeing positive change over the previous five years. The most frequently cited "positive change" respondents reported seeing over the past 5 years referred to better lake maintenance (*n*=3; e.g., removal of hazards/obstacles) (see Table 92).

Table 92. Positive Change on Lake Nolte Over the Past FIVE years

Have you noticed any positive changes at Lake Nolte in the last five years? (yes, %, *n*)	20.0 (4)	*n*
If "Yes", can you describe those changes?	1. Better lake maintenance (i.e., stump marker, more wildlife; Certain parts of the shoreline have been cleaned up and improved zone 2 mostly)	3
	2. More resident involvement (i.e., restoration of housing development on north side land by the 123 bridge)	1

Over 40 percent (42.9%) of the sample indicated having seen negative change occur over the past five years. The most cited issue of concern was the perceived decline in the lake condition/water quality (*n*=9) (see Table 93).

Table 93. Negative Change on Lake Nolte Over the Past FIVE years

Have you noticed any negative changes at Lake Nolte in the last five years? (yes, %, *n*)	42.9 (9)	*n*
If "Yes", can you describe those changes?	1. Worsening lake condition	4
	2. Worse in water quality	4
	3. Increase in the number and size of boats	1
	4. Others (i.e., GBRA losing control of gate after flood)	1

Lake Management Preferences

With regard to issues related to the management of recreational boating on the study lakes, respondents' preferences varied (see Table 94). Strongest support was expressed for managing issues that are outside the jurisdiction of lake authorities or that are logistically less feasible:

- "Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)" – Over 85 percent (86.4%) of respondents expressed support, of which, half (50.0 %) indicated "strongly support".
- "Training for the operation of personal watercraft" – Over 85 percent (86.4%) of respondents supported this proposition, of which, half (50.0%) expressed strong support.
- "Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders" – Over 80 percent (81.8%) of respondents offered support for this proposition, of which, over 50 percent (50.0%) expressed strong support.
- "Training for all watercraft operators" – A little less than 80 percent (77.3%) of respondents expressed support, of which, 31 percent (31.8%) indicated "strongly support".
- "Online training for all watercraft operators" – Over 70 percent (72.8%) percent of respondents expressed support, of which 36 percent (36.4%) checked "strongly support".
- "Dredge the lake to improve depth" – Over 63 percent (63.6%) of respondents expressed support with more than 22 percent (22.7%) expressing strong support.

Prospective actions receiving mixed support included:

- "Zone the waters to provide specific uses at specific places" – While over 30 percent (31.8%) of respondents expressed support for the proposition, 36 percent (36.4%) opposed.
- "Provide more aggressive of enforcement of safety rules and regulations" – While forty five percent (45.4%) of respondents expressed support, 27 percent (27.2%) opposed.
- "Cite boaters whose music can be heard within 100 feet" – While over 40 percent (42.8%) of respondents expressed support for this proposition, almost 40 percent (38.1%) opposed.
- "Restrict personal watercraft use to designated areas only" - While over 40 percent (40.9%) of respondents expressed support for this proposition, more than 40 percent (40.9%) opposed.
- "Banning personal watercraft on public holidays" – Thirty one percent (31.8%) of respondents supported the proposed action, whereas 45 percent (45.4%) opposed the proposition.
- "Restrict activities by day or week during peak use periods (e.g., holidays)" – Over 31 percent (31.8%) supported the proposition and half (50.0%) opposed the idea.

Table 94. Managerial Issue

Given the conditions you observed on Lake Nolte for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support		
	1	2	3	4	5	*M*	*SD*
a. Provide more improved public access to the lake	54.5	9.1	9.1	13.6	13.6	2.2	1.6
b. Zone the waters to provide specific uses at specific places	27.3	9.1	31.8	13.6	18.2	2.9	1.5
c. Provide more aggressive enforcement of safety rules and regulations	13.6	13.6	27.3	22.7	22.7	3.3	1.4
d. Expand the number of marina slips	47.6	14.3	9.5	19.0	9.5	2.3	1.5
e. Cite boaters who's music can be heard within 100 feet	28.6	9.5	19.0	19.0	23.8	3.0	1.6
f. Restrict personal watercraft use to designated areas only	27.3	13.6	18.2	18.2	22.7	3.0	1.6
g. Establish "off limits" zones to protect sensitive resources	18.2	9.1	18.2	31.8	22.7	3.3	1.4
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	9.1	4.5	0	36.4	50.0	4.1	1.2
i. Training for the operation of personal watercraft	4.5	0	9.1	36.4	50.0	4.3	1.0
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	9.1	0	9.1	31.8	50.0	4.1	1.2
k. Training for all watercraft operators	9.1	0	13.6	45.5	31.8	3.9	1.2
l. Online training for all watercraft operators	4.5	9.1	13.6	36.4	36.4	3.9	1.2
m. Banning personal watercraft on public holidays	31.8	13.6	22.7	18.2	13.6	2.7	1.5
n. Restrict activities by day or week during peak use periods (e.g., holidays)	22.7	27.3	18.2	9.1	22.7	2.8	1.5
o. Install more public boat ramps	63.6	4.5	4.5	18.2	9.1	2.0	1.5
p. Widen existing public boat ramps to accommodate more lanes	50.0	9.1	22.7	13.6	4.5	2.1	1.3
q. Dredge the lake to improve depth	9.1	0	27.3	40.9	22.7	3.7	1.1

Restricting Activities/Watercraft to Specific Areas of Lake Nolte

Respondents were requested to indicate areas of the lake where they would like to activities/watercraft restricted; i.e. designated areas for activities and/or watercraft (see Figure 34). The pie charts below indicate the Zones to which respondents indicated that they would like to see activities/watercraft restricted (i.e., Zones where these activities/watercraft should only be permitted). As displayed, there was little zonal variation in respondents' preferences. The use of personal watercraft, wakeboarding boats, and towing inflatable toys were the watercraft/activities that respondents most strongly preferred to be restricted. There was, however, little consensus on the areas to which they would like these activities/watercraft restricted.

Figure 34. Activity restriction to Certain Areas
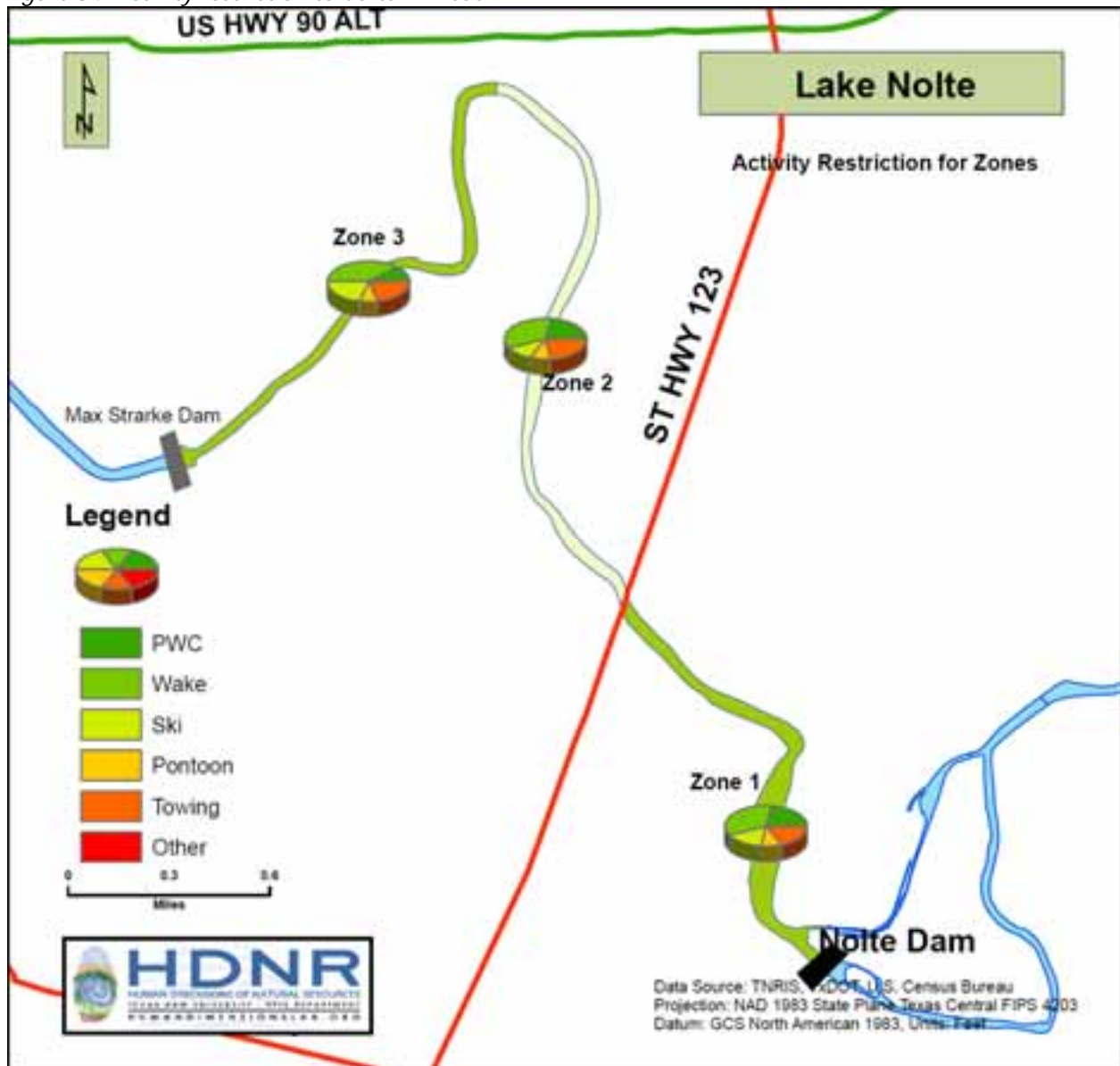
Additional Management Preferences

Thirty six percent (36.8%) of respondents indicated having taken a boater safety or education class (see Table 95).

While 60 percent (60.0%) of respondents indicated that "tougher restrictions" were necessary, there was little consensus on the nature of those restrictions. While creating larger no wake zones (22.7%) received strongest support, there was some support for other actions as well.

Respondents were also asked whether or not they felt the lakes should be managed to support a variety of recreation activities. Eighty percent (80.0%) of respondents indicated that lakes should support various activities. While all of the activities listed (i.e., waterskiing, wakeboarding, PWC, towing inflatables) received strong support (among those indicating "yes" to the previous question) with more than 60 percent advocating their availability, respondents expressed strongest support for waterskiing (87.5%) followed by wakeboarding (72.7%) and PWC use (71.4%).

Table 95. Management Preferences

a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	36.8 (7)			
b. Do you feel that tougher restrictions are required on Lake Wood (H5) to limit the size of wakes generated by some watercraft?	60.0 (12)			
c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	Percent rating 1st or 2nd priority			
	1st	2nd	*M*	*SD*
Ban the use of "fat sacks" on the lake.	9.1 (2)	13.6 (3)	2.7	1.3
Create larger no-wake zones.	22.7 (5)	9.1 (2)	2.0	1.1
Ban the use of personal watercraft on the lake.	13.6 (3)	13.6 (3)	2.2	1.2
Ban wakeboarding boats on Lake Nolte.	13.6 (3)	4.5 (1)	2.6	1.2
d. Do you feel that GBRA should manage Lake Nolte to support a variety of recreational boating activities? (yes, %, *n*)	80.0 (16)			
If "Yes", which of the following activities do you feel are suitable for Lake Nolte?				
Waterskiing	87.5 (14)			
Wakeboarding	72.7 (8)			
PWC (e.g., Jet Ski)	71.4 (10)			
Towing Inflatables	61.5 (8)			

Perceptions of Regulation on Lake Nolte

Respondents were requested to indicate if they felt more controls were required to prevent conflicts occurring between lake users. A little over 35 percent (35.4%) indicated, "yes," more controls were required. While more law enforcement to manage wakeboarding (*n*=2) was cited most, the speed of other boaters was also of concern.

Table 96. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake Nolte to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	35.4 (35)
What conflicts?	How should they be managed?
1. Wake board (2)	1. Regulation on wakeboarding (1)
2. PWCs (1)	
3. Speeders (1)	
4. Other boaters (1)	
5. High speed boats (1)	
6. Wakes (1)	

Respondents were also requested to indicate if the felt more controls were required to prevent damage to the environment. Almost 40 percent (38.8%) indicated "yes". For those answering "yes" to the question of whether or not more controls required, respondents were also requested to indicate what controls might be needed to prevent damage to the environment. The most common damage was shoreline erosion. Controls of boaters' wakes and boat speed were most often cited to control the damage.

Table 97. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake Nolte to **prevent damage to the environment by boaters**? (yes, %, *n*)	38.8 (38)
What kind of damage?	How should they be controlled?
1. Erosion of shoreline, waterfront (2)	1. No wake zone; wake control; speed control (2)
2. Wakes (1)	2. Limit wakeboard (2)
3. Trash (1)	3. Restrict traffic (1)
4. Big boats (1)	4. Limit size and weight of boats (1)
5. PWCs (1)	5. Others (i.e., Fence off endangered plantings) (1)

Service Provision

Respondents were requested to indicate whether or not they felt that the services currently offered on Lake Nolte were adequate. Thirty six percent (36.4%) of respondents indicated that additional services should be offered. Of those, the most frequently cited suggestions included additional boat rentals (*n*=3) and improving public access (*n*=3).

Table 98. Service Provision

Are there certain facilities or services that should be offered on Lake Nolte that are currently not available? (yes, %, *n*)	36.4 (8)
What kind of services or facilities?	*n*
1. Services (i.e., kayak, canoe, boat and jet ski rentals; bait shop; ice; mechanic)	3
2. Access (i.e., public access; access for swimming and fishing)	3
3. Better communication (i.e., better way of reporting boating infractions)	2
4. Gas	1
5. Law enforcement (Perhaps an area of boat patrols on area lakes to provide safety and guidelines to boaters that tend to be dangerous to others and the environment)	1
6. Food	1
7. Public areas (i.e., public park)	

Shoreline Property

Seventy percent (70.0%) of respondents were shoreline property owners. On average, they indicated having owned their home for 10 years (*M*=10.4) with over 70 percent (71.4%) indicating that their lakeshore property was their primary residence. For those for whom their lake home was a secondary residence, they averaged 25 (*M*=25.0) visits over the 2009 season.

Fifty seven percent (57.1%) of shoreline property owners also indicated owning a dock, bulkhead or slip. Of these, less than 10 percent (9.1%) indicated that their bulkhead/dock/slip had been damaged by boating activities occurring on the lake. Erosion and wakes from boats were cited as the reason for the damage.

Table 99. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake Wood (yes, *n, %*)	70.0 (14)
b.	How long have your owned the residence on Lake Nolte (*M, SD*)	10.4, 10.3
c.	Is your home on Lake Nolte your primary residence? (yes, %, *n*)	71.4 (10)
	If not, approximately how many days did you spend there during the past 12 months? (days *M, SD*)	25.0, 8.6
d.	Does your property on Lake Nolte have a bulkhead, dock or slip? (yes, %, *n*)	57.1 (8)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake? (yes, %, *n*)	9.1 (2)
	What has been the total cost of repairs? ($, *M, SD*)	-
Cause of damage	Most Cited	
	1. Erosion (1) 2. Wake (i.e., Any boat that creates a wake causes damage the bigger and the faster the more it's damage) (1)	

LAKES GONZALES (H4) AND WOOD (H5)

Key Findings for Lake Wood and Gonzales

Owing to the few responses coming from boaters on Lakes Gonzales and Wood, we present a brief summary of the key findings.

Respondents' Characteristics
- Respondents were approximately 60 years old, male, and averaged over 30 years of boating experience.
- Most respondents indicated primarily using either a speed/ski boat or a fishing/bass boat.

Characteristics Liked Most/Least *About Lakes Gonzales and Wood*
- Elements that respondents liked most about the lakes included the pristine (undeveloped) shoreline, quiet and calm conditions, and the ability to enjoy favored boating activities.
- Issues respondents cited liking least mostly concerned the prevalence of aquatic vegetation, submerged obstacles, and inadequate depth. Public access was also cited as a concern.

Areas Used and Avoided
- For Lake Wood, most respondents reported boating upstream from Wood Dam in Zones 2, 3 and 4. Owing to the depth and submerged obstacles, the area they most avoided was the main basin.
- For Lake Gonzales, most use occurred on the northern size of the main basin (Zone 2) and further upstream (Zones 3 and 4). Owing to the depth and submerged obstacles, Zone 1 on the southern end of the main basin was most avoided.

Perceptions of Crowding
- Compared to the other lakes, respondents from Lake Gonzales and Wood indicated being much less crowded. They also indicated not being as bothered by other boaters.

Lake Management Preferences
- Issues of most concern to respondents from both lakes concerned:
  - Improving public access;
  - More enforcement of rules and regulations;
  - Establishing a minimum age of 15 years for the operation of personal watercraft and towing other recreationists;
  - Require training for the operation of personal watercraft; and
  - Dredge the lake.

Lake Gonzales (H4)

Respondents' Personal Information

Table 100. Household Information

Characteristic	
Age (years, *M, SD*)	61.4, 8.3
Gender (%, *n*)	
Male	90.0 (9)
Female	10.0 (1)
Education (%, *n*)	
8th grade or less	0
9th to 11th grade	0
12th grade (high school graduate)	20.0 (2)
13-15 years (some college	70.0 (7)
16 years (college graduate)	0
17+ years (some graduate work)	0
Masters, Doctoral, or Professional Degree	10.0 (1)
Race/Ethnicity (%, *n*)	
Hispanic	8.3 (1)
White, not Hispanic	91.7 (11)
Black or African-American	0
Native American or Alaskan Native	0
Asian or Pacific Islander	0
Employment Status (%, *n*)	
Employed, full time	25.0 (3)
Homemaker	0
Employed, part time	0
Retired, but working full time	8.3 (1)
Retired, working part time	16.7 (2)
Retired, not working	41.7 (5)
Unemployed	0
Student	0
Other	8.3 (1)
Household Income (%, *n*)	
Less than $25,000	10.0 ()
$25,000 - $49,999	10.0 (1)
$50,000 - $74,999	30.0 (3)
$75,000 - $99,999	20.0 (2)
$100,000 - $149,999	0
$150,000 - $199,999	10.0 (1)
$200,000 - $249,999	0
$250,000 – $299,999	10.0 (1)
$300,000 or more	10.0 (1)

Boating Experience

Table 101. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	50.0 (6)	
How many years have you been boating? (years, *M, SD*)	32.1, 25.4	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	23.1, 45.6	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	*M, SD*
Speed boat, ski boat	15.4 (2)	.20, .4
Fishing or bass boat	61.5 (8)	.83, .6
Pontoon boat	7.7 (1)	.10, .3
Inflatable pulled behind another watercraft	0	0
Wakeboard boat	0	0
High performance boat	0	0
Personal Watercraft (PWC; e.g., Jet Ski)	15.4 (2)	.22, .4
Other (Please specify	15.4 (2)	.22, .4
Which of these watercraft do you use **most often**? (%, *n*)		
Speed boat, ski boat	0	
Fishing or bass boat	100.0 (9)	
Pontoon boat	0	
Inflatable pulled behind another watercraft	0	
Wakeboard boat	0	
High performance boat	0	
Personal Watercraft (PWC; e.g., Jet Ski)	0	
Other (Please specify	0	
What activity do you **most often** use your boat for? (*%*, n*)*		
Skiing	0	
Cruising	11.1 (1)	
Wakeboarding	0	
Towing inflatables/water toys	0	
Fishing	55.6 (5)	
Racing up and down the lake	33.3 (3)	
Other	0	
How many people are usually in your boating group? (*M, SD*)	4.3, 4.5	
Which of the following best describes your boating group?		
By yourself	9.1 (1)	
Family	36.4 (4)	
Multiple families	0	
Family and friends	36.4 (4)	
Friends	9.1 (1)	
Organized outing group	0	
Business associates	9.1 (1)	
Other	0	

Table 102. Characteristics Most Liked about Lake Gonzales

What did	Five Most Cited Characteristics	*n*
you like	1. Convenience (Location, live close to the lake; easy access, own property)	5
best about	2. Activities (swimming, fishing, boating, wakeboarding, pontoon boat cruising, skiing, cruising, entertainment, picnic, bird watching, etc.)	3
your visits	3. Social bonding (with friends, family, meeting people)	1
to Lake	3. Less crowded (during weekend, late night)	1
Gonzales?	3. Nature/outdoors (being outdoors, enjoy aesthetics of nature/landscape)	1

Table 103. Characteristics Least Liked about Lake Gonzales

What did	Four Most Cited Characteristics	*n*
you like	1. Water quality (vegetation – e.g., algae growth, hydroplant, lily pads; obstacles – e.g., debris, floating trash; scummy surface; dirty water; gravel beds across/under the water; sewer comes into it; silted areas; NBU dumping sewer water in lake)	3
least about	2. Jet skiers, wave runners, PWCs (e.g., racing jet skiers doing donuts!!!)	1
your visits	2. Behavior of others/drivers (inconsiderate, inexperienced, dangerous, discourteous, drunk, noisy)	1
to Lake Gonzales?	2. Problem with access (Difficulty using public ramp or lack of public access; no boat ramp close to the lake and the residents there think the lake is a private lake for them only)	1

Table 104. Constraints to Boating

	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
Do you boat as often as you would like? (yes, %, *n*)	9.1 (1)						
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)							
I don't boat as often as I would like because… (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	70.0	30.0	0	0	0	2.2	1.9
b. I can't afford to go boating	40.0	20.0	20.0	10.0	10.0	2.3	1.4
c. It's too hot in summer	50.0	10.0	30.0	0	10.0	2.1	1.4
d. It's too crowded	50.0	10.0	30.0	10.0	0	2.0	1.2
e. I have no way to access the Lake	70.0	20.0	0	10.0	0	1.5	1.0
f. The Lake is too narrow	50.0	10.0	30.0	10.0	0	2.0	1.2
g. The behavior of other boaters is unsafe	30.0	0	40.0	30.0	0	2.7	1.3
h. The Lake is too shallow	60.0	0	20.0	20.0	0	2.0	1.3
i. Poor water quality	18.2	18.2	36.4	18.2	9.1	2.8	1.3
j. Other boaters are inconsiderate	30.0	20.0	30.0	10.0	10.0	2.5	1.4
k. Public access is inconvenient	20.0	40.0	20.0	20.0	0	2.4	1.1
l. I no longer have enough time	20.0	10.0	10.0	50.0	10.0	3.2	1.4
m. Work commitments keep me away from boating on the Lake	20.0	10.0	20.0	40.0	10.0	3.1	1.4
n. My family no longer has an interest in boating	60.0	10.0	20.0	10.0	0	1.8	1.1
o. Shoreline owners/residents are inconsiderate	30.0	40.0	30.0	0	0	2.0	0.8
p. At times, the water surface is too rough	50.0	20.0	20.0	0	10.0	2.0	1.3
q. There's too much vegetation in the water	20.0	0	30.0	10.0	40.0	3.5	1.6

Use of Area Lakes

Table 105. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*)	53.8 (7)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	7.7 (1)	.2, .6	-
Lake McQueeney	-	-	-
Lake Placid	-	-	-
Meadow Lake (Nolte)	-	-	-
Lake Gonzales (H4)	69.2 (9)	16.9, 42.4	81.8 (9)
Lake Wood (H5)	38.5 (5)	1.1, 3.3	9.1 (1)
Canyon Lake	23.1 (3)	.3, .7	-
Other	15.4 (2)	1.0, 2.1	9.1 (1)
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			4.3, 6.5, 1.5

Table 106. Feelings about Area Lakes

Considering Lake X please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree		
	1	2	3	4	5	*M*	*SD*
a. Lake X is the best lake for the activities that I enjoy most	0	16.7	16.7	50.0	16.7	3.7	1.0
b. I have a strong emotional bond to the lake	8.3	8.3	25.0	33.3	25.0	3.6	1.2
c. I can't imagine a better lake for what I like to do	0	33.3	41.7	16.7	8.3	3.0	1.0
d. I feel the lake is a part of me	0	25.0	33.3	25.0	16.7	3.3	1.1
e. I feel a strong sense of belonging to the lake	0	25.0	25.0	33.3	16.7	3.4	1.1
f. The lake is one of the few places where I can be myself	8.3	41.7	16.7	16.7	16.7	2.9	1.3
g. I really enjoy the lake	0	0	25.0	50.0	25.0	4.0	0.7
h. The lake means a lot to me	8.3	0	33.3	33.3	25.0	3.7	1.2
i. The time spent boating on the lake allows me to bond with my family and friends	8.3	0	16.7	50.0	25.0	3.8	1.1
j. I associate special people in my life with the lake	0	8.3	41.7	25.0	25.0	3.7	1.0

Figure 35. Normal Staring Location
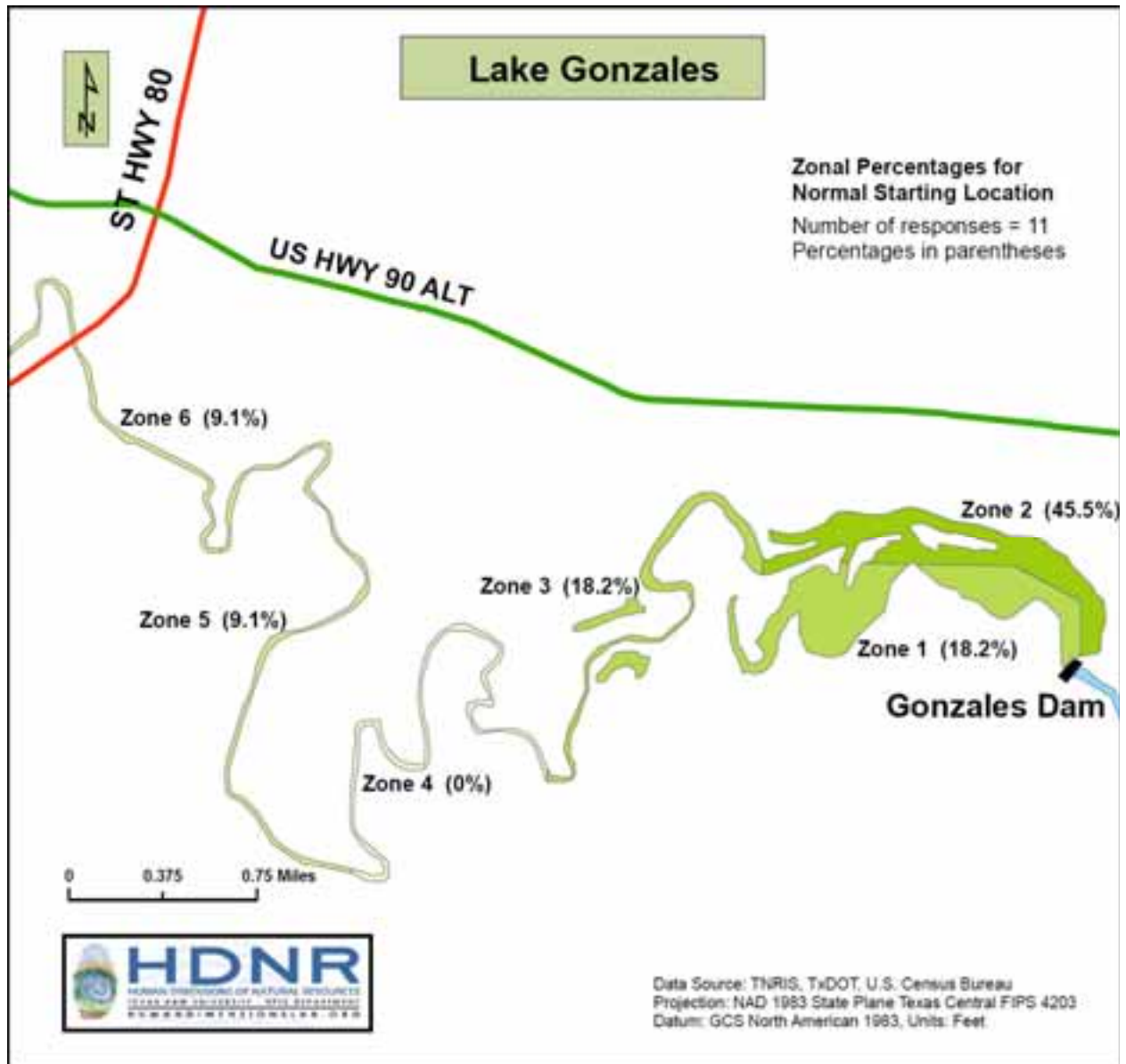
Figure 36. Farthest Traveled Upstream
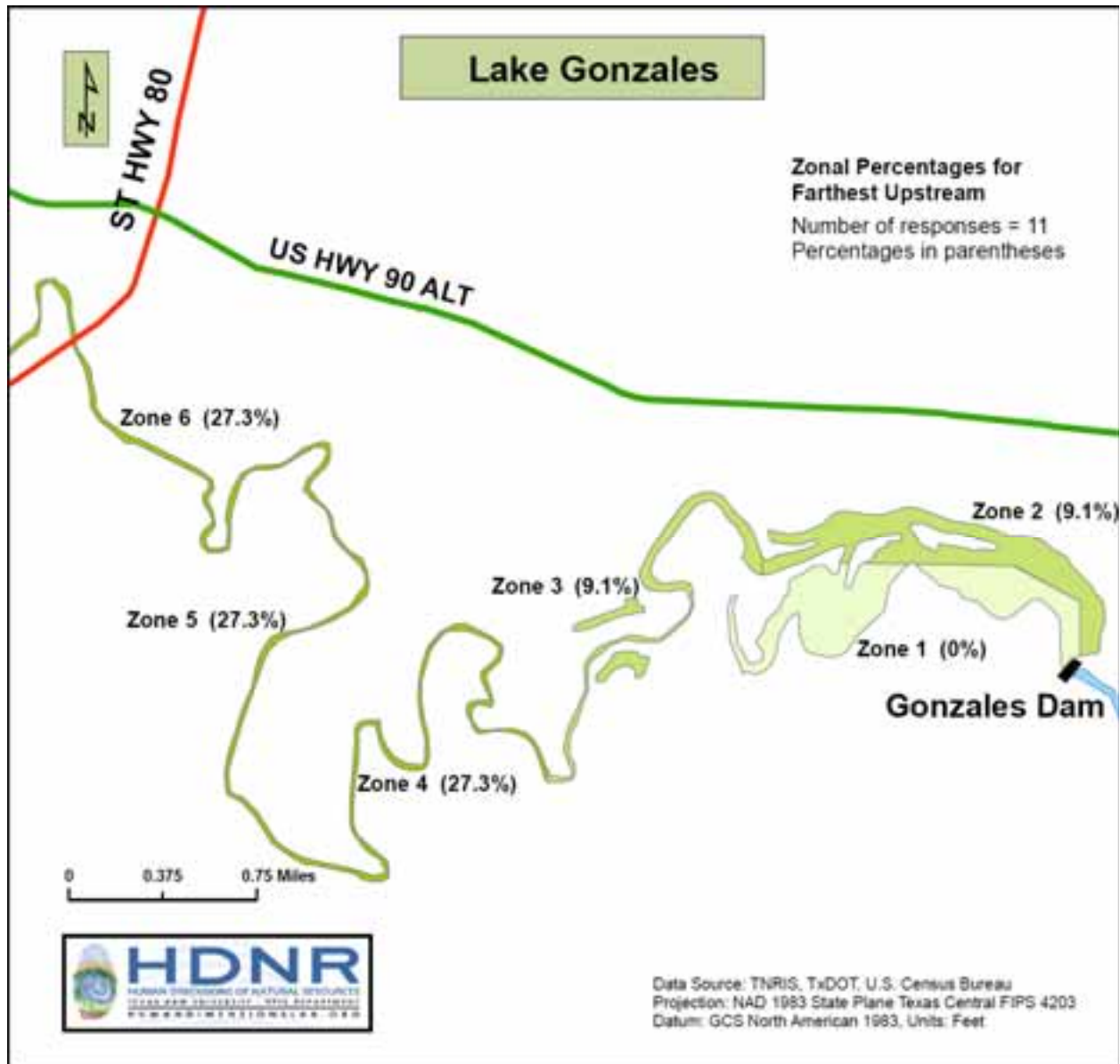
Figure 37. Farthest Traveled Downstream
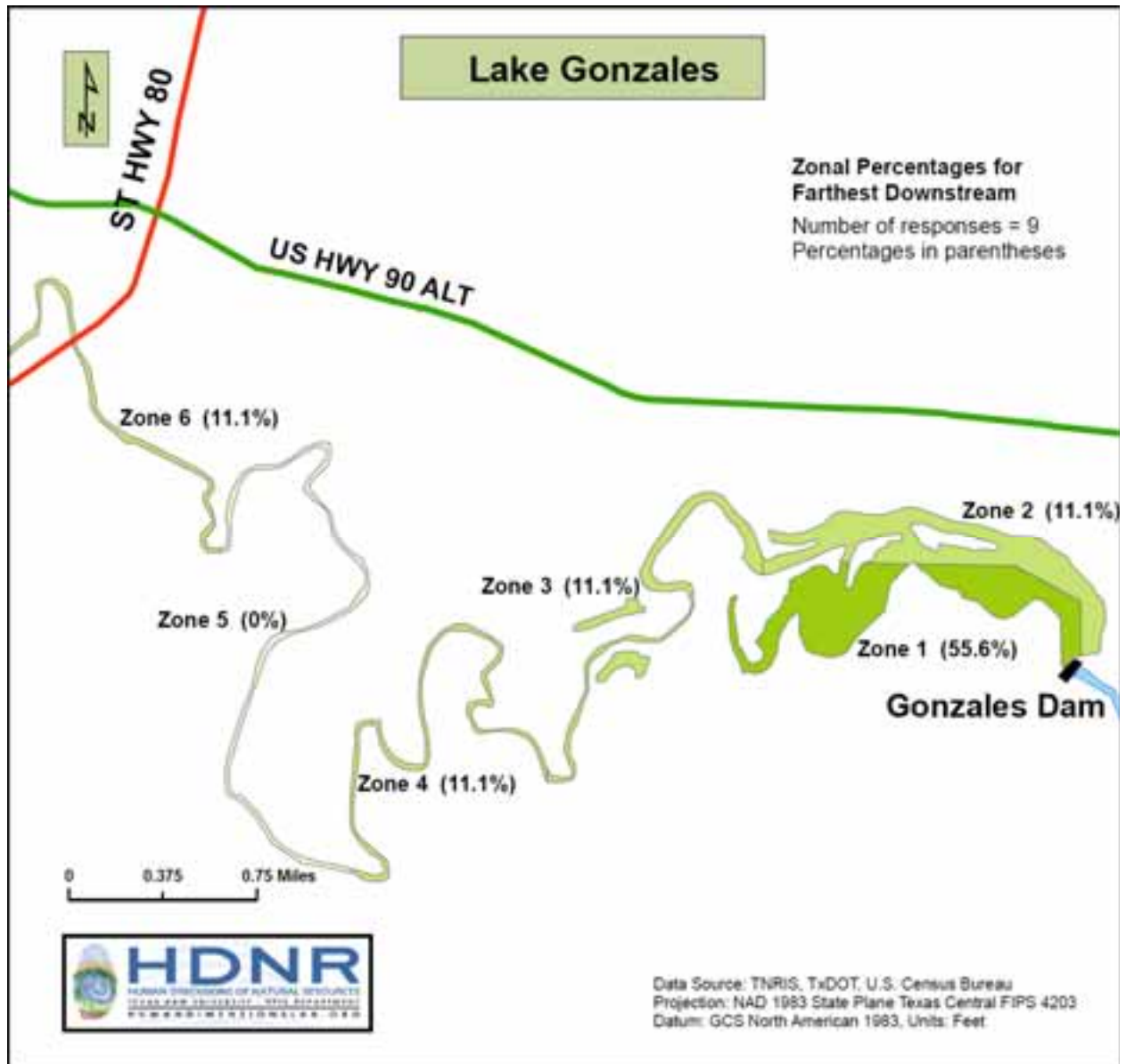
Figure 38. Area Spent Most Time
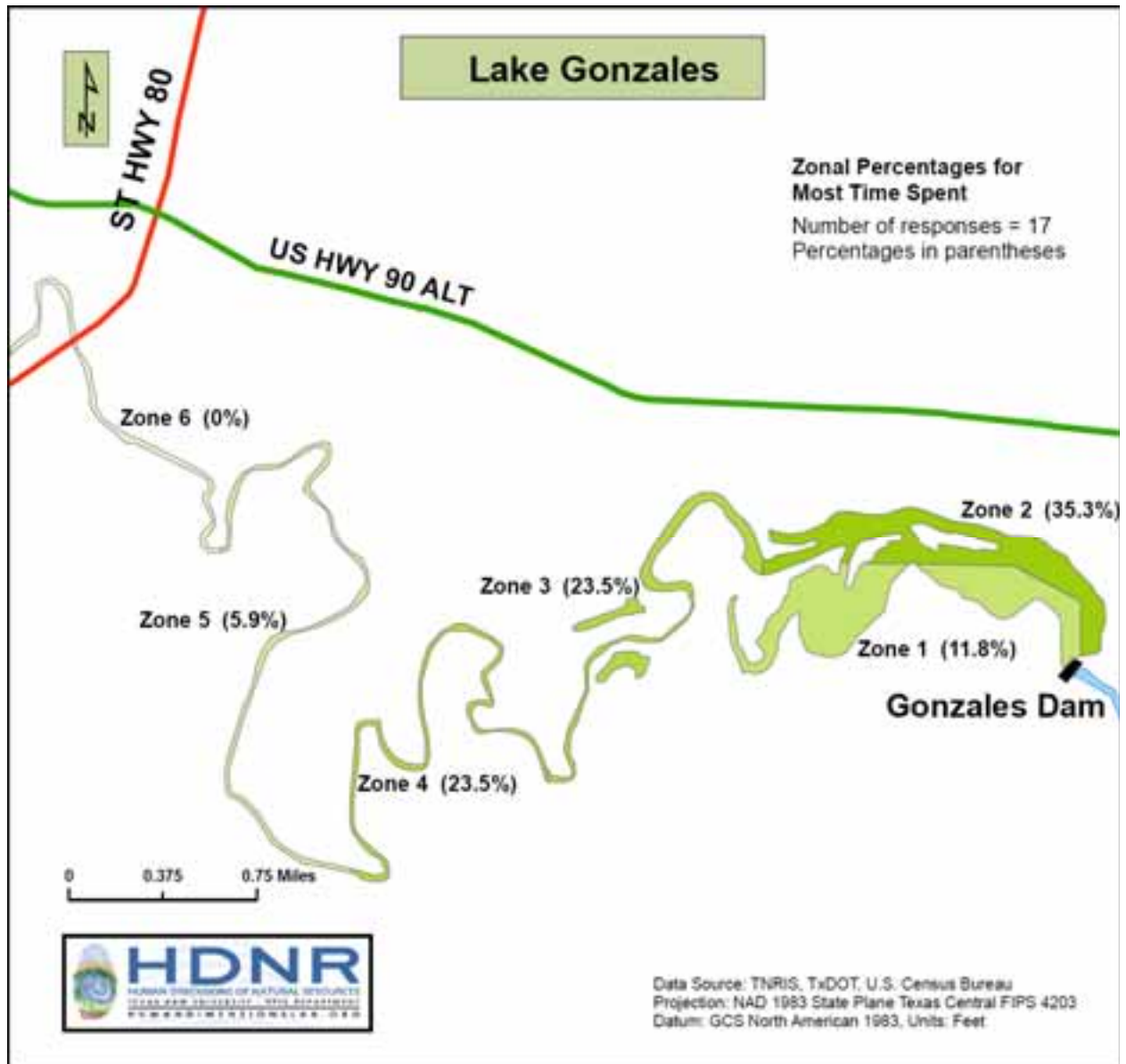
Figure 39. Areas Avoided
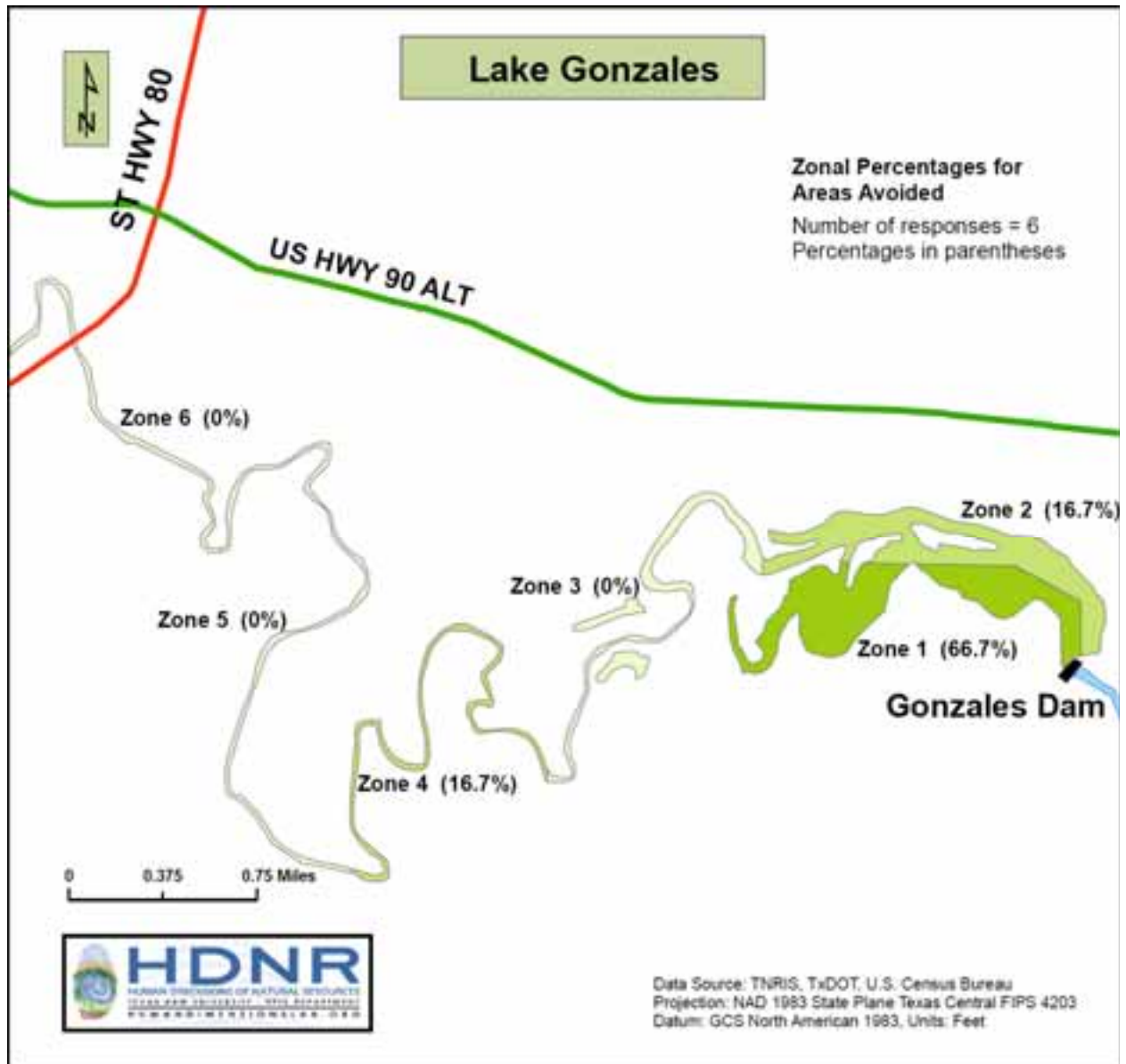
Table 107. Reasons for Avoiding Areas on Lake Gonzales

Three Most Cited Reasons	*N*
a. Obstacles (STUMPS; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	2
b. Shallow	2
c. PWCs (e.g., Jet Skis, wave runners)	1

Figure 40. Areas Boaters' Felt Unsafe
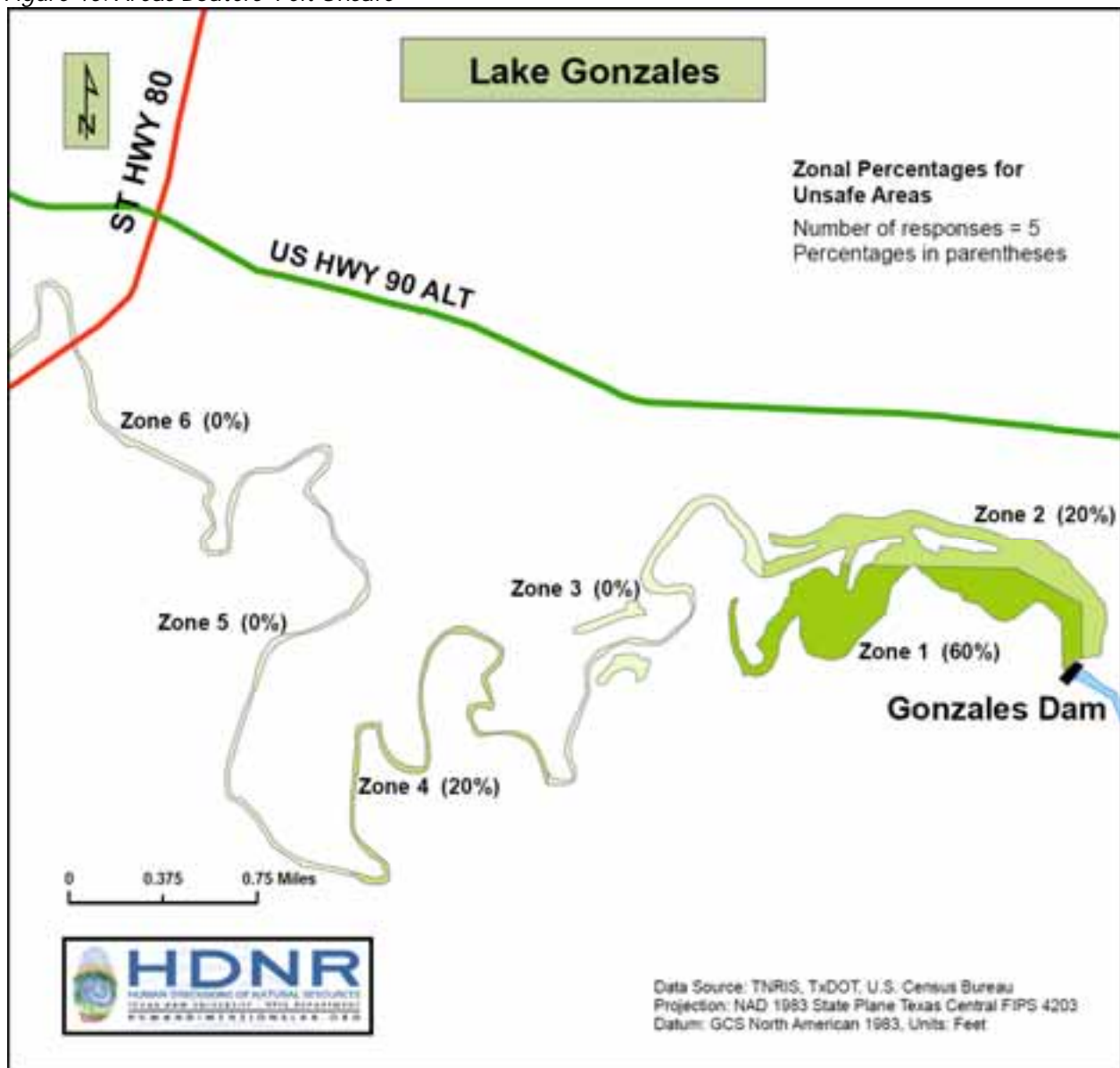
Table 108. Reasons Boaters' Felt Unsafe on Lake Gonzales

Most Cited Reason	*N*
1. Obstacles	3

Perceptions of Lake Conditions

Table 109. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake X for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	9.1	9.1	72.7	0	9.1	2.9	.9
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake X for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	15.4	15.4	30.8	0	0	2.3	.8
How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake X for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment	*M*[1]	*SD*
	16.7	8.3	66.7	8.3	0	2.7	.9
In light of the **number of boats** you saw on Lake X this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe	*M*	*SD*
	8.3	0	25.0	33.3	33.3	3.8	1.2
In light of the **behavior of other boaters** on Lake X this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe	*M*	*SD*
	0	0	41.7	25.0	33.3	3.9	.9

Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake X for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9	*M*	*SD*
	20.0	10.0	20.0	20.0	30.0	0	0	0	0	3.3	1.6

[1] Based on responses 1 through 4

Table 110. Perceptions of Social Conditions

Below are some statements about boating experience on your Lake X. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	0	20.0	10.0	50.0	20.0	3.7	1.1
b. I avoided my favorite parts of the lake because there were too many boats there	20.0	60.0	20.0	0	0	2.0	0.7
c. I thought the lake and its surroundings were in good condition…	30.0	20.0	10.0	40.0	0	2.6	1.3
d. Other boats came closer to my boat than I like	30.0	40.0	20.0	0	10.0	2.2	1.2
e. My boat trips were well worth the money I spent to take them	0	20.0	10.0	50.0	20.0	3.7	1.1
f. There was adequate law enforcement patrols on the lake	0	10.0	20.0	50.0	20.0	3.8	0.9
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	36.4	36.4	9.1	18.2	0	2.1	1.1
h. Boating in high use areas involved too much risk	36.4	45.5	9.1	9.1	0	1.9	0.9
i. The weather was not favorable	36.4	18.2	27.3	9.1	0	2.4	1.4
j. Engine noise from other boaters was too loud	27.3	36.4	18.2	18.2	0	2.3	1.1
k. Other boaters created massive wakes	27.3	27.3	27.3	9.1	9.1	2.5	1.3
l. I was bothered by poor water quality (e.g., contaminants, color)	9.1	18.2	36.4	27.3	9.1	3.1	1.1
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	18.2	45.5	27.3	9.1	0	2.3	0.9
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	9.1	18.2	0	9.1	63.6	4.0	1.5
o. Other boaters played overly loud amplified music	27.3	36.4	27.3	0	9.1	2.3	1.2
p. I nearly had an accident on the lake because of crowded conditions	54.5	18.2	27.3	0		1.7	0.9
q. I was bothered by personal watercraft cutting too close to my boat	45.5	18.2	27.3	0	9.1	2.1	1.3
r. The presence of personal watercraft interfered with the quality of my boating experience	36.4	18.2	18.2	18.2	9.1	2.5	1.4

Table 111. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake X	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake X	54.5	9.1	27.3	0	9.1	2.0	1.3
b. Decided that if I boated on Lake X in the future, I would boat at earlier and/or later times of the day	36.4	9.1	18.2	27.3	9.1	2.6	1.5
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	18.2	18.2	27.3	18.2	18.2	3.0	1.4
d. Talked to someone who could do something concrete about the problem	36.4	0	54.5	9.1	0	2.4	1.1
e. Decided that if I boated on Lake X in the future, I would boat on the weekdays rather than weekends	27.3	18.2	36.4	9.1	9.1	2.5	1.3
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	18.2	9.1	36.4	18.2	18.2	3.1	1.4
g. Told myself it was unreasonable to expect that things should have been different at this location	9.1	9.1	54.5	9.1	18.2	3.2	1.2
h. Planned not to return to Lake X	72.7	9.1	0	0	0	1.5	0.8
i. Boated on nearby lakes	45.5	0	45.5	9.1	0	2.2	1.2
j. Tried to view this condition or situation in a positive way	18.2	0	27.3	27.3	27.3	3.5	1.4
k. Decided that the problem was a one-time occurrence	27.3	9.1	27.3	27.3	9.1	2.8	1.4
l. Boated less often	63.6	9.1	9.1	0	18.2	2.0	1.6

Table 112. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake X? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment	M[1]	SD
	1	2	3	4	5		
a. Litter on shoreline	25.0	12.5	37.5	25.0	0	2.6	1.2
b. Insufficient navigational aids on the lake	25.0	12.5	37.5	25.0	0	2.6	1.2
c. Improper disposal of human waste	37.5	25.0	12.5	12.5	12.5	2.0	1.2
d. Loud music played from watercraft	75.0	12.5	12.5	0	0	1.4	0.7
e. Engine noise	87.5	0	12.5	0	0	1.2	0.7
f. Conflicts with docks over shoreline space	87.5	0	12.5	0	0	1.2	0.7
g. Debris at launch ramps	25.0	37.5	12.5	25.0	0	2.4	1.2
h. Inadequate public toilet facilities on the lake		12.5	12.5	62.5	12.5	3.6	0.8
i. Erosion of shoreline	25.0	37.5	37.5	0	0	2.1	0.8
j. Large wakes from wakeboarding boats	37.5	62.5	0	0	0	1.6	0.5
k. Inflatables/water toys trailing watercraft	62.5	37.5	0	0	0	1.4	0.5
l. Not enough public boat ramps	50.0	25.0	12.5	12.5	0	1.9	1.1
m. The speed of other boaters	62.5	25.0	0	12.5	0	1.6	1.1
n. Fish habitat	50.0	25.0	25.0	0	0	1.8	0.9
o. Habitat for birds	62.5	12.5	12.5	0	12.5	1.4	0.8
p. Wildlife habitat	62.5	12.5	0	12.5	12.5	1.6	1.1
q. The use of inflatables/water toys along the shore	75.0	0	12.5	0	12.5	1.3	0.8
r. Aquatic vegetation	12.5	0	25.0	62.5	0	3.4	1.1

[1] Based on responses 1 through 4

Changes Over the Past Five Years

Table 113. Positive Change on Lake Gonzales Over the Past FIVE years

Have you noticed any positive changes at Lake Gonzales in the last five years? (yes, %, *n*)	0

Table 114. Negative Change on Lake Gonzales Over the Past FIVE years

Have you noticed any negative changes at Lake Gonzales in the last five years? (yes, %, *n*)		*n*
	20.0 (2)	
If "Yes", can you describe those changes?	1. Worse in water quality	1

Lake Management Preferences

Table 115. Managerial Issue

Given the conditions you observed on Lake X for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	M	SD
	1	2	3	4	5	*M*	*SD*
a. Provide more improved public access to the lake	18.2	0	45.5	9.1	18.2	4.2	3.8
b. Zone the waters to provide specific uses at specific places	18.2	27.3	18.2	9.1	27.3	3.0	1.5
c. Provide more aggressive enforcement of safety rules and regulations	9.1	9.1	36.4	9.1	36.4	3.5	1.4
d. Expand the number of marina slips	9.1	27.3	45.5	0	18.2	2.9	1.2
e. Cite boaters who's music can be heard within 100 feet	9.1	27.3	36.4	9.1	18.2	3.0	1.3
f. Restrict personal watercraft use to designated areas only	27.3	9.1	27.3	0	36.4	3.1	1.7
g. Establish "off limits" zones to protect sensitive resources	27.3	0	27.3	18.2	27.3	3.2	1.6
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	9.1	0	36.4	9.1	45.5	3.8	1.3
i. Training for the operation of personal watercraft	9.1	0	27.3	27.3	36.4	3.8	1.3
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	18.2	0	9.1	27.3	45.5	3.8	1.5
k. Training for all watercraft operators	9.1	27.3	9.1	18.2	36.4	3.5	1.5
l. Online training for all watercraft operators	18.2	9.1	36.4	18.2	18.2	3.1	1.4
m. Banning personal watercraft on public holidays	36.4	9.1	27.3	9.1	18.2	2.6	1.6
n. Restrict activities by day or week during peak use periods (e.g., holidays)	36.4	0	54.5	0	9.1	2.5	1.3
o. Install more public boat ramps	30.0	10.0	40.0	10.0	10.0	2.6	1.3
p. Widen existing public boat ramps to accommodate more lanes	20.0	10.0	50.0	0	20.0	2.9	1.4
q. Dredge the lake to improve depth	0	0	9.1	18.2	72.7	4.6	0.7

Figure 41. Activity restriction to Certain Areas
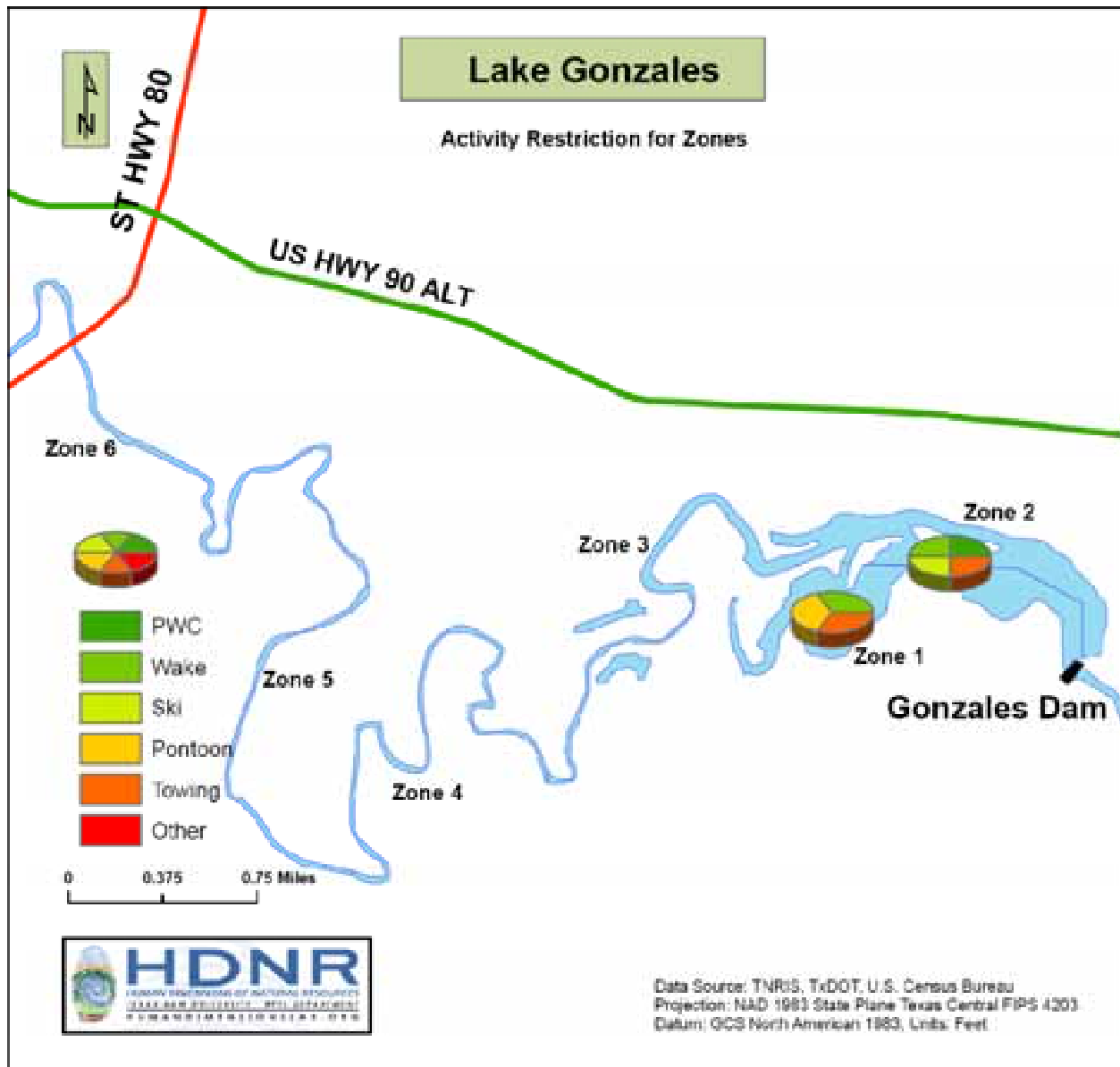
Table 116. Management Preferences

	1st	2nd	M	SD
a. Have you ever taken a boater education/safety class before? (yes, %, *n*)	22.2 (2)			
b. Do you feel that tougher restrictions are required on Lake Wood (H5) to limit the size of wakes generated by some watercraft?	22.2 (2)			
c. If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	Percent rating 1st or 2nd priority			
Ban the use of "fat sacks" on the lake.	100.0 (1)	0	1.0	0
Create larger no-wake zones.	50.0 (1)	0	3.0	2.8
Ban the use of personal watercraft on the lake.	100.0 (1)	0	1.0	0
Ban wakeboarding boats on Lake X.	100.0 (1)	0	1.0	0
d. Do you feel that GBRA should manage Lake X to support a variety of recreational boating activities? (yes, %, *n*)	25.0 (2)			
If "Yes", which of the following activities do you feel are suitable for Lake X?				
Waterskiing	50.0 (1)			
Wakeboarding	50.0 (1)			
PWC (e.g., Jet Ski)	50.0 (1)			
Towing Inflatables	50.0 (1)			

Perceptions of Regulation on Lake Gonzales

Table 117. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake Gonzales to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	9.1 (1)
What conflicts?	How should they be managed?
1. No response	1. Regulation on PWCs (1)

Table 118. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake Gonzales to **prevent damage to the environment by boaters**? (yes, %, *n*)	9.1 (1)
What kind of damage?	How should they be controlled?
1. No response	1. No response

Table 119. Controls to Prevent Damage to the Environment

Are there certain facilities or services that should be offered on Lake Gonzales that are currently not available? (yes, %, *n*)	30.0 (3)	
What kind of services or facilities?		*n*
1. Food service (e.g., restaurants, kiosks)		2
2. Great public access		1
3. Gas Station		1
4. More restrooms		1

Shoreline Property

Table 120. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake Wood (yes, %, *n*)	66.7 (4)
b.	How long have your owned the residence on Lake X (*M, SD*)	13.5, 7.7
c.	Is your home on Lake X your primary residence? (yes, %, *n*)	75.0 (3)
	If not, approximately how many days did you spend there during the past 12 months? (days *M, SD*)	10.0, 0
d.	Does your property on Lake X have a bulkhead, dock or slip? (yes, %, *n*)	75.0 (3)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake? (yes, %, *n*)	0
	What has been the total cost of repairs? ($, *M, SD*)	-
	Cause of damage Most Cited	

Lake Wood (H5)

Respondents' Personal Information

Table 121. Household Information

Characteristic	
Age (years, *M, SD*)	58.36, 17.0
Gender (%, *n*)	
Male	70.4 (19)
Female	29.6 (8)
Education (%, *n*)	
8th grade or less	3.7 (1)
9th to 11th grade	3.7 (1)
12th grade (high school graduate)	25.9 (7)
13-15 years (some college	14.8 (4)
16 years (college graduate)	18.5 (5)
17+ years (some graduate work)	7.4 (2)
Masters, Doctoral, or Professional Degree	25.9 (7)
Race/Ethnicity (%, *n*)	
Hispanic	3.8 (1)
White, not Hispanic	96.2 (25)
Black or African-American	0
Native American or Alaskan Native	0
Asian or Pacific Islander	0
Employment Status (%, *n*)	
Employed, full time	44.4 (12)
Homemaker	0
Employed, part time	0
Retired, but working full time	14.8 (4)
Retired, working part time	7.4 (2)
Retired, not working	29.6 (8)
Unemployed	3.7 (1)
Student	0
Other	0
Household Income (%, *n*)	
Less than $25,000	8.3 (2)
$25,000 - $49,999	29.2 (7)
$50,000 - $74,999	20.8 (5)
$75,000 - $99,999	12.5 (3)
$100,000 - $149,999	25.0 (6)
$150,000 - $199,999	4.2 (1)
$200,000 - $249,999	0
$250,000 – $299,999	0
$300,000 or more	0

Boating Experience

Table 122. Experience Characteristics

Are you an active boater on area lake? (%, *n*)	51.6 (16)	
How many years have you been boating? (years, *M, SD*)	31.6, 20.1	
How many days did you spend boating over the last 12 months? (days, *M, SD*)	23.1, 45.6	
What type(s) of watercraft do you use on area lakes? Indicate the number of each boat you use.	% (*n*)	*M, SD*
Speed boat, ski boat	25.8 (8)	.33, .48
Fishing or bass boat	38.7 (12)	.71, .75
Pontoon boat	6.5 (2)	.10, .30
Inflatable pulled behind another watercraft	3.2 (1)	.05, .22
Wakeboard boat	3.2 (1)	.05, .22
High performance boat	3.2 (1)	.05, .22
Personal Watercraft (PWC; e.g., Jet Ski)	6.5 (2)	.27, .63
Other (Please specify	3.2 (1)	.05, .22
Which of these watercraft do you use **most often**? (%, *n*)		
Speed boat, ski boat	23.5 (4)	
Fishing or bass boat	58.8 (10)	
Pontoon boat	5.9 (1)	
Inflatable pulled behind another watercraft	0	
Wakeboard boat	5.9 (1)	
High performance boat	0	
Personal Watercraft (PWC; e.g., Jet Ski)	0	
Other (Please specify	5.9 (1)	
What activity do you **most often** use your boat for? (*%, n*)		
Skiing	16.7 (3)	
Cruising	38.9 (7)	
Wakeboarding	0	
Towing inflatables/water toys	0	
Fishing	22.2 (4)	
Racing up and down the lake	22.2 (4)	
Other	0	
How many people are usually in your boating group? (*M, SD*)	4.9, 3.1	
Which of the following best describes your boating group?		
By yourself	8.7 (2)	
Family	39.1 (9)	
Multiple families	4.3 (1)	
Family and friends	34.8 (8)	
Friends	8.7 (2)	
Organized outing group	4.3 (1)	
Business associates	0	
Other	0	

Table 123. Characteristics Most Liked about Lake Wood

What did	Five Most Cited Characteristics	*n*
you like ***best*** about your visits to Lake Wood?	1. Affective (Escape, tranquility, peaceful, get away, solitude, relaxed, fun)	6
	2. Nature/outdoors (being outdoors, enjoy aesthetics of nature/landscape)	5
	3. Social bonding (with friends, family, meeting people)	4
	4. Activities (swimming, fishing, boating, wakeboarding, pontoon boat cruising, skiing, cruising, entertainment; picnic, bird watching, etc.)	3
	5. Water/Lake (beautiful, calm, clean, being by the water/lake, constant water level, easy paddling	2

Table 124. Characteristics Least Liked about Lake Wood

What did	Five Most Cited Characteristics	*n*
you like ***least*** about your visits to Lake Wood?	1. Water quality (vegetation – e.g., algae growth, hydroplant, lily pads; obstacles – e.g., debris, floating trash; scummy surface; dirty water; gravel beds across/under the water; sewer comes into it; silted areas; NBU dumping sewer water in lake)	6
	2. Problem with access (Difficulty using public ramp or lack of public access; no boat ramp close to the lake and the residents there think the lake is a private lake for them only)	5
	3. Boat traffic, Crowded, holiday crowds	3
	4. Water condition (*Choppy, Rough*; warm, cold, dangerous, stagnant, smell, water; upstream lake; low water level; too small or narrow)	3
	5. Cost to access lake (the launching fees)	2

Table 125. Constraints to Boating

	Strongly Disagree	Disagree	Neutral	Agee	Strongly Agree		
Do you boat as often as you would like? (yes, %, *n*)	26.7 (8)						
Please indicate to what extent the following statements reflect factors that inhibit your ability to boat as often as you would like? (*circle one number for each statement that best reflects your opinion*)							
I don't boat as often as I would like because… (%)	1	2	3	4	5	*M*	*SD*
a. I'm no longer physically able	43.5	34.8	13.0	0	8.7	2.0	1.2
b. I can't afford to go boating	17.4	34.8	17.4	21.7	8.7	2.7	1.3
c. It's too hot in summer	47.8	30.4	8.7	13.0	0	1.9	1.1
d. It's too crowded	8.7	26.1	34.8	30.4	0	2.9	1.0
e. I have no way to access the Lake	26.1	30.4	21.7	21.7	0	2.4	1.1
f. The Lake is too narrow	13.0	26.1	26.1	34.8	0	2.8	1.1
g. The behavior of other boaters is unsafe	13.0	39.1	13.0	26.1	8.7	2.8	1.2
h. The Lake is too shallow	8.7	13.0	26.1	21.7	30.4	3.5	1.3
i. Poor water quality	13.6	27.3	13.6	40.9	4.5	3.0	1.2
j. Other boaters are inconsiderate	13.6	45.5	18.2	18.2	4.5	2.5	1.1
k. Public access is inconvenient	9.5	38.1	19.0	14.3	19.0	3.0	1.3
l. I no longer have enough time	13.6	31.8	22.7	13.6	18.2	2.9	1.3
m. Work commitments keep me away from boating on the Lake	9.1	36.4	27.3	22.7	4.5	2.8	1.1
n. My family no longer has an interest in boating	18.2	45.5	31.8	0	4.5	2.3	0.9
o. Shoreline owners/residents are inconsiderate	22.7	45.5	31.8	0	0	2.1	0.8
p. At times, the water surface is too rough	22.7	36.4	31.8	9.1	0	2.3	0.9
q. There's too much vegetation in the water	9.1	9.1	27.3	18.2	36.4	3.6	1.3

Use of Area Lakes

Table 126. Lake Usage

Do you have a preferred lake for boating? (yes, %, *n*)	79.2 (19)		
	Lakes most commonly used (%, *n*)	# of Days Boating in the Last 12 Months (*M, SD*)	Primary lake for boating (%, *n*)
Lake Dunlap	6.5 (2)	.2, .5	-
Lake McQueeney	9.7 (3)	.2, .5	-
Lake Placid	9.7 (3)	.2, .6	-
Meadow Lake (Nolte)	6.5 (2)	.1, .5	-
Lake Gonzales (H4)	16.1 (5)	1.3, 4.6	-
Lake Wood (H5)	64.5 (20)	7.6, 14.1	95.8 (23)
Canyon Lake	19.4 (6)	.5, 1.0	-
Other	9.7 (3)	1.2, 3.2	4.2 (1)
How far by road do you travel to this [lake – GBRA lake] (*M, SD, Median*)			9.5, 9.2

Table 127. Feelings about Area Lakes

Considering Lake X please indicate how you feel about the lake by responding to each of the statements below. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. Lake X is the best lake for the activities that I enjoy most	18.2	0	31.8	31.8	18.2	3.3	1.3
b. I have a strong emotional bond to the lake	9.1	4.5	27.3	36.4	22.7	3.6	1.2
c. I can't imagine a better lake for what I like to do	22.7	13.6	27.3	22.7	13.6	2.9	1.4
d. I feel the lake is a part of me	13.6	9.1	22.7	31.8	22.7	3.4	1.3
e. I feel a strong sense of belonging to the lake	9.1	4.5	36.4	27.3	22.7	3.5	1.2
f. The lake is one of the few places where I can be myself	4.5	4.5	36.4	31.8	22.7	3.6	1.0
g. I really enjoy the lake	4.5	0	22.7	40.9	31.8	4.0	1.0
h. The lake means a lot to me	4.5	4.5	22.7	40.9	27.3	3.8	1.1
i. The time spent boating on the lake allows me to bond with my family and friends	4.5	0	18.2	40.9	36.4	4.0	1.0
j. I associate special people in my life with the lake	4.5	0	27.3	40.9	27.3	3.9	1.0

Figure 42. Normal Staring Location

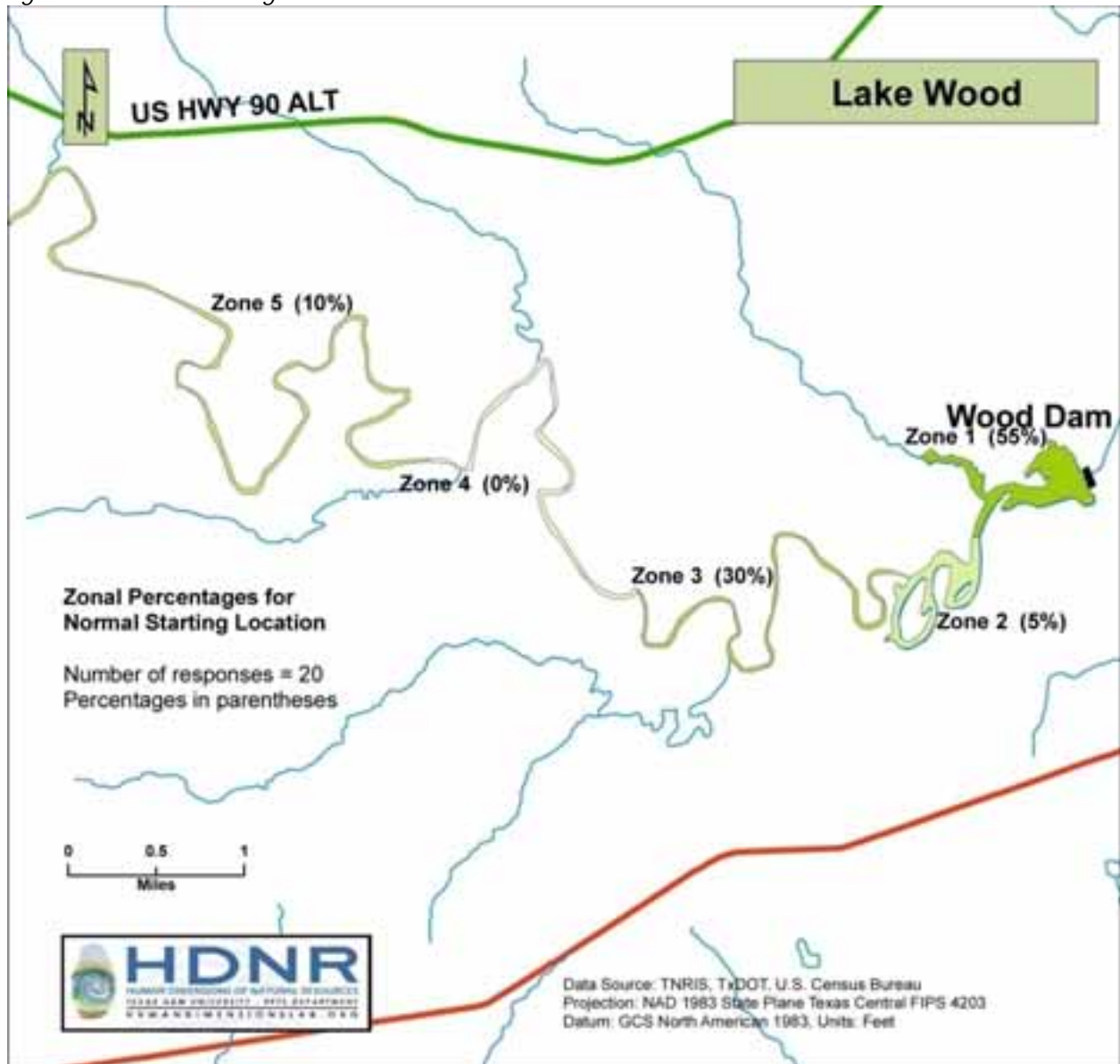*Figure 43. Farthest Traveled Upstream*
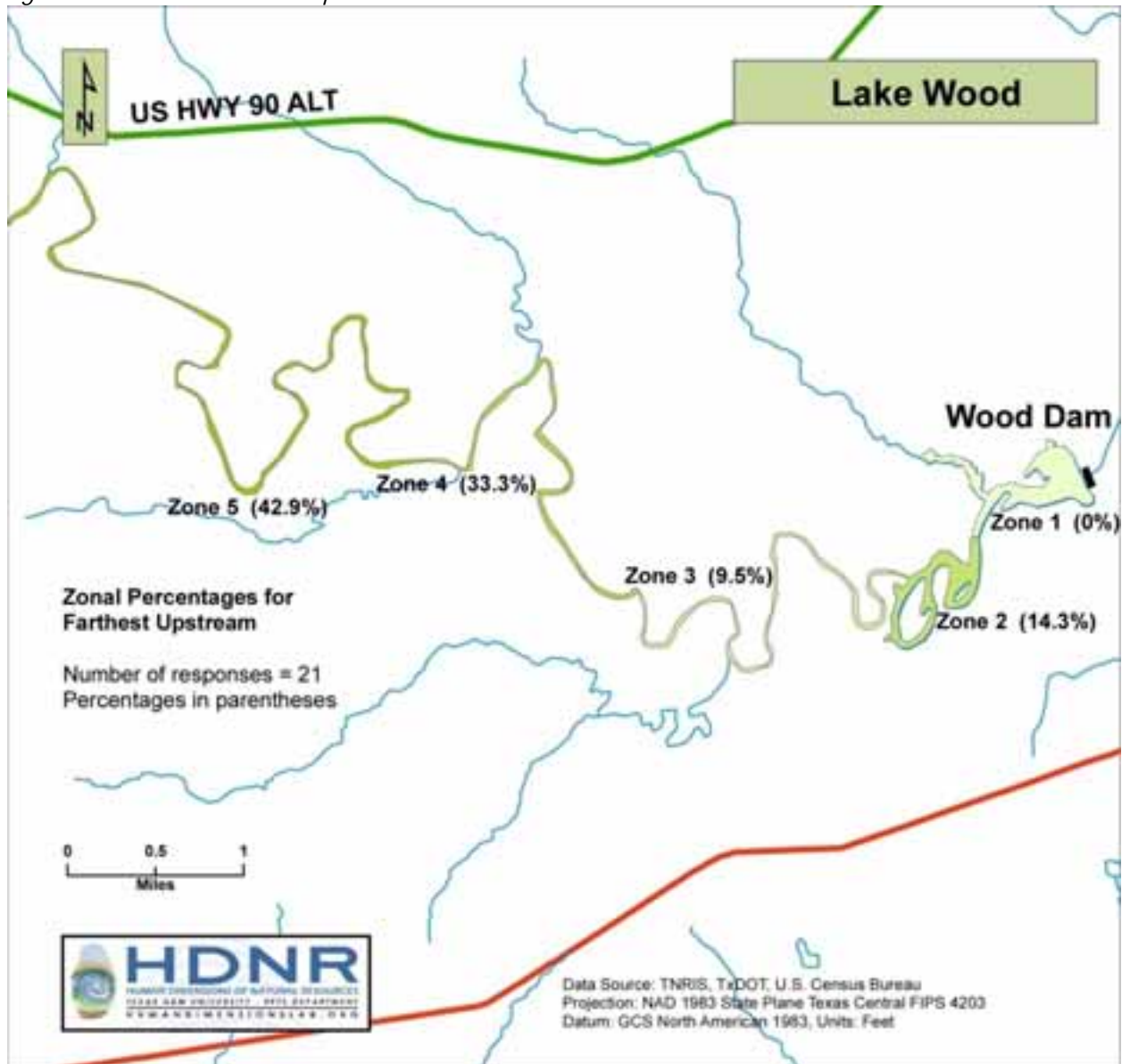
Figure 44. Farthest Traveled Downstream
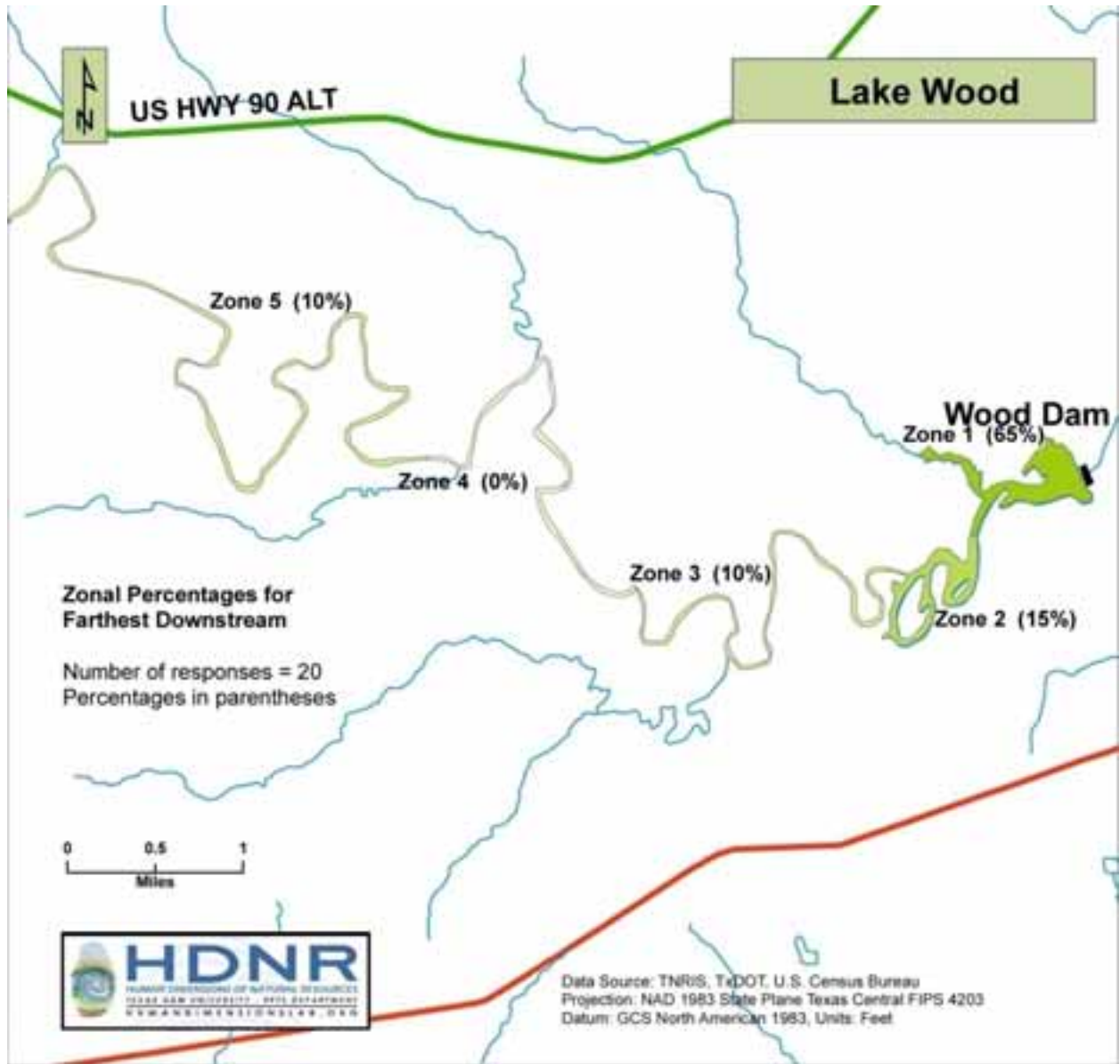
Figure 45. Area Spent Most Time
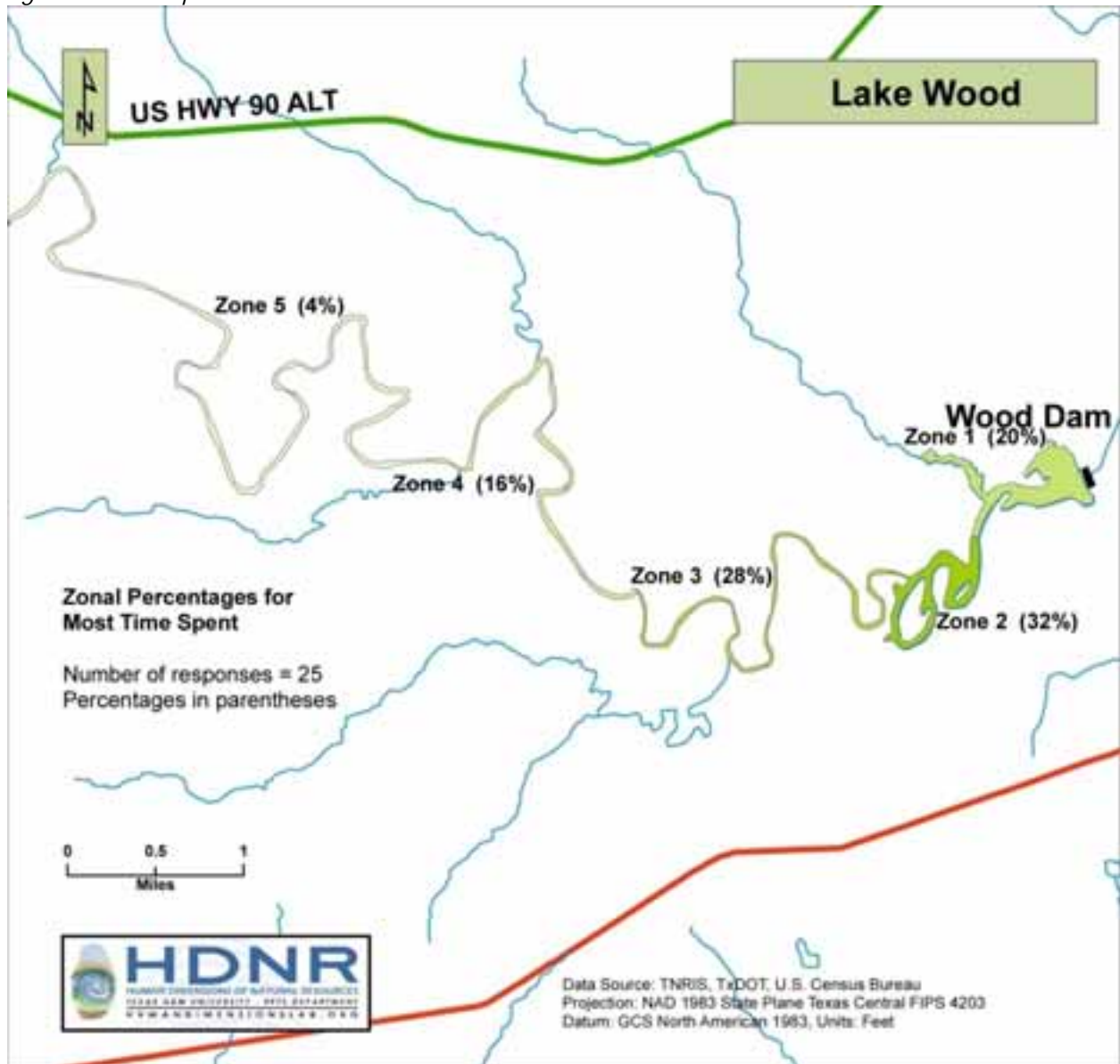
Figure 46. Areas Avoided
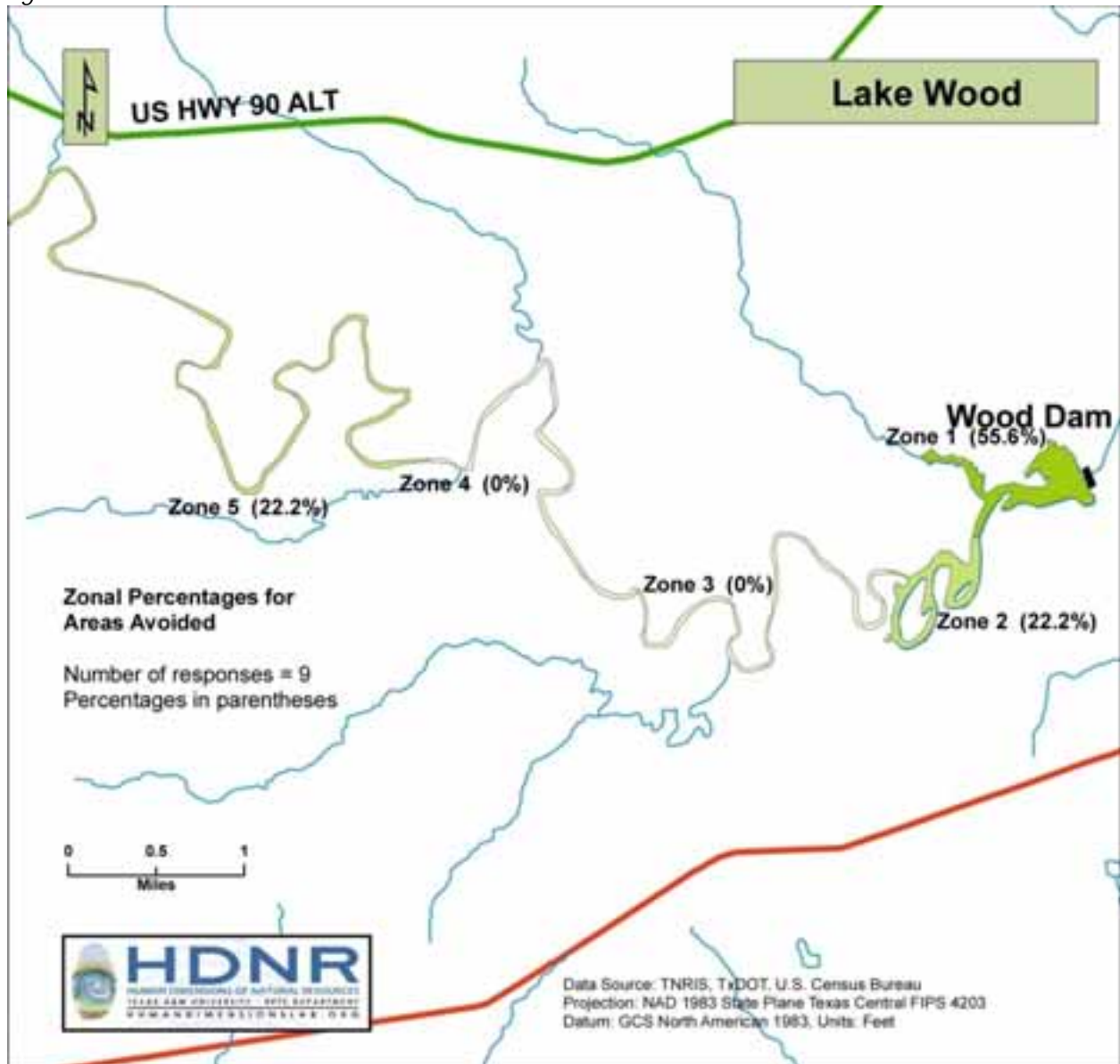
Table 128. Reasons for Avoiding Areas on Lake Wood

Four Most Cited Reasons	N
1. Obstacles (STUMPS; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	3
2. Shallow	3
3. Boat traffic	1
4. Unsafe	1

Figure 47. Areas Boaters' Felt Unsafe
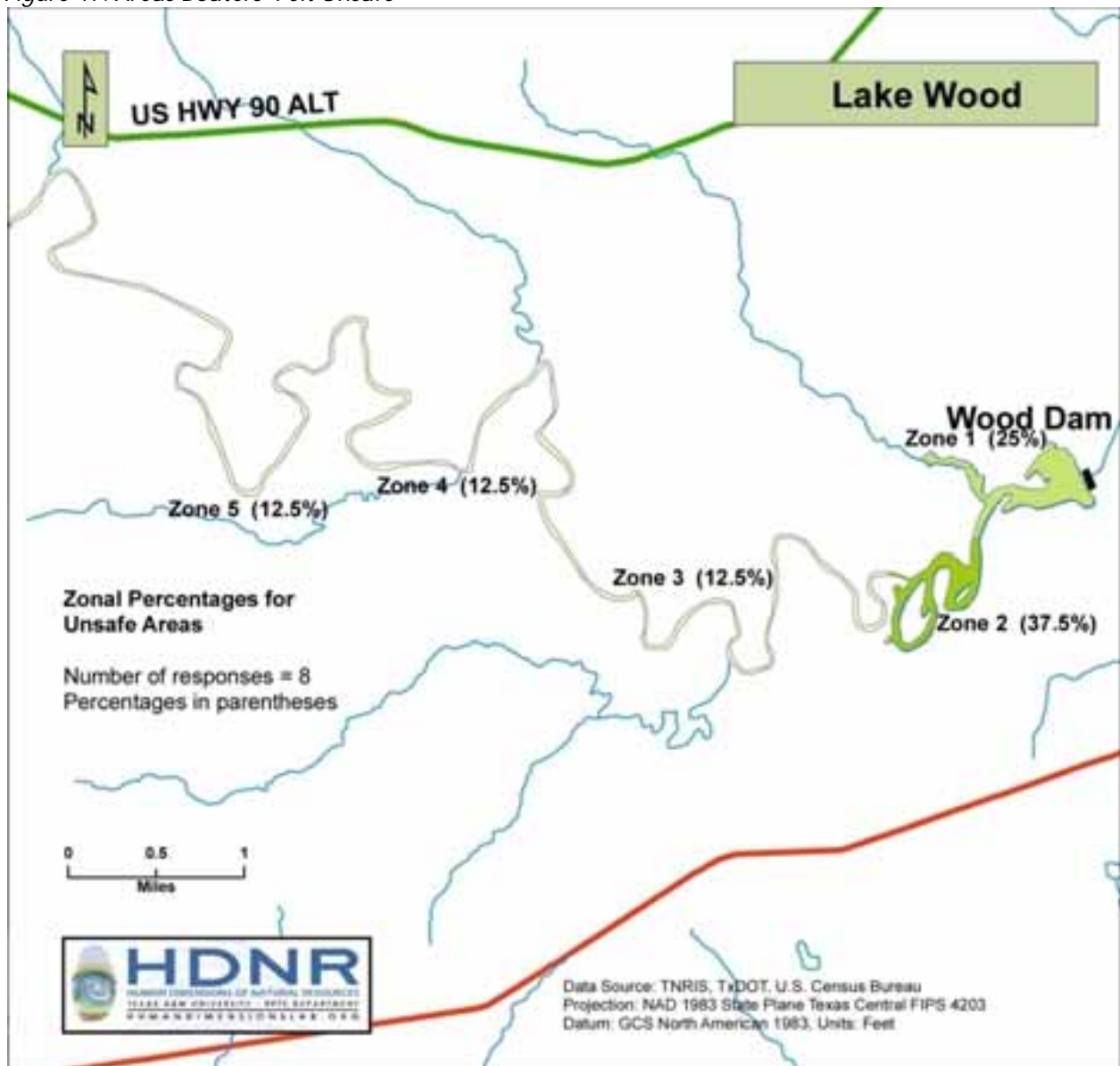
Table 129. Reasons Boaters' Felt Unsafe on Lake Travis

Five Most Cited Reasons	*N*
1. Shallow	3
2. Obstacles (STUMPS; especially unmarked ones; vegetation; rocks; sandbars; gravel bar under water)	1
3. Boat traffic	1
4. Behavior of other boaters	1
5. PWCs (e.g., jet skiers, wave runners)	1

Perceptions of Lake Conditions

Table 130. Perceptions of Setting Density

	1	2	3	4	5		
How do you feel about the **number of people you encountered** on your visits to Lake X for the 2009 season? (%)	Would like to have seen a lot more people	Would like to have seen a few more people	Neither too many nor too few people	Would like to have seen a few less people	Would like to have seen a lot less people	*M*	*SD*
	9.5	19.0	47.6	9.5	14.3	3.0	1.14
How did the **number of people you saw on the lake compare** with what you expected to see on your visits to Lake X for the 2009 season? (%)	A lot less than I expected	A little less than I expected	About what I expected	A little more than I expected	A lot more than I expected	*M*	*SD*
	5.6	16.7	66.7	0	11.1	2.9	.9
How did the **number of people you saw affect your overall enjoyment** of your visits to y Lake X for the 2009 season? (%)	Added a lot to my enjoyment	Added a little to my enjoyment	No effect on my enjoyment	Detracted a little from my enjoyment	Detracted a lot from my enjoyment	*M*[1]	*SD*
	0	10.0	60.0	20.0	10.0	3.3	.8
In light of the **number of boats** you saw on Lake X this season, please rate how safe you felt while boating (%)	Not at all safe		Moderately safe		Extremely safe	*M*	*SD*
	15.0	5.0	35.0	20.0	25.0	3.4	1.3
In light of the **behavior of other boaters** on Lake X this season, please rate how safe you felt while boating	Not at all safe		Moderately safe		Extremely safe	*M*	*SD*
	10.0	5.0	50.0	15.0	20.0	3.3	1.2

Using the following scale, how would you describe the boating conditions out on the lake during your visits to your Lake X for the 2009 season? (%)	Not at all crowded		Slightly crowded			Moderately crowded		Extremely crowded			
	1	2	3	4	5	6	7	8	9	*M*	*SD*
	20.0	0	15.0	20.0	30.0	5.0	0	0	0	4.1	2.1

[1] Based on responses 1 through 4

Table 131. Perceptions of Social Conditions

Below are some statements about boating experience on your Lake X. For each statement, please circle the response that best describes your feelings about your visits this year. (%)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	M	SD
	1	2	3	4	5	*M*	*SD*
a. I thoroughly enjoyed my boat trips for the 2009 season	5.3	0	26.3	57.9	10.5	3.7	0.9
b. I avoided my favorite parts of the lake because there were too many boats there	20.0	45.0	15.0	15.0	5.0	2.4	1.1
c. I thought the lake and its surroundings were in good condition...	15.8	26.3	21.1	31.6	5.3	2.8	1.2
d. Other boats came closer to my boat than I like	15.8	42.1	31.6	10.5	0	2.4	0.9
e. My boat trips were well worth the money I spent to take them	5.3	0	36.8	47.4	10.5	3.6	0.9
f. There was adequate law enforcement patrols on the lake	5.6	5.6	16.7	33.3	38.9	3.9	1.2
g. If I had known what the conditions were going to be like for the 2009 season, I would not have come to the lake	31.6	36.8	26.3	5.3	0	2.1	0.9
h. Boating in high use areas involved too much risk	15.0	25.0	30.0	25.0	0	2.8	1.2
i. The weather was not favorable	26.3	47.4	15.8	10.5	0	2.1	0.9
j. Engine noise from other boaters was too loud	35.0	30.0	20.0	15.0	0	2.2	1.1
k. Other boaters created massive wakes	20.0	20.0	35.0	15.0	10.0	2.8	1.3
l. I was bothered by poor water quality (e.g., contaminants, color)	15.0	25.0	25.0	25.0	10.0	2.9	1.3
m. I witnessed reckless boating operations by other boaters (i.e., unsafe speeds, dangerous behaviors, etc.)	10.0	40.0	35.0	10.0	5.0	2.6	1.0
n. I encountered nuisance aquatic vegetation (e.g., extensive hydrilla and hyacinth growth)	5.3	5.3	10.5	26.3	52.6	4.2	1.2
o. Other boaters played overly loud amplified music	10.5	57.9	21.1	5.3	5.3	2.4	1.0
p. I nearly had an accident on the lake because of crowded conditions	26.3	57.9	15.8	0	0	1.9	0.7
q. I was bothered by personal watercraft cutting too close to my boat	15.8	52.6	21.1	10.5	0	2.3	0.9
r. The presence of personal watercraft interfered with the quality of my boating experience	15.8	52.6	26.3	5.3	0	2.2	0.8

Table 132. Responses to Adverse Social Conditions

The following are some strategies people have used to avoid obstacles they may face in starting, continuing, or increasing their involvement in recreational boating. Please read each statement below and circle the number indicating the extent to which **each statement describes your response to start, continue, or increase your participation** in recreational boating on Lake X	Clearly does not describe my feelings	Somewhat does not describe my feelings	My feelings are neutral on this	Somewhat describes my feelings	Clearly describes my feelings		
In response to the obstacles I experienced, I: (%)	1	2	3	4	5	*M*	*SD*
a. Decided I would boat at another area of Lake X	45.5	13.6	27.3	4.5	9.1	2.2	1.3
b. Decided that if I boated on Lake X in the future, I would boat at earlier and/or later times of the day	36.4	9.1	31.8	13.6	9.1	2.5	1.4
c. Told myself that there was nothing I could do about it, so I just enjoyed the experience for what it was	18.2	9.1	36.4	22.7	13.6	3.0	1.3
d. Talked to someone who could do something concrete about the problem	18.2	18.2	40.9	13.6	9.1	2.8	1.2
e. Decided that if I boated on Lake X in the future, I would boat on the weekdays rather than weekends	31.8	4.5	31.8	27.3	4.5	2.7	1.3
f. Avoided certain locations (i.e., coves, bays, dams, or marinas)	27.3	22.7	22.7	9.1	18.2	2.7	1.5
g. Told myself it was unreasonable to expect that things should have been different at this location	22.7	27.3	40.9	9.1	0	2.4	1.0
h. Planned not to return to Lake X	54.5	18.2	27.3	0	0	1.7	0.9
i. Boated on nearby lakes	36.4	22.7	13.6	18.2	9.1	2.4	1.4
j. Tried to view this condition or situation in a positive way	19.0	9.5	38.1	19.0	14.3	3.0	1.3
k. Decided that the problem was a one-time occurrence	42.9	14.3	38.1	0	4.8	2.1	1.1
l. Boated less often	33.3	9.5	38.1	19.0	0	2.4	1.2

Table 133. Perceptions of Physical Conditions

Information about various impacts you may have noticed at the lake would be helpful to lake managers. To what extent did you find each of the following to be **a problem** on Lake X? (%)	Not a problem	Slight problem	Moderate problem	Big problem	Unable to comment	M[1]	SD
	1	2	3	4	5		
a. Litter on shoreline	10.0	40.0	35.0	5.0	10.0	2.4	0.8
b. Insufficient navigational aids on the lake	25.0	35.0	15.0	5.0	20.0	2.0	0.9
c. Improper disposal of human waste	30.0	25.0	20.0	5.0	20.0	2.0	1.0
d. Loud music played from watercraft	45.0	15.0	15.0	15.0	10.0	2.0	1.2
e. Engine noise	35.0	35.0	15.0	5.0	10.0	1.9	0.9
f. Conflicts with docks over shoreline space	40.0	30.0	5.0	5.0	20.0	1.7	0.9
g. Debris at launch ramps	15.0	20.0	35.0	10.0	20.0	2.5	1.0
h. Inadequate public toilet facilities on the lake	15.0	25.0	30.0	10.0	20.0	2.4	1.0
i. Erosion of shoreline	20.0	35.0	20.0	10.0	15.0	2.2	1.0
j. Large wakes from wakeboarding boats	25.0	25.0	15.0	25.0	10.0	2.4	1.2
k. Inflatables/water toys trailing watercraft	30.0	35.0	5.0	15.0	15.0	2.1	1.1
l. Not enough public boat ramps	25.0	15.0	25.0	25.0	10.0	2.6	1.2
m. The speed of other boaters	35.0	5.0	35.0	15.0	10.0	2.3	1.2
n. Fish habitat	50.0	10.0	20.0	0	20.0	1.6	0.9
o. Habitat for birds	60.0	20.0	5.0	0	15.0	1.4	0.6
p. Wildlife habitat	55.0	25.0	5.0	0	15.0	1.4	0.6
q. The use of inflatables/water toys along the shore	55.0	25.0	5.0	5.0	10.0	1.6	0.9
r. Aquatic vegetation	10.0	20.0	15.0	50.0	5.0	3.1	1.1

[1] Based on responses 1 through 4

Changes Over the Past Five Years

Table 134. Positive Change on Lake Wood Over the Past FIVE years

Have you noticed any positive changes at Lake Placid in the last five years? (yes, %, *n*)	20.0 (4)	*n*
If "Yes", can you describe those changes?	1. Better lake maintenance	4

Table 135. Negative Change on Lake Placid Over the Past FIVE years

Have you noticed any negative changes at Lake Placid in the last five years? (yes, %, *n*)	35.0 (7)	*n*
If "Yes", can you describe those changes?	1. Worse in water quality (trash, vegetation, debris, rocks	4
	2. Increase in the number and size of boats	2
	2. Worse in lake condition (erosion of waterfront/bulkhead/land, depth reduction, caused by flood, silt)	2
	4. Increase in the number and speed of PWC	1

Lake Management Preferences

Table 136. Managerial Issue

Given the conditions you observed on Lake X for the 2009 season, how do you feel about each of the following potential management actions?	Strongly Oppose	Oppose	Neutral	Support	Strongly Support	*M*	*SD*
	1	2	3	4	5		
a. Provide more improved public access to the lake	9.5	14.3	4.8	23.8	47.6	3.9	1.4
b. Zone the waters to provide specific uses at specific places	15.0	25.0	30.0	20.0	10.0	2.8	1.2
c. Provide more aggressive enforcement of safety rules and regulations	10.0	10.0	40.0	15.0	25.0	3.4	1.3
d. Expand the number of marina slips	5.0	20.0	20.0	30.0	25.0	3.5	1.2
e. Cite boaters who's music can be heard within 100 feet	15.0	30.0	25.0	15.0	15.0	2.8	1.3
f. Restrict personal watercraft use to designated areas only	15.0	30.0	15.0	25.0	15.0	3.0	1.4
g. Establish "off limits" zones to protect sensitive resources	15.0	20.0	20.0	20.0	25.0	3.2	1.4
h. Establish a minimum age of 15 years for the operation of personal watercraft (e.g., jetskis)	10.0	5.0	20.0	30.0	35.0	3.8	1.3
i. Training for the operation of personal watercraft	5.0	5.0	10.0	35.0	45.0	4.1	1.1
j. Establish a minimum age of 15 years for towing inflatables, skiers and wakeboarders	5.0	15.0	20.0	25.0	35.0	3.7	1.3
k. Training for all watercraft operators	15.0	25.0	30.0	20.0	10.0	2.8	1.2
l. Online training for all watercraft operators	10.0	25.0	35.0	20.0	10.0	3.0	1.1
m. Banning personal watercraft on public holidays	35.0	25.0	25.0	10.0	5.0	2.2	1.2
n. Restrict activities by day or week during peak use periods (e.g., holidays)	40.0	30.0	15.0	15.0	0	2.0	1.1
o. Install more public boat ramps	15.0	20.0	5.0	15.0	45.0	3.6	1.6
p. Widen existing public boat ramps to accommodate more lanes	5.0	20.0	20.0	20.0	35.0	3.6	1.3
q. Dredge the lake to improve depth	5.0	15.0	10.0	10.0	60.0	4.0	1.4

Figure 48. Activity restriction to Certain Areas
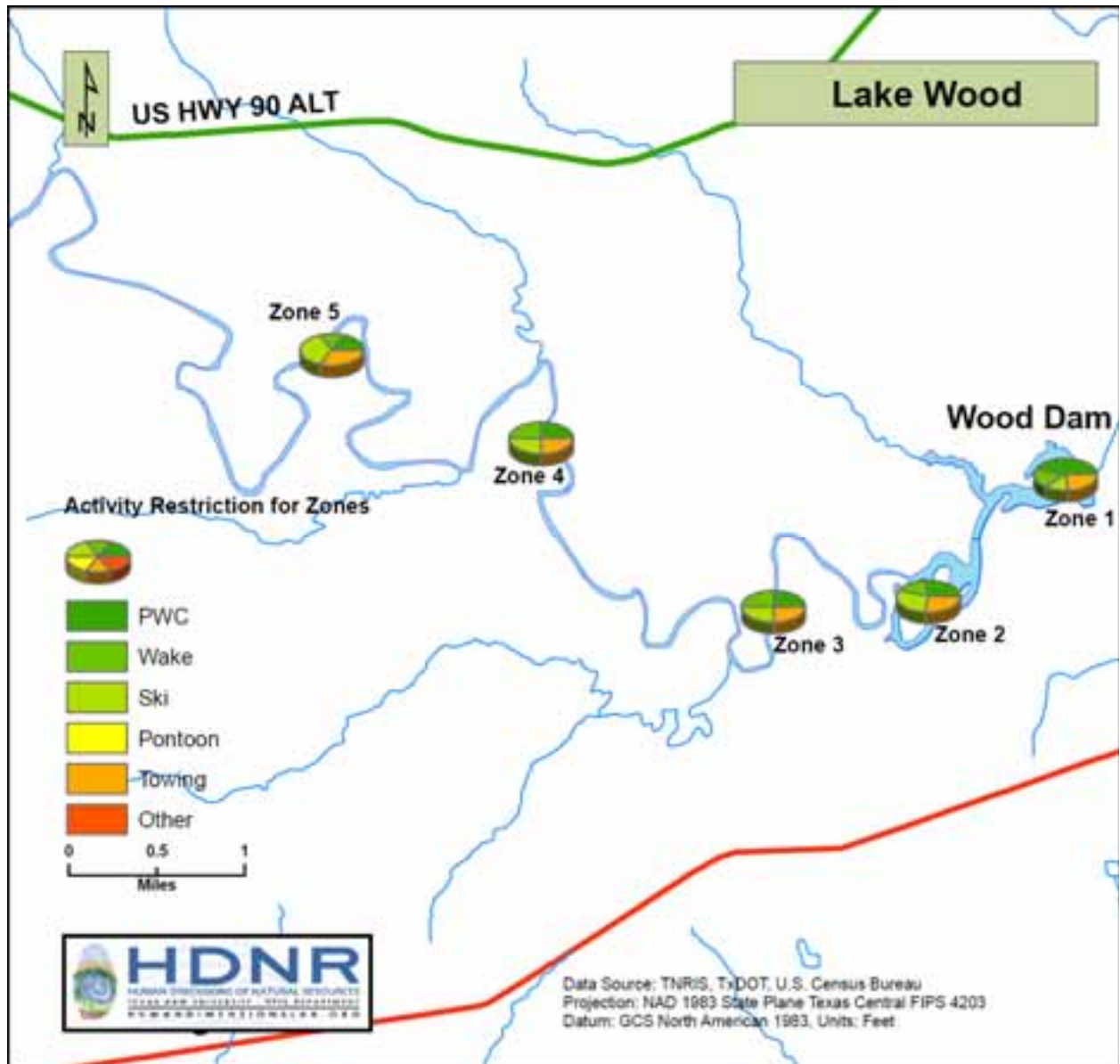
Table 137. Management Preferences

		1st	2nd	M	SD
a.	Have you ever taken a boater education/safety class before? (yes, %, *n*)	42.9 (9)			
b.	Do you feel that tougher restrictions are required on Lake Wood (H5) to limit the size of wakes generated by some watercraft?	35.0 (7)			
c.	If "Yes", for the possible regulations listed below, please rank-order your most preferred to least preferred. (yes, %, *n*)	Percent rating 1st or 2nd priority			
	Ban the use of "fat sacks" on the lake.	20.0 (1)	60.0 (3)	2.2	1.1
	Create larger no-wake zones.	33.3 (2)	33.3 (2)	2.0	0.9
	Ban the use of personal watercraft on the lake.	20.0 (1)	20.0 (1)	3.0	1.6
	Ban wakeboarding boats on Lake X.	33.3 (2)	16.7 (1)	2.5	1.4
d.	Do you feel that GBRA should manage Lake X to support a variety of recreational boating activities? (yes, %, *n*)	75.0 (15)			
	If "Yes", which of the following activities do you feel are suitable for Lake X?				
	Waterskiing	69.2 (9)			
	Wakeboarding	58.3 (7)			
	PWC (e.g., Jet Ski)	64.3 (9)			
	Towing Inflatables	58.3 (7)			

Perceptions of Regulation on Lake Wood

Table 138. Controls to Prevent Conflicts

Do you feel that more controls are needed on Lake Wood to **prevent conflicts from occurring between lake users**? (yes, %, *n*)	20.0 (4)
What conflicts?	How should they be managed?
1. PWCs (1)	1. More restriction/law enforcement (separate use areas) (1)
2. Towing (ski and toys) versus fishing (1)	2. Use of private ramps and private areas(parks) by the public (1)

Table 139. Controls to Prevent Damage to the Environment

Do you feel that more controls are needed on Lake Wood to **prevent damage to the environment by boaters**? (yes, %, *n*)	15.0 (3)
What kind of damage?	How should they be controlled?
1. Trash (1)	1. Write tickets. Refuse entrance for repeat offenders (1)

Table 140. Controls to Prevent Damage to the Environment

Are there certain facilities or services that should be offered on Lake Wood that are currently not available? (yes, %, *n*)	30.0 (6)	
What kind of services or facilities?		*n*
1. Better boat ramps, better/safer access to Kieger Sough area		2
2. Gas		1
2. Food service areas (convenient store; fast food service)		1
2. Bait shop		1

Shoreline Property

Table 141. Information about Respondents' Shoreline Properties

a.	Do you have a home on Lake Wood (yes, %, *n*)	19.0 (4)
b.	How long have your owned the residence on Lake X (*M*, *SD*)	29.2, 25.5
c.	Is your home on Lake X your primary residence? (yes, %, *n*)	50.0 (2)
	If not, approximately how many days did you spend there during the past 12 months? (days *M*, *SD*)	57.0, 46.7
d.	Does your property on Lake X have a bulkhead, dock or slip? (yes, %, *n*)	100.0 (4)
	Has your waterfront (e.g., bulkhead, dock, slip) been damaged from boating activities on the Lake? (yes, %, *n*)	75.0 (3)
	What has been the total cost of repairs? ($, *M*, *SD*)	$2500.00, $0.00
	Cause of damage	Most Cited
		Wake (1)
		Boats (1)

CONCLUSION & POTENTIAL ACTION

- Survey findings (from both the online and post-public meeting surveys) illustrate that, while boaters very much enjoy their boating experience on all six lakes, there are significant concerns over crowding, the behavior of other boaters, and safety. By far, most concern over these issues was expressed by respondents drawn from Lakes Dunlap, Placid and McQueeney. Lakes Nolte, Gonzales, and Wood have not approached social carrying capacity limits. Social carrying capacity issues on the upper three lakes are most critical on public holiday weekends. Public holiday weekends also see a lot more personal watercraft use than is typically observed throughout the boating season.
- For Lakes Dunlap, Placid and McQueeney, primary concern relates to:
  - The level of use – especially on public holiday weekends. These crowded conditions exacerbate concerns over the behavior of other boaters, safety, and boaters' enjoyment/satisfaction.
  - The size of other boaters' wakes resulting in damage to shorelines and shoreline structures in addition to the disruption other boaters' activities;
  - Careless and inconsiderate behavior of other boaters (e.g., traveling at unsafe speed);
  - The volume of amplified music (i.e., too loud);
  - The use of personal watercraft. This relates to their behavior (e.g., jumping wakes, cutting close of other watercraft, speed) and noise;
  - The towing of inflatable water toys (i.e., zig-zagging in crowded or narrow areas of the lake).
- To varying extents, other issues of concern affecting all six lakes include lake depth (i.e., shallow in areas) and submerged obstacles (e.g., tree stumps) and aquatic vegetation.

To address these concerns, we offer the following potential actions that GBRA could implement to manage current future use and uses of their lakes:

Table 142. Potential Management Action

Proposition	Need	Applications Across the US
Ban watercraft with sleeping quarters	Area lakes not capable of supporting overnight use	Often managed though regulations targeting overnight use
Ban high performance watercraft	Safety concerns related to their size, speed and engine noise	Often managed through speed limits. Bans have been instituted on several lakes in Alabama (Lakes Martin, Weiss, & Harris), and have been controversial. Bans also target high performance PWCs.
Ban the use of airboats	Safety concerns related to their exhaust fan and engine noise	On specific USACE lakes, airboats are restricted from some environmentally sensitive areas of the lakes. Some ordinances also manage their use through noise restrictions.

Table 142. Potential Management Action (cont.)

Limit the length of boats to be equal to or less than 24 feet. Limit the length of pontoon boats to be equal of less than 28 feet	Safety concerns owing to the width of the lakes and level of use occurring on the lakes	Idaho, Connecticut has boat length limits set for specific lakes. A city in Washington state (Kirkland), has a boat length restriction (24') applied at public boat ramps during the boating season only (4/1 to 10/31). In special management areas along the Kenai River in Alaska, the state prohibits the use of watercraft over 21 feet (also have a 50hp restriction and no two stroke engines).
Ban the use of pontoon planes with the exception of those permitted by GBRA	Safety concerns related to planes taking off/landing on the lake while boating is taking place	Most often implemented to restrict use in pristine settings (CA, NY, OR)
Ban the use of towing inflatables on the 4th of July public holiday weekend	Safety concerns during peak use periods	We could not find any comparable restriction. It appears that the type of use and lake conditions make these lakes unique.
Ban the use of personal watercraft on the 4th of July public holiday weekend	Safety concerns during peak use periods	Federal agencies (National Park Service, NOAA) instituted or recommended bans citing environmental concerns of impacts n visitor experiences. The City of Austin has instituted a PWC ban on Lake Austin for public holiday weekends citing concerns over safety.
Permitting use on area lakes	Need for greater boater education/courtesy. Permits acquired after taking online boater safety/education course.	Permitting use on inland waterways is not uncommon (e.g., City of Fort Worth – Lake Worth; City of Arlington – Lake Arlington) , across Texas TPWD offers an online boater safety/education course. A number of other states around the country impose an education course requirement for the issuance of a license

Table 142. Potential Management Action (cont.)

Institute a lake-wide speed limit of 45 miles per hour	Safety concerns and shoreline erosion	Speed limits most often effected with the use of no-wake zones in coves and other designated areas of a lake. Some lakes around the US have lake-wide speed restrictions (e.g., Lake Winnipesaukee in New Hampshire) that are also set at 45 miles/hour during the day and 25 miles/hour during the evening.