

Thermalito Afterbay *Aechmophorous* Grebe  
Nesting Colony  
Protection and Enhancement Project

Summary of 2010 Grant Activities  
Including Nesting Survey, Brood Survey and Disturbance  
Index Survey Results

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## INTRODUCTION

The 2010 breeding season was well under way when Altacal Audubon Society's Grebe Team received notification that we had been selected to conduct research, outreach and conservation actions to benefit Western and Clark's Grebes on Thermalito Afterbay. Our first reconnaissance of the colonies was on July 13, 2010 when our crew accompanied biologists from California Department of Fish and Game (CDFG) and the Department of Water Resources (DWR) on a tour of the colonies. Based upon that visit we quickly organized to achieve the greatest possible results during the remainder of the breeding/nesting season.

The following summary details our activities to date in various categories outlined by the grant.

## OUTREACH

The Altacal Team spent twenty-six hours developing a professional PowerPoint presentation utilizing photos taken during field surveys at both Thermalito Afterbay and Clear Lake. The presentation was designed to be used for both major regional presentations and for business and group outreach. Topics covered in the presentation include: identification, range and life-cycle of *aechmophorous* grebes; history of the grant and the oil-spills that led to the funding; survey types and methodology; and education on how lake users can help to assure nesting success.

The presentation has already been provided to a number of professional business and special interest groups in Chico to date. Additional bookings are scheduled for the coming months including presentation to Oroville business groups and delivery at the annual Sustainability Conference at California State University Chico as well as a workshop and field trip scheduled for the Chico Snow Goose Festival. Bookings of the presentation are ongoing with an increased focus on recreational user groups. We have arranged for the DWR biologist for Thermalito Afterbay to provide a presentation at a general meeting of Altacal Audubon Society.

Individual outreach at the primary access docks and beaches for recreational users is being planned to coincide with the start of the 2011 breeding/nesting season.

## SEASONAL BREEDING COLONY PROTECTION

Altacal Audubon has been working with a local graphic artist on buoy sign designs which will be completed for installation prior to the 2011 breeding/nesting season. In conjunction with sign placement we are developing outreach material for distribution at gathering sites around the lake that will reinforce the message on the buoy signs.

Based on our site visits and survey work, along with a growing understanding of the types of users of the facility, we are weighing the benefits of seasonal closures. User response to signage and outreach in 2011 will determine whether closures are warranted.

## STUDY OF WATER LEVEL IMPACTS

Water level observations made by our field crew are being compared to records provided by the Department of Water Resources, and planning is being done for Water Level Monitoring in 2011. Rumors of significant fluctuations in water level during past breeding seasons indicate the need for better communication and cooperation between our advocacy team and the DWR. We have developed a positive working relationship with the DWR biologist and hope to obtain a higher level of commitment from that organization towards compliance with water level needs related to grebe nesting success.

## MONITORING AND EVALUATION

Our survey crew conducted reconnaissance of the sites to determine the best methodology for Disturbance Index, Nest and Brood Surveys. Due to the timing of the grant notification not all of the 2010 season could be surveyed.

Disturbance Index Surveys began on August 25, 2010. The results of these surveys can be found attached to this report. These initial disturbance index surveys provide a reliable baseline from which we can better assess results of our outreach efforts in coming years

Altacal worked with CDFG and DWR on Nest and Brood Surveys. Surveys began in June 2010 and were conducted weekly through September 2010. The results of these surveys may help us to determine quantitatively whether or not our outreach efforts help to provide a net increase to grebe population in coming seasons. 2011 will provide us with our first opportunity to conduct nest and brood surveys from the beginning of the season.

## SUMMARY

Our Grebe Team has completed a lot in a short period of time. Despite starting midway into the nesting season we were able to complete a number of surveys. We have developed relationships with key biologists, helping us to fill the gaps in data created by the late start and to access historical data which will be useful in our evolving plan to enhance grebe nesting success. Thanks in part to the diverse talents of our team we are well on our way to having signage in place for our first full season. Our reputation as conservation leaders in our area has enabled us to jump-start public outreach and effectively get the word out about protecting grebes. In the seven months before breeding activity begins anew we will have honed our methods and materials to assure benefits to grebes in the 2011 season and thereafter.

# 2010 Thermalito Afterbay Aechmophorous Grebe Nest Survey Results

Data compiled with assistance from Dave van Baren of the California Department of Fish and Game.

Survey Date	# of Nests	# of Eggs	# of Empty Nests	Western	Clark's	Un ID Adult	Total Adult	Western chicks	Clark Chick	Un ID Chick	Total Chick	Tot. Pop	Comments
6/17	0					471	471				0	471	
6/24	62	79	13			220	220				0	220	
7/1	124	177	10				0				0	0	No species census taken
7/8	153	209	20				0		2		2	2	
7/15	137		47				0		3		3	3	47 nests either hatched or remnants
7/21	49		128				0				0	0	105 appeared hatched or abandoned /predated
7/22						401	401			51	51	452	
7/27	59						0				0	0	
8/5	92			263	157		420			77	77	497	Ski course and Clay bank cohort starting to nest in pondweed.
8/26	100			272	171		443			120	120	563	
9/9	20			174	97	168	439	140	68	45	253	692	
9/21	9			126	74	306	506	95	59	106	260	766	Some chicks may have been counted as adults due to age and plumage.

## 2010 Thermalito Afterbay Aechmophorous Grebe Nest Survey Results

Data compiled with assistance from Dave van Baren of the California Department of Fish and Game.

DATE	# OF BIRDS		LARKIN COVE		SKI COVE		Clay Banks	NOTES
Survey Date	Adults	Young	Complete Nest	Nest Start	Complete Nest	Nest start		Notes
6/17	471	0	-	-	-	-	-	Pre season census-68 NAB; 333 SAB, approx. 100 more than 2009
6/24	-	0	59	13	3	0	0	2 PBGR nests
7/1	-	0	121	2	3	1	0	7 nests appear to have collapsed
7/8	-	2	150	0	3	0	-	4 remnant (hatched or abandoned); 8 collapse, 8 predated; 131.2 low elev.
7/15	-	3	136	0	1	0	-	28 hatched or abandoned; 19 remnant; 7 PBGR all coves
7/21	-	-	43	10	6	4	-	49 active nests; 105 appear to have hatched; 23 remanants; 1 dozen nests - 1 egg left
7/22	401	51	-	-	-	-	-	
7/27	-	-	26	16	6	10	-	
8/5	420	77	12	0	80	0	6	7 PBGR chicks outside of ski cove
8/26	443	120	1	0	100	0	-	
9/9	439	253	-	-	-	-	-	Chick numbers may be slightly higher. Several birds appeared to be chicks but had adult plumage
9/21	506	260	-	-	-	-	-	

# 2010 Thermalito Afterbay Aechmophorous Grebe Disturbance Index Survey

Data from AAS surveys

\*Percentages represent approximate portion of colony reacting to disturbance.

RESPONSE → DISTURBANCE ↓	DISTRESS VOCALIZATION THROUGHOUT COLONY	COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS	COLONY LEAVES NESTS INTO THE WATER	GREBES SWIM AWAY FROM COLONY	NO RESPONSE BY COLONY TO DISTURBANCE	COMMENTS
MOTORBOAT / JETSKI		1 x 5%* 1 X 1%				See page 2
SKI BOAT W/SKIER		1 X 100% 1 X 100% 1 X 100% 1 X 75% 1 X 50% 1 X 50% 1 X 50% 1 X 50% 1 X 50% 1 X 50% 1 X 50%	1 X 10% 1 X 25%		1	See page 2
FISHING BOAT						
KAYAK/CANOE						
SAILBOAT						
AIRPLANE						
HIKER						
FLYING RAPTOR		1 X 1%			6	See page 2
FLYING PREDATOR	1 X 10% 1 X 2%	1 X 5% 1 X 1% 1 X 10% 1 X 2% 1 X 1% 1 X 5%	1 X 1%		48	See page 2
DOG						
SWIMMING MAMMAL					1	See page 2
OTHER					8	See page 2

## COMMENTS

### MOTORBOAT/JETSKI

1. Jet ski was well outside of cove but still elicited a physical response from 5% of the colony.
2. Boat pulling raft near colony < 5 mph, one grebe closest to boat leaves nest.

### SKI BOAT W/SKIER

Includes response to passing boat, passing boat with skier and wakes created by ski boats.

1. Ski boat and swimmer putting ski slalom buoys out near colony, grebes restless.
2. Ski boat idled through course, no response from colony.
3. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.
4. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.
5. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.
6. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.
7. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.
8. Ski Boat pulling skier through slalom course causes nests to rise and fall. Grebes are agitated and increase nest maintenance.

### FLYING RAPTOR

Included osprey, white-tailed kite.

1. Osprey flyovers, no response from colony.
2. White-tailed kite flyovers, no response from colony.
3. Osprey dives near nest, grebe restless but does not leave nest.

### FLYING PREDATOR

Included ring-billed gulls, double-crested cormorants, great egret.

1. Ring-billed gull observed consuming grebe eggs for 5 minutes, no response from colony.
2. Two cormorants perched on empty grebe nests for 1 hour duration of visit, no response from colony.
3. 1%, 5% and 10% of colony physically restless in response to ring-billed gull harassment, One grebe makes aggressive lunge at one ring-billed gull.
4. Six cormorants perched on grebe nests for one hour, no response from colony.
5. Three cormorants perched on grebe nests for 20 minutes to one hour, no response from colony.
6. Great egret flyover, no response from colony.
7. Great egret flyover, one or two grebes tilt heads to observe.
8. Ring-billed gull flyover associated with increased vocalization by 10% of colony
9. One cormorant flies into colony, no response from colony.
10. Ring-billed gull dives at grebe, grebe ducks but does not leave nest.
11. Cormorant dives near colony, no response from colony.
12. Ring-billed gull landing on unoccupied nest associated with distress vocalization by two grebes.

13. Great egret flyover, no response from colony.
14. Ring-billed gull foraging around nests, grebes near gull restless.
15. Grebe abandons nest as ring-billed gull picks up egg and takes to an unoccupied nest and consumes it.

#### SWIMMING MAMMAL

Included humans (no other mammal observed near colony during survey).

1. Four swimmers within 100 meters of colony for one hour, no response from colony.

#### OTHER:

Included Canada geese, mallards, hunters.

1. Flock of Canada geese flyover, no response from colony.
2. Dove hunters shooting nearby, no response from colony.
3. Dove hunters shooting nearby, no response from colony.
4. Mallard flyover, no response from colony.
5. Flock of Canada geese flyover, no response from colony.
6. Flock of Canada geese swim through colony, no response from colony.
7. Flock of Canada geese swim behind colony, no response from colony.
8. Duck species flyover, no response from colony.

### RESULTS BY RESPONSE

#### DISTRESS VOCALIZATION THROUGHOUT COLONY

Two instance of DISTRESS VOCALIZATION THROUGHOUT COLONY in association with FLYING PREDATOR.

#### COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS

Two instances of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS in association with MOTORBOAT / JETSKI.

Eleven instances of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS in association with SKI BOAT W/SKIER.

One instance of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS in association with FLYING RAPTOR

Six instances of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS in association with FLYING PREDATOR.

#### COLONY LEAVES NESTS INTO WATER

Two instances of COLONY LEAVES NESTS INTO WATER in association with SKI BOAT W/SKIER.



One instance of COLONY LEAVES NESTS INTO WATER in association with FLYING PREDATOR.

#### GREBES SWIM AWAY FROM COLONY

No disturbance was associated with GREBES SWIM AWAY FROM COLONY.

#### NO RESPONSE TO DISTURBANCE

One instance of NO RESPONSE TO DISTURBANCE in association with SKIBOAT W/SKIER. Boat was idling at < 5 mph.

Six instances of NO RESPONSE TO DISTURBANCE in association with FLYING RAPTOR.

Forty-eight instances of NO RESPONSE TO DISTURBANCE in association with FLYING PREDATOR.

One instance of NO RESPONSE TO DISTURBANCE in association with SWIMMING MAMMAL.

Eight instance of NO RESPONSE TO DISTURBANCE in association with OTHER.

#### RESULTS BY DISTURBANCE

##### SKI BOAT W/SKIER

SKI BOAT W/SKIER associated with instances of 50% to 100% of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS, accounting for app. 78% of total instances of SKI BOAT W/SKIER.

SKI BOAT W/SKIER associated with instances of 10% to 25% of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS, accounting for app. 14% of total instances of SKI BOAT W/SKIER.

SKI BOAT W/SKIER was associated with some level of colony disturbance app. 93% of the time

##### FLYING RAPTOR

FLYING RAPTOR associated with instances of 1% of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS, accounting for 14% of total instances of FLYING RAPTOR.

FLYING RAPTOR associated with six instances of NO RESPONSE TO DISTURBANCE in 86% of total instances of FLYING RAPTOR.

##### FLYING PREDATOR

FLYING PREDATOR associated with two instances of 2% - 10% of DISTRESS VOCALIZATION THROUGHOUT COLONY, accounting for app. 3.5% of total instances of FLYING PREDATOR.

FLYING PREDATOR associated with six instances of 1% to 10% of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS, accounting for app. 10.5% of total instances of FLYING PREDATOR.

FLYING PREDATOR associated with one instance of 1% of COLONY PHYSICALLY RESTLESS BUT DOES NOT LEAVE NESTS, accounting for app. 1.75% of total instances of FLYING PREDATOR.

FLYING PREDATOR associated with forty-eight instances of NO RESPONSE TO DISTURBANCE, accounting for app. 84% of total instances of FLYING PREDATOR.

#### SWIMMING MAMMAL

SWIMMING MAMMAL associated with one instance of NO RESPONSE TO DISTURBANCE in 100% of total instances of SWIMMING MAMMAL.

#### OTHER

OTHER associated with eight instances of NO RESPONSE TO DISTURBANCE, accounting for 100% of instances of OTHER.

#### CONCLUSIONS

Ski boats with water skiers had the highest level of association with some degree of nesting colony disturbance, causing disturbance 93% of the time, and in 14% of the occurrences some grebes temporarily abandoned their nests due to the proximity of the activity or because of the wakes created by it.

In addition to Ski boats one Jet Ski and one motorboat were observed near the colony; no fishing boats, sailboats or canoe/kayaks used the cove during the period covered by our survey. While the Jet Ski was at a distance from the colony it created a small degree of restlessness, while the motorboat, operating within the 5 mph No Wake limit did not create a measurable disturbance.

No airplanes ever flew low enough to disturb the colony. No hikers per se were observed in proximity to the colony during our surveys but dove hunters shooting nearby (> than 100 m.) did not create a discernible response from the colony.

Few flying raptors were observed above or near the colony and only one provoked an observable disturbance. Other flying predators however did provide varying measures of disturbance, primarily ring-billed Gulls which on several occasions elicited a small amount of restlessness within the colony including one aggressive physical response from one grebe. Ring-billed Gulls were observed on two occasions consuming eggs, once from an unguarded nest and once from a

tended nest temporarily abandoned by the parent. Most of the time however the colony did not respond to gull flyovers. A great egret flyover created a minor response. Cormorants regularly perched on empty nests, whether or not grebes were driven off of these nests by the cormorants is unknown as the cormorants were generally present at the beginning of our surveys and no response to cormorants or observation of predation by cormorants was observed.

While no dogs were observed near the colony, a group of four swimmers spent an hour swimming near the colony (+/- 100m.) without disturbance.

Limited instances of waterfowl flying over the colony and swimming near the colony did not create a disturbance.

## SUMMARY

In general it seemed to the surveyors that the grebes were highly tolerant of most types of disturbances encountered during our surveys. Only ski boats and water skiing in close proximity to the colony consistently created colony disturbance and temporary abandonment of nests. Only one instance of the use of personal watercraft was observed near the colony but the restlessness associated with it indicates that more observations should be sought to determine how often they contribute to colony disturbance. Of all other disturbance factors, harassment by ring-billed gulls accounted for the next largest percentage of disturbances but only occasionally to the level of nest abandonment. Raptors made up only a smaller percentage of disturbances and never during our survey did they prompt grebes to leave the nest.