

Fish & Wildlife Habitat Assessment in Florida Lakes



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**A complete, healthy ecosystem
consistently provides enough of all
of the different habitats to support
all of the fish and wildlife.**



FWC Working Groups

- **Kissimmee Chain of Lakes (31,000 ha)**
- **Lake Istokpoga (11,200 ha)**
- **Orange Creek Basin (11,500 ha)**
- **Lake Tsala-Apopka (7,700 ha)**



Approach

- Evaluate current habitat conditions
- Compare to F&W habitat requirements
- Identify habitat shortcomings
- Address shortcomings, maintain desirable habitat





**Lake
Tohopekaliga
(Toho)**

**Aerial CIR
Photography
2007**

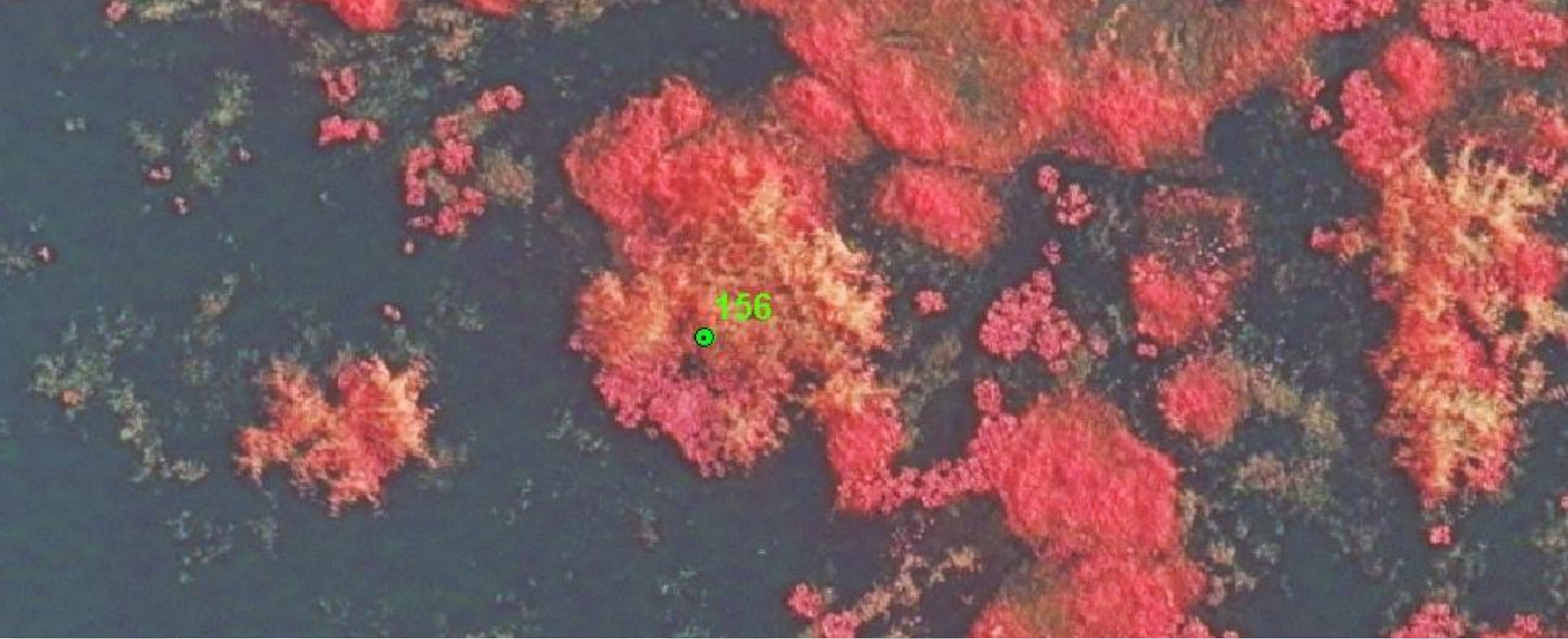


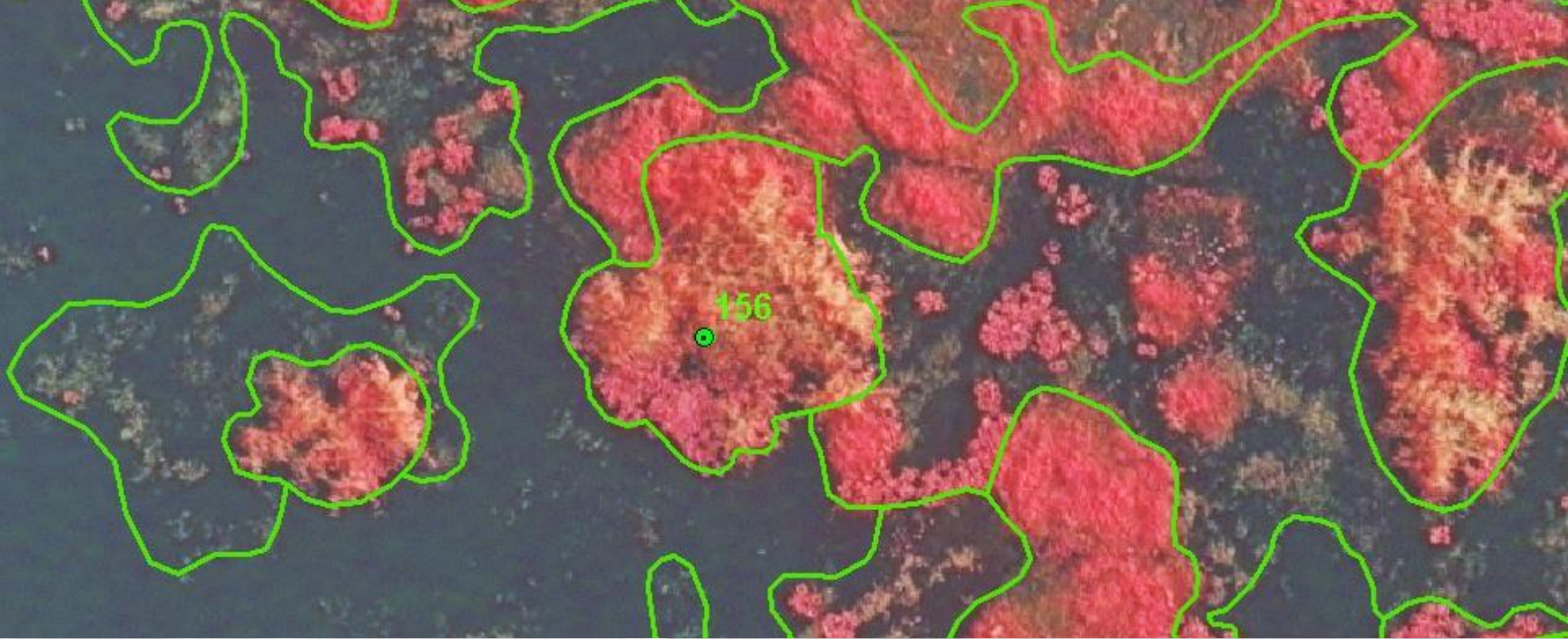
Lake Toho

2007

**Field survey
locations**









6420-6423,M

6421,D

5200

6414-6420,S

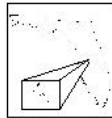
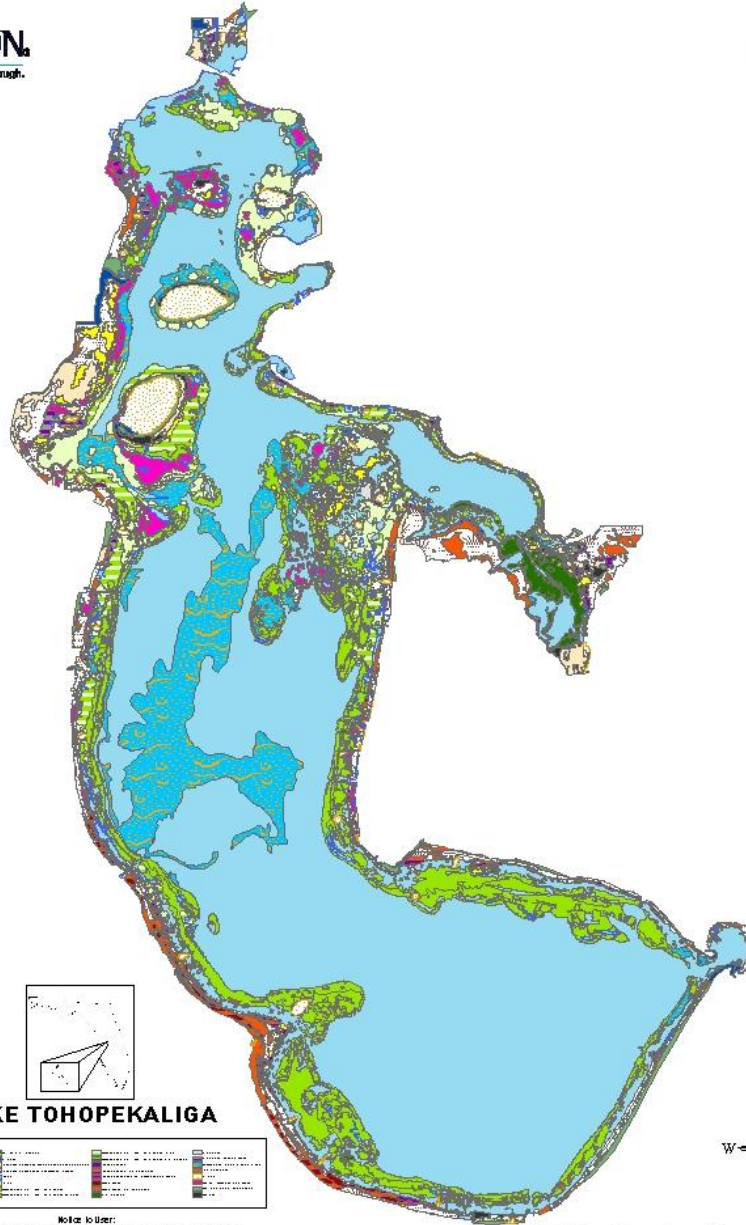
6421,M

6414,S





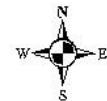
Littoral Zone Vegetation Mapping



LAKE TOHOPEKALIGA

| Legend | Legend | Legend | Legend |
|------------------------------|------------------------------|------------------------------|------------------------------|
| Water | Emergent Wetland | Submerged Aquatic Vegetation | Open Water |
| Emergent Wetland | Submerged Aquatic Vegetation | Open Water | Emergent Wetland |
| Submerged Aquatic Vegetation | Open Water | Emergent Wetland | Submerged Aquatic Vegetation |
| Open Water | Emergent Wetland | Submerged Aquatic Vegetation | Open Water |

Note to User:
Aquatic vegetation classes on the map were identified using photo interpretation and ground truthing of digital aerial photography.
The digital color infrared aerial photography was obtained in June, 2000 with 1 foot pixel resolution.



Lake Toho
2007



Lake Toho
2009



2007 - cattail
85 ha



2009 - cattail
141 ha



Habitat quality of plants to focal taxa

(L = low, M = medium, H = high, - = no value)

| Plant | Cover | Snail kite | | Alligator | |
|---------|--------|------------|------|-----------|-----|
| | | nesting | Fish | foraging | ... |
| Cattail | <33% | - | M | H | |
| Cattail | 33-66% | L | M | H | |
| Cattail | ≥67% | H | L | - | |
| Grasses | <33% | - | H | M | |
| Grasses | 33-66% | - | H | M | |
| Grasses | ≥67% | - | H | M | |
| ... | | | | | |



Habitat characteristics

- **Dominant plant species**
- **Plant coverage - amount of vegetation & water**
- **Percent class area – plant species composition**
- **Contagion – aggregation or interspersion**



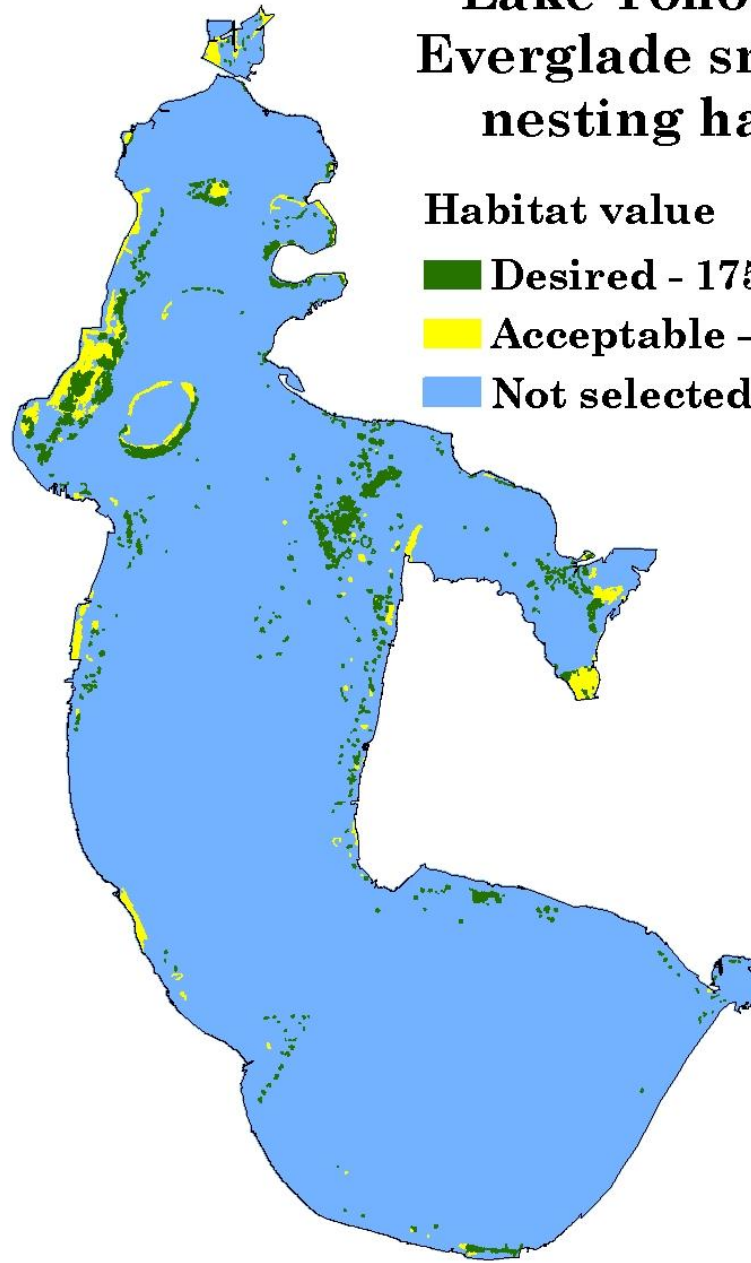
Lake Toho - 2009 Everglade snail kite nesting habitat

Habitat value

■ Desired - 175 ha

■ Acceptable - 131 ha

■ Not selected - 7,997 ha

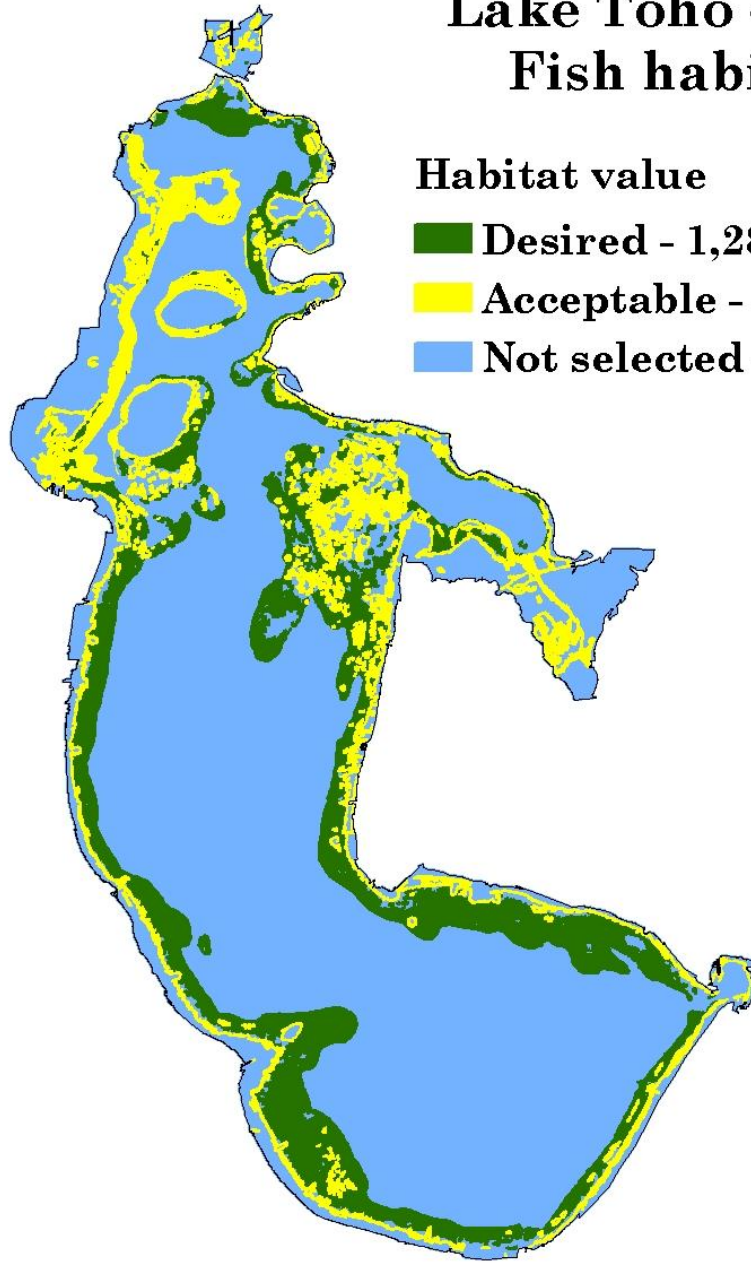




Lake Toho - 2009 Fish habitat

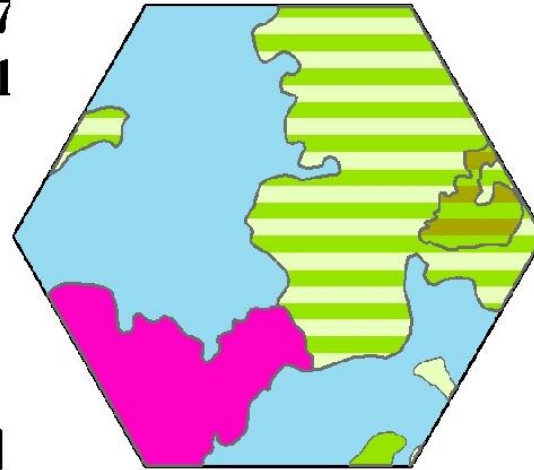
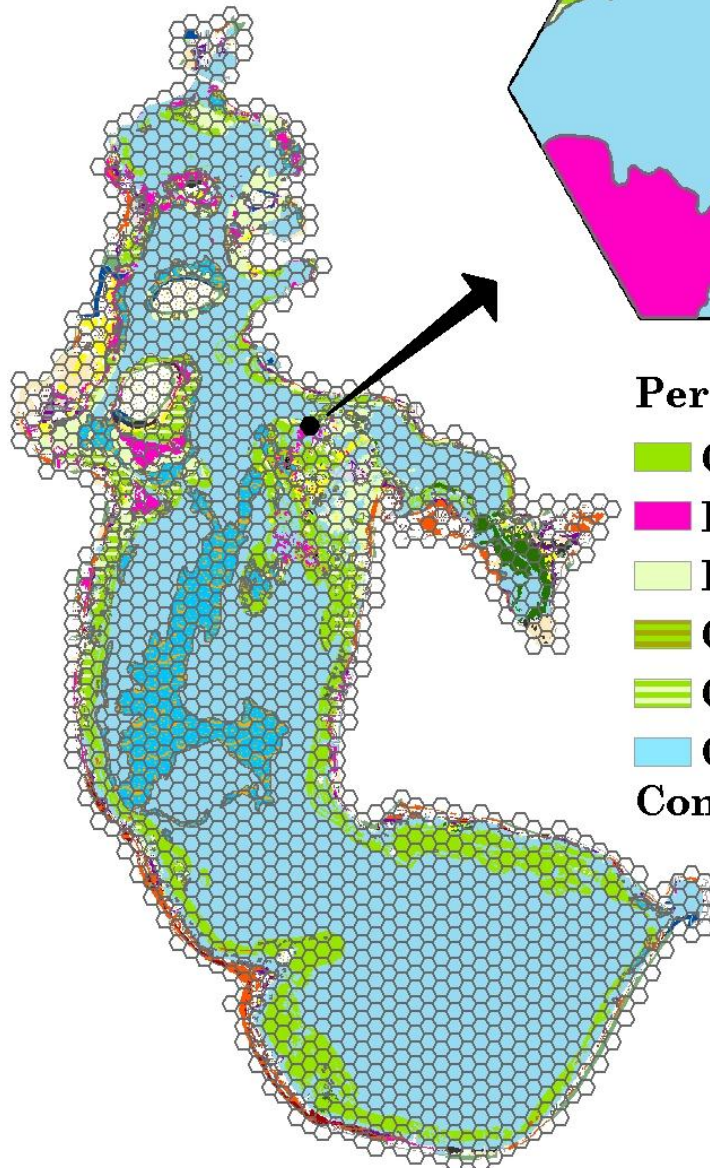
Habitat value

- Desired - 1,283 ha
- Acceptable - 513 ha
- Not selected - 6,507 ha



Lake Toho - 2007

Hexagon ID# 741

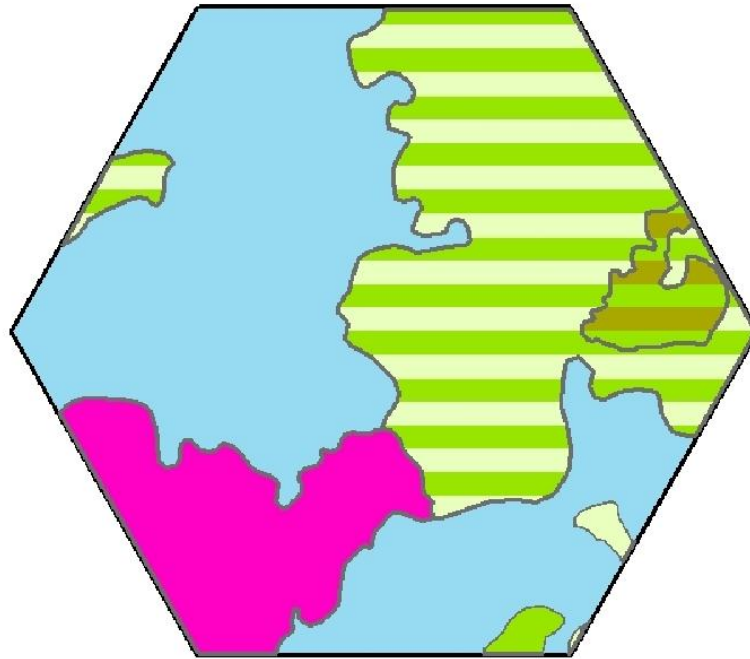


Percent Class Area

- Grasses 1%
 - Knotweed 13%
 - Lotus 1%
 - Grass-bulrush 3%
 - Grass-lotus 35%
 - Open water 48%
- Contagion index = 44



Lake Toho - 2007



**Hexagon ID# 741: Cover = 52%, contagion = 44,
water depth = 1-2 m**

Waterfowl:

Desired: Cover = 35-55%, contagion = 20-60

Acceptable: Cover = 30-70%, contagion = 20-60

**Water depth = 0-0.7 m (dabbling ducks),
0-2 m (diving ducks)**



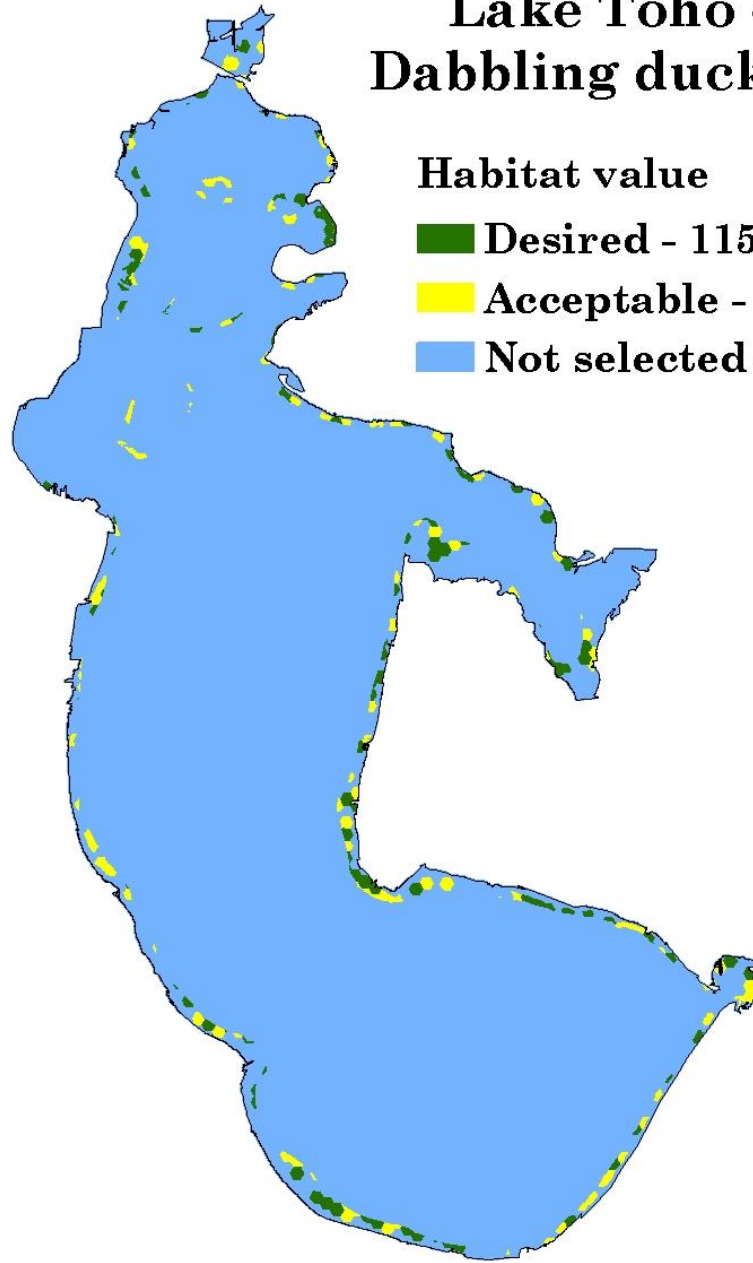
Lake Toho - 2009 Dabbling duck habitat

Habitat value

■ Desired - 115 ha

■ Acceptable - 123 ha

■ Not selected - 8,065 ha



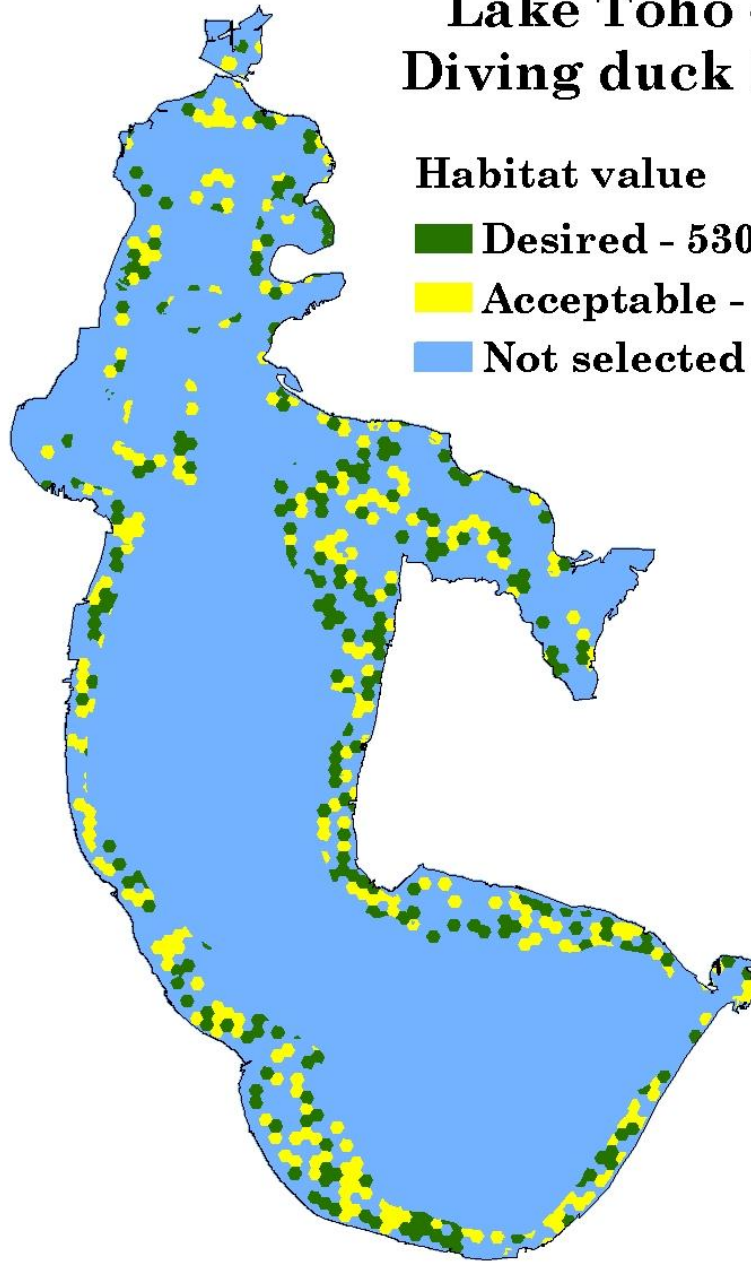
Lake Toho - 2009 Diving duck habitat

Habitat value

■ Desired - 530 ha

■ Acceptable - 568 ha

■ Not selected - 7,205 ha



Lake Toho 2009 habitat vs. lake-wide targets

| Exceeded target | 2009 (ha) | % over target |
|------------------------|----------------------|--------------------------|
| Alligator foraging | 2,259 | 35% |
| Dabbling ducks | 238 | 32% |
| Diving ducks | 1,098 | 48% |
| Wading birds | 477 | 8% |

| Short of target | 2009 (ha) | % under target |
|------------------------|----------------------|---------------------------|
| Alligator nesting | 592 | -4% |
| Snail kite nesting | 306 | -39% |
| Snail kite foraging | 1,260 | -41% |
| Fish (littoral zone) | 1,795 | -16% |



Lake Toho - 2009

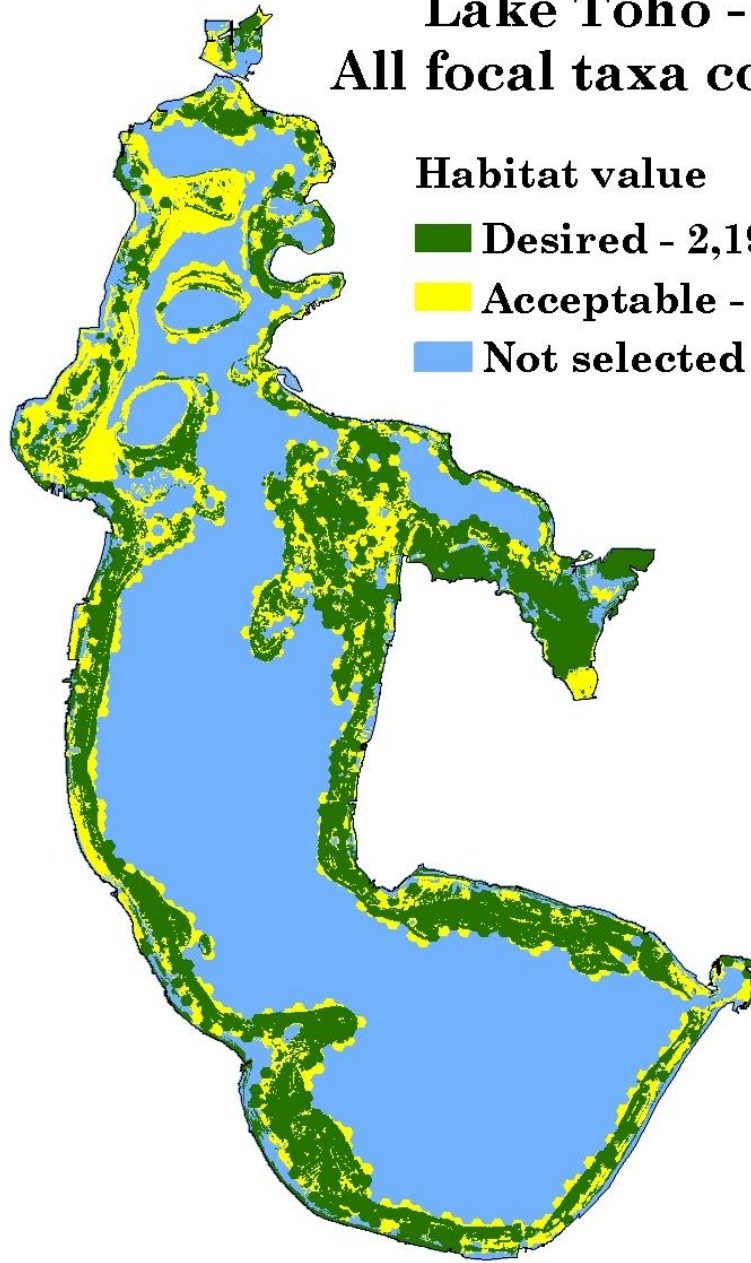
All focal taxa combined

Habitat value

■ Desired - 2,192 ha

■ Acceptable - 1,288 ha

■ Not selected - 4,823 ha



Lake Toho - 2009

Littoral zone

Habitat value

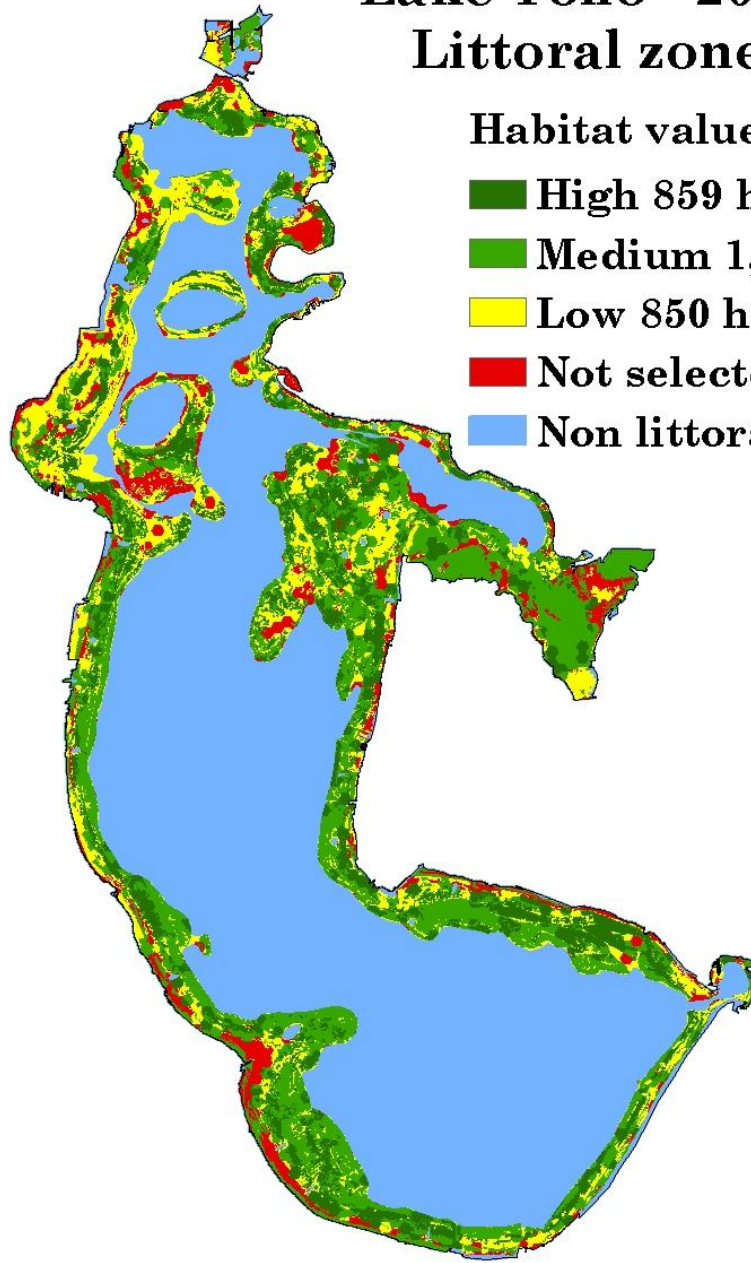
■ High 859 ha

■ Medium 1,402 ha

■ Low 850 ha

■ Not selected 439 ha

■ Non littoral - 4,753 ha



Summary

- Mapped large lakes (aerial photography and field surveys)
- Identified valuable habitat for focal taxa (GIS analyses)
- Identified habitat shortcomings (results vs. targets)
- Identified potential management areas (least value to taxa)
- Result = locations and target taxa for management
- New tool to guide management on large systems



