

LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES



**OFFICE OF FISHERIES
INLAND FISHERIES SECTION**

PART VI –C (ARCHIVES)

WATERBODY MANAGEMENT PLAN SERIES

IVAN LAKE

**AQUATIC VEGETATION TYPE MAPS
AND NARRATIVES**

Aquatic Vegetation Type Maps

USACE Aquatic Plant Survey - 1997

CELMK-OD-CR

Martin/rm/1-7637

14 May 1997

MEMORANDUM FOR CELMK-OD-MN
ATTN: Julie Marcy

SUBJECT: Aquatic Plants in Ivan Lake, Bayou Bodcau Reservoir

1. On 13 May 1997, George Chandler, biologist, and David Oliver, park ranger, from the Monroe Area Office for Operations traveled to Ivan Lake and identified aquatic vegetation by species and approximate coverage on the lake. The following information is the result of their findings:

<u>SPECIES</u>	<u>COVERAGE</u>
Fragrant Water-lily (<u>Nymphaea odorata</u>)	2.96 acres
Watershield (<u>Brasenia schreberi</u>)	1.01 acres
Green Cotton-ball Alga (<u>Pithophora</u>)	1.00 acres
Smartweed (<u>Polygonum hydropiperoides</u>)	8.30 acres
Slender Pondweed (<u>Potamogeton pusillus</u>)	0.39 acres
Alligatorweed (<u>Alternanthera philoxeroides</u>)	46.29 acres
Illinois Pondweed (<u>Potamogeton illinoensis</u>)	0.01 acres
Eurasian Watermilfoil (<u>Myriophyllum spicatum</u>)	6.06 acres
Variable-leaf Watermilfoil (<u>Myriophyllum heterophyllum</u>)	3.00 acres
Mix (Fragrant Water-lily, Yellow Lotus (<u>Nelumbo lutea</u>))	9.04 acres
Mix (Brazilian Elodea (<u>Egeria densa</u>), Water Primrose (<u>Ludwigia uruguayensis</u>), Green Cotton-ball Alga, Slender Pondweed)	1.72 acres
Mix (Coontail (<u>Ceratophyllum demersum</u>), Fragrant Water-lily, Eurasian Watermilfoil)	11.00 acres
Mix (Eurasian Watermilfoil, Coontail)	2.00 acres
Mix (Slender Pondweed, Green Cotton-ball Alga)	1.00 acres
Mix (Eurasian Watermilfoil, Coontail, Slender Pondweed)	5.00 acres

CELMK-OD-MN

14 May 1997

SUBJECT: Aquatic Plants in Ivan Lake, Bayou Bodcau Reservoir

SPECIES

COVERAGE

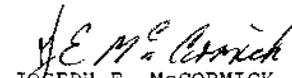
Mix (Variable-leaf Watermilfoil, Coontail,
Slender Pondweed)

0.23 acres

Total in aquatic vegetation on 13 May 1997

99.01 acres

2. Point of contact is Robert "Skip" Martin, ext. 1-7637.


JOSEPH E. McCORMICK
Acting Area Engineer

LDWF Aquatic Vegetation Survey - 1997

NOTES:

Upper 1/3 of lake – milfoil predominant submerged plant – moderate infestation, white water lily
20% coverage of this area

Middle and lower 2/3 of lake – fringe of water shield and white water lily, 10% coverage.
Hydrilla present in a fringe band all the way around the lake 10% - 15% coverage.

Vegetation on the lower 2/3 with the exception of hydrilla about ideal for fisheries.

Fringe of alligator weed and lizardtail around entire lake with some bulrush.

West Arm (Phillips Creek) – large areas of lotus infestation, very little submersed vegetation.
Fringe of alligatorweed and bulrush.

Survey conducted by Melvin Bagwell and James Seales, 6-10-97

No type map generated.

Aquatic Vegetation Type Map – 2002

Notes:

Survey conducted 6-25-02

At the time of assessment Ivan Lake was at pool stage. The water color ranged from fairly clear to a brown stained color.

The submersed aquatic plants noted were hydrilla, southern naiad, coontail, whorled milfoil, Potamogeton, and Utricularia.

The emersed plants noted were lotus, white water lily, alligator weed, smartweed, lizardtail and miscellaneous sedges and rushes.

The severe infestation noted on the type map was hydrilla, whorled milfoil and coontail primarily.

The moderate infestation noted on the type map was hydrilla, milfoil, and coontail primarily.

The extreme upper end of each arms have a severe lotus and white water lily problem.

Aquatic Vegetation Type Map - 2005

VEGETATION TYPE MAP IVAN LAKE 2005

The vegetation type mapping survey was conducted on July 22, 2005 by Louisiana Department of Wildlife and Fisheries personnel. Jeff Sibley, Biologist Supervisor District 1, was assisted by Todd Bridges in identifying the major aquatic plant species present in the lake and assessing the extent of coverage around the lake. At the time of the survey, the lake was one foot below pool and the water color was clear.

Species Present

The following species of aquatic macrophytes were identified in Ivan Lake: hydrilla (*Hydrilla verticillata*), coontail (*Ceratophyllum demersum*), cattails (*Typha spp.*), giant cutgrass (*Zizaniopsis miliacea*), American lotus (*Nelumbo lutea*), fragrant water lily (*Nymphaea odorata*), water hyacinths (*Eichhornia crassipes*), primrose species (*Ludwigia spp.*), lizard tail (*Saururus cernuus*), spatterdock (*Nuphar luteum*), alligator weed (*Alternanthera philoxeroides*), variable leaf milfoil (*Myriophyllum heterophyllum*), pennywort (*Hydrocotyle spp.*), duckweed (*Lemna minor*), frog's-bit (*Limnobium spongia*) and chara grass (*Chara spp.*).

Severity

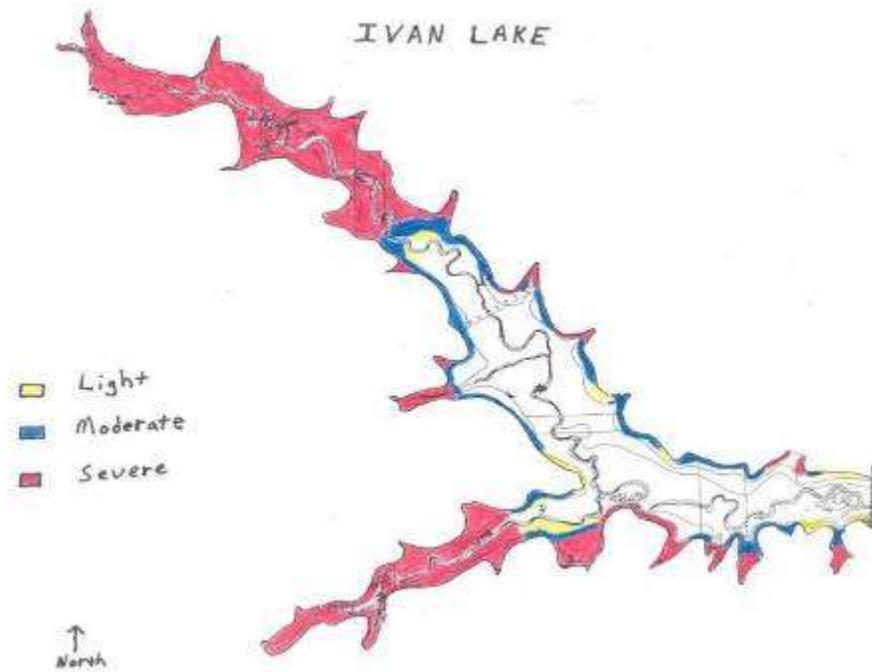
Aquatic vegetation covers approximately 30-35% of Ivan Lake. Gently sloping shorelines and vast areas of shallow water contribute to the vegetation problems. American lotus and fragrant water lilies pose the largest problems to access on the lake, as the upper ends of both major arms of the lake are nearly 100% covered (see attached map). Access is restricted to the creek channels in these upper reaches. The vegetation community here becomes a conglomerate of all the species listed above.

Ivan Lake has a 10-20' fringe of vegetation around almost the entire shoreline. A combination of giant cutgrass, cattails, lily pads and lotus line the shores of the lake. The shallow ends of all coves are wrapped up with either lilies or lotus. Submerged vegetation is scattered throughout the lake, but is most dense on the shallow points and in the far upper reaches of lake. Submergents were growing in as deep as 7' of water. There are some areas of the lake with dense, localized stands of hydrilla or chara; but emergent plants pose more of a threat to public access.

Management/History

Ivan Lake is currently in the second year of a five year series of proposed Fall/Winter drawdowns for hydrilla control. The lake was slated to be drawn down 6' below pool stage in September of 2004; however, the lake was accidentally dewatered before the gates were closed and a large fish kill occurred. The lake quickly refilled with heavy rains, and was only down for a few weeks. Little drying action was observed and the drawdown likely had little effect on the vegetation. During the 2005 drawdown, the lake has again been dewatered in order for Louisiana Department of Transportation and Development to assess the control structure, as it

had been leaking. Drought conditions and extreme heat have likely aided the success of the drawdown. The organic layer on the lake bottom has dried and cracked and is decomposing. The vegetation has been exposed to dry conditions and several light frosts. The lake has remained down from late September until the time this document was completed (12/8/05). The lake is currently being assessed for possible renovation, and these future projects will likely affect the aquatic vegetation community of the lake.



Aquatic Vegetation Type Map - 2013

VEGETATION TYPE MAP IVAN LAKE 2013

The vegetation type mapping was performed by Kevin Houston and Jeff Sibley on March 13, 2013. The lake was at pool stage during the survey, and secchi readings on the lower end of the lake measured approximately 54 inches.

Species Present

The following species were identified in Ivan Lake: Eurasian milfoil (*Myriophyllum spicatum*), bladderwort (*Utricularia spp*), southern naiad (*Najas guadalupensis*), *Elodea spp.*, hydrilla (*Hydrilla verticillata*), primrose spp. (*Ludwigia spp.*), horned pondweed (*Zannichellia palustris*), fragrant water lily (*Nymphaea odorata*), giant cutgrass (*Zizaniopsis miliacea*), common reed (*Phragmites australis*), pennywort (*Hydrocotyle spp.*), alligator weed (*Alternanthera philoxeroides*), parrot feather (*Myriophyllum aquaticum*), and giant salvinia (*Salvinia molesta*).

Severity

Aquatic vegetation covers approximately 20-25% of Ivan Lake. While this coverage is not severe, there are dense patches of submerged vegetation around the shoreline extending approximately 40 yards from the shore. Eurasian milfoil and southern naiad are the most abundant species present (90% total coverage). The remaining coverage is a conglomeration of the species listed above. Giant salvinia was found near the boat ramp in the rocks along the dam, and a couple of pieces were found floating along the shoreline during the survey. Only a couple of hydrilla stems were observed. The total acreage affected by submerged vegetation is 121.5 acres.

Management/ History

Ivan Lake was filled in February of 2012 after being completely drained for the past several years. Since 2006, the gates on Ivan Lake have been completely open. This has allowed the lake level to pulse up and down during high rainfall events. Even with these harsh conditions and persistent drought, submerged vegetation is making a rapid return to Ivan Lake. Based on historical type map data, we can expect vegetation coverage to increase in severity and expand to upwards of 180-200 acres (approx. 35%).

The 2013 Ivan Lake Aquatic Vegetation Control Plan lists the following recommendation for submerged aquatics—

“Native submerged species are expected to return to Ivan Lake. The introduction of triploid grass carp is recommended at a rate of 3 fish per vegetated acre as a precautionary measure. The timing of the carp stocking will be determined by monitoring the lake during the 2013 year.”

Based upon the vegetation control plan, a recommendation of 600 grass carp should be stocked into Ivan Lake in the spring of 2013 in an attempt to maintain submerged aquatics at an acceptable level.

Giant salvinia coverage should be monitored regularly and applications made as the need arises. A typical shoreline view of milfoil patches in Ivan Lake & Ivan Lake submerged vegetation coverage.

