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## Introduction of Aquatic Plants into the Artificial Lakes of Iowa

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*Iowa Conservation Commission*

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## INTRODUCTION OF AQUATIC PLANTS INTO THE ARTIFICIAL LAKES OF IOWA

W. W. AITKEN

From a study of the reservoirs in southern Iowa, created by damming streams, it is apparent that aquatic vegetation should be introduced into the new artificial lakes to accelerate natural succession. As the areas are created for fishing lakes, a demand is made by the public to open them to fishing as soon as the fish have reached a takable population.

In order to keep this fish population apace with the take, a natural medium must be created without delay to insure natural fish productivity. By introducing desirable vegetation the possibility of undesirable types becoming abundant will be minimized. Also, early establishment of marginal types will lessen excessive erosion.

Both submerged and emergent types are introduced. The submerged types introduced are *Myriophyllum spicatum*, *Ceratophyllum demersum*, and *Chara. sp.* These plants are planted in water from one foot to 18 inches deep in shallow bays. The *Ceratophyllum* and *Myriophyllum* are mud-balled and anchored in areas protected from wind sweep by fish shelters designed as wave breakers. Spread of these plants reveal a good survival. Lake Wapello in Davis County is the only artificial lake where the submerged plants have been introduced. The transplanting of *Ceratophyllum* and *Myriophyllum* has also been made throughout southern Iowa in reservoirs created by the Department of Agriculture through Soil Service projects.

The emergent types of vegetation used are *Scirpus validus* and *S. fluviatilis*, *Typha latifolia*, and *Sagattaria latifolia*. Tubers of *Potamogeton natans* are to be planted in the spring and fall of 1936. *Potamogeton pectinatus* is avoided because this narrow leaved type runs riot in warm waters of southern Iowa. Trouble with this plant was experienced in Thayer Lake, Union County, in 1934.

The collection and introduction of the erect forms is here described. The most abundant and most accessible supply of bulrush, arrowhead, and cattail were in the marshy areas of Big Wall Lake, Wright County.

A relief work project was set up to collect the plants. They were planted by the C.C.C. camps located at the artificial lake areas. The plants were dug entire from the bog. To facilitate handling, clumps were spaded a foot wide and about eight inches deep; each containing six or seven plants. The clumps were then placed on carts and removed to a loading zone on higher ground. The work here described was between November 15 and December 15, 1935. The temperature was below freezing and this kept the dirt from falling away from the plant roots. The ground water level was several inches below the earth surface where the plants were dug.

The following instructions were standardized for all workers:

1. Take plants from designated stations only. Do not remove plants from other areas.
2. In daily report list number taken from each station on that date.
3. Keep species separate.
4. Cut stods\* (rectangular pieces of aquatic root soil) about one foot square and at least six inches deep.
5. Each stod will contain from four to six old plants, but will be counted as one plant in all recommendations and counts of plants removed and planted.
6. Haul stods to point accessible to trucks. A two-wheeled cart such as most farmers use around their barns will find ready use for transporting material to lake shore or to suitable loading point. If snow on ground, use sled.
7. Use reasonable care in handling stods so that soil will not be unduly shattered from plants.

#### LOADING TRUCKS —

1. Use stake body trucks (one and one-half ton).
2. A maximum load is 400 to 450 stods.
3. Cover floor of truck with stods, stems upward. Place succeeding layers on the interstices of layer beneath.
4. Unload carefully at planting station and do not pile stods upon each other.

#### STORAGE OF STODS —

##### In Buildings:

1. Place should be dry, building without heat (four walls and roof, floor not necessary). If windows are broken close with rough boards. Use same method on all large openings.
2. Stack material in storage in same manner as in loading trucks.
3. Caution — use care in handling.

##### Out of Doors:

1. Stack material near planting station above high water mark.
2. Stack stods in same manner as in trucks.
3. When rick is completed cover with 1½ to 2 foot layer of old straw or similar material.

\* The word *stod* is original with the author. The word is an embellishment of "sod" and means "a clump of aquatic roots with plant stems in place."

4. Weight thatch covering with old posts and wire, saddle-bag fashion.

PLANTING IN FALL,—

Round Bulrush (*Scirpus validus*)

Great Bulrush (*S. fluviatilis*)

Cat-tails (*Typha latifolia*)

Arrowhead (*Sagattaria latifolia*)

Round Bulrush (*S. validus*)

1. Plant in water 1 to 2½ feet deep.
2. Use No. two long-handled pony shovels to prepare planting places.
3. Technique in planting: Two men with shovels face each other and insert shovels in lake bed to make crevice that will let stod fit snugly. Both shovels should be pushed full depth, muck pulled up but kept on shovel to be placed back on stod after it has been set in place.
4. A light tapping with feet on edges of stod will seal material in place. Don't trample plant.

Great Bulrush (*S. fluviatilis*)

1. Plant in water six inches to one foot deep.
2. Use same technique as for Round Bulrush.

Cat-tails and Arrowhead:

1. Plant in muck or shallow water not more than six inches deep.
2. Cut out place for stod and tramp loose edges lightly.

In General:

It is necessary that Supervisors of collecting and planting be able to identify the various species of aquatic plants recommended.

FOREMAN'S DAILY REPORT (Size 8½" x 11")

ON AQUATIC PLANTING

Date-----

Camp No.----- Foreman's Name-----

Location----- Weather-----

Name of Lake----- Air Temperature-----

Station	Species of Plants	Condition of Plants	Source	Number Planted	Man Days
(A)	Cat-tails ( <i>T. latifolia</i> )	(Good)	(Wall Lake)	(50)	(5)
	TOTAL				

Remarks: -----

DAILY WORK REPORT (Size, 8½" x 11")

ON AQUATIC PLANT COLLECTIONS

Date-----

Location----- Foreman's Name-----

Name of Area----- Weather-----

Air Temperature-----

Collected:

Station	Species of Plants	Condition of Plants	Number Collected	Man Days	Disposition
(A)	Cat-tails ( <i>T. latifolia</i> )	(Good)	(200)	(7)	(Stored)
	TOTAL				

Stored or Hauled:

	TOTAL				

Bog Conditions:            Dry             Wet             Water Depth

REMARKS: -----

The following artificial lakes have had aquatic vegetation introduced:

- Beeds Lake at Hampton, Franklin County — 1550 stods.
- Lake Keomah at Oskaloosa, Mahaska County — 400 stods.
- Lake Wapello at Bloomfield, Davis County — 5186 stods.
- Lake Ahquabi at Indianola, Warren County — 800 stods.

Planting areas were selected by the writer and maps made of each location (see Fig. 1). The planting plan is designed to have enough plants of each species introduced in each area to serve as a nucleus that will spread in natural abundance and produce sufficient rush beds and marginal clumps approximating conditions in a natural lake area. The plants selected are best suited for water-fowl and fish habitats in Iowa. Once these larger and hardier types become established, less hardier plants, yet very important in life histories of both fish and game, will be introduced. This group includes *Zizania aquatica*, *Lemna minor* and *L. polyrhiza*, *Nymphaeophanthus variegatus*, *Castalia odorata*, *Sparganium eurycarpum*, *Vallisneria americana*, *Najas flexilis*, and other types suited to particular areas.

The fish shelters installed by the writer in these artificial lakes, and reported elsewhere, were located in definite relation to the plantings herein described. As an example, where wind-sweep might hinder vegetation from getting established, brush and log shelters were so placed that water in these bays would be abated and permit ready establishment of the plants.

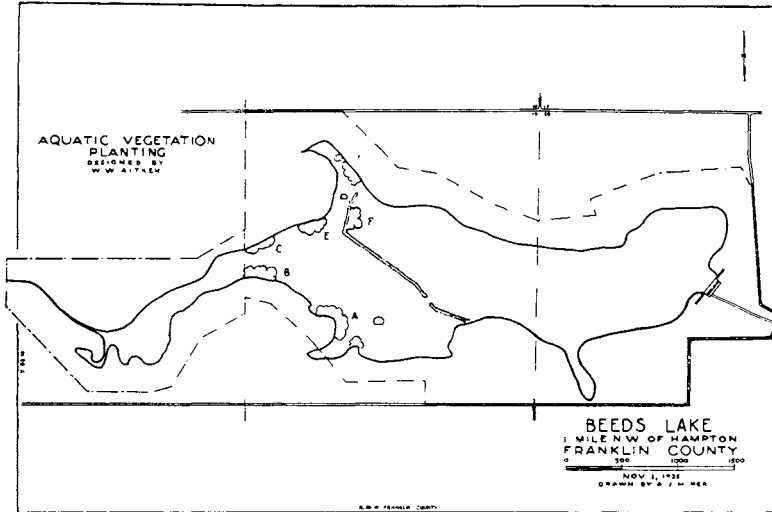


Fig. 1. A map of Beed's Lake is shown here to illustrate planting areas selected.

Legend follows for introductions to date:

- Station A — 300 stods *Scirpus validus*  
100 stods *Scirpus fluviatilis*
- Station B — None to date
- Station C — None to date
- Station D — 200 stods *Typha latifolia*  
300 stods *Scirpus validus*  
200 stods *Scirpus fluviatilis*
- Station E — None to date
- Station F — 200 stods *Scirpus validus*  
250 stods *Scirpus fluviatilis*

Notes on the survival and spread of these plants are being kept for further information. Such information gained in improving the artificial lakes will have unquestioned value in planning a restoration of the vegetation of our natural lakes.

#### REFERENCES

- AITKEN, W. W. 1935. Iowa's Artificial Lake. Proc. Iowa Academy of Science, Des Moines.
- FERNALD, M. L. AND B. L. ROBINSON. 1908. Gray's New Manual of Botany, New York.

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