

Aquatic Weed Identification and Control

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Aquatic Weed ID



Submersed



Emergent/Floating

Riparian



Potamogetons: broad vs narrow leaves



Aquatic Weed ID

American Pondweed, *Potamogeton nodosus*



Aquatic Weed ID

Leafy Pondweed, *Potamogeton foliosus*



Curlyleaf Pondweed, *P. crispus*

Non-native



Aquatic Weed ID

Curlyleaf Pondweed, *Potamogeton crispus*



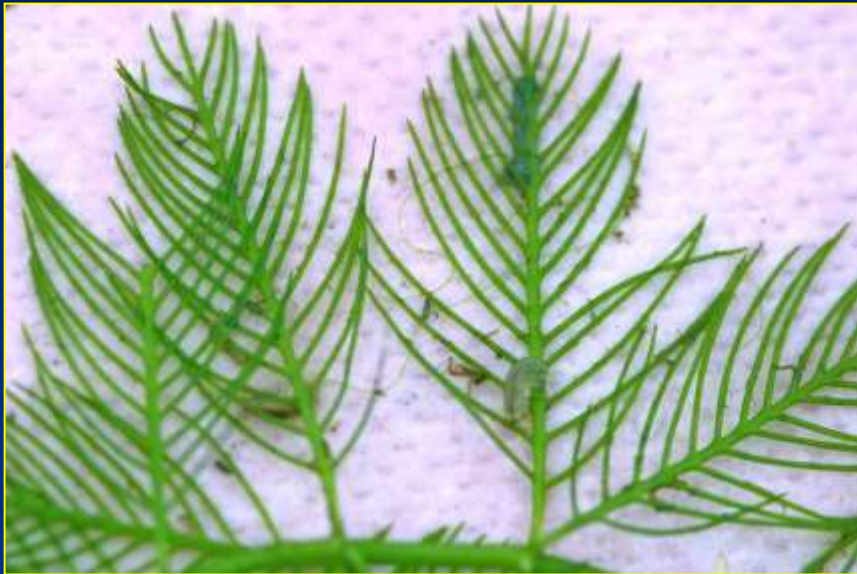
Aquatic Weed ID

Eurasian Watermilfoil, *Myriophyllum spicatum*



Aquatic Weed ID

Eurasian Watermilfoil, *Myriophyllum spicatum*



Note minor branches all come off single axis, and unbranched. Robust stems, often red.

Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*

- Non-native
- Locally a severe pest, in still-water situations
- Distinctive above-surface foliage
- Attractive



Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*



Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*



Aquatic Weed ID

Parrotfeather, *Myriophyllum aquaticum*



Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*

- Non-native, relatively recent
- Becoming common and a pest in Delta



Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*



Note that minor branches themselves have branches, unlike watermilfoil

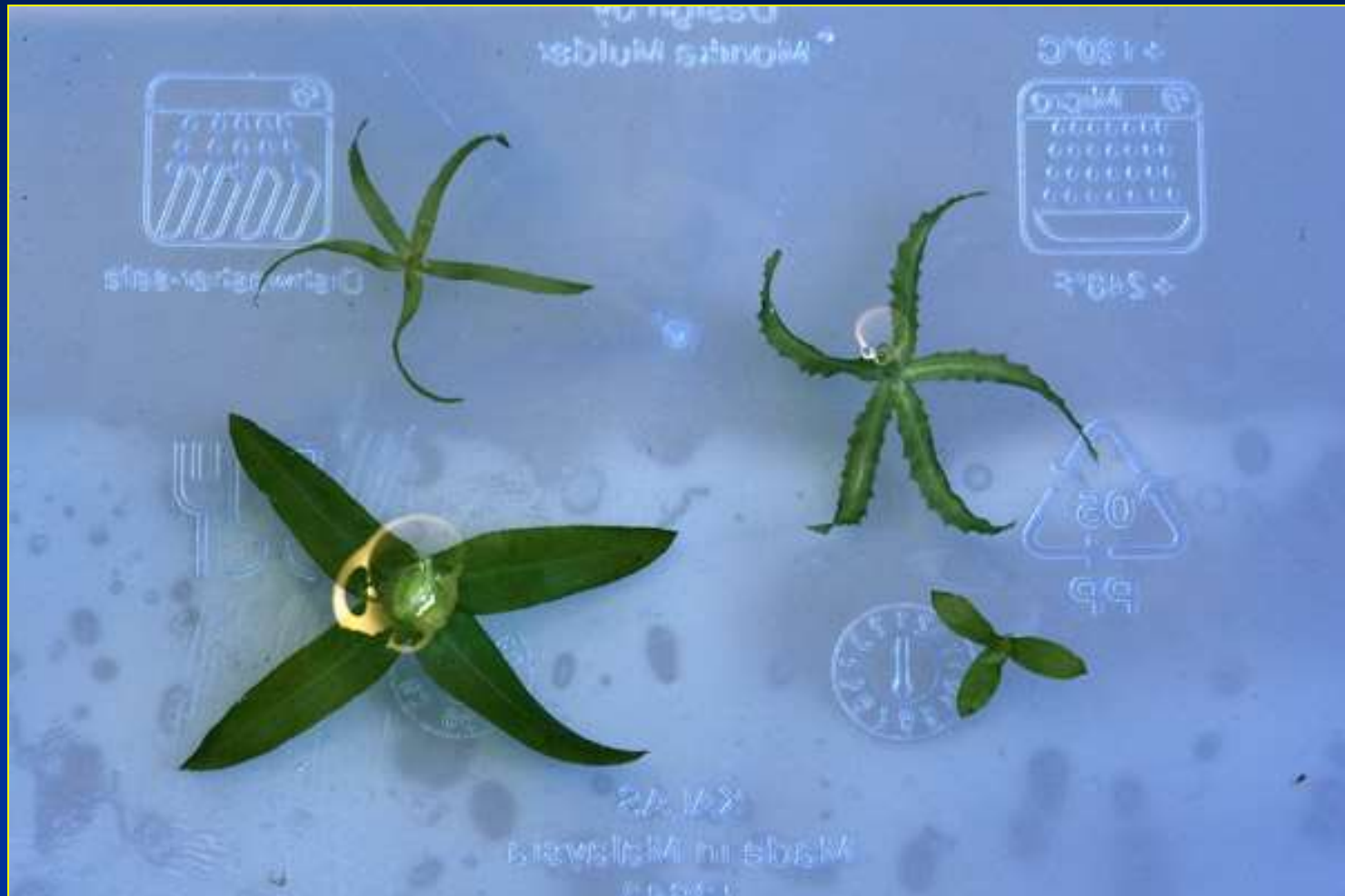
Aquatic Weed ID

Carolina Fanwort, *Cabomba caroliniana*



Aquatic Weed ID

Submersed plants with whorls of single leaves
Highly variable!



Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*



Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*



Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

HIGHLY VARIABLE!



Aquatic Weed ID

Hydrilla



Aquatic Weed ID

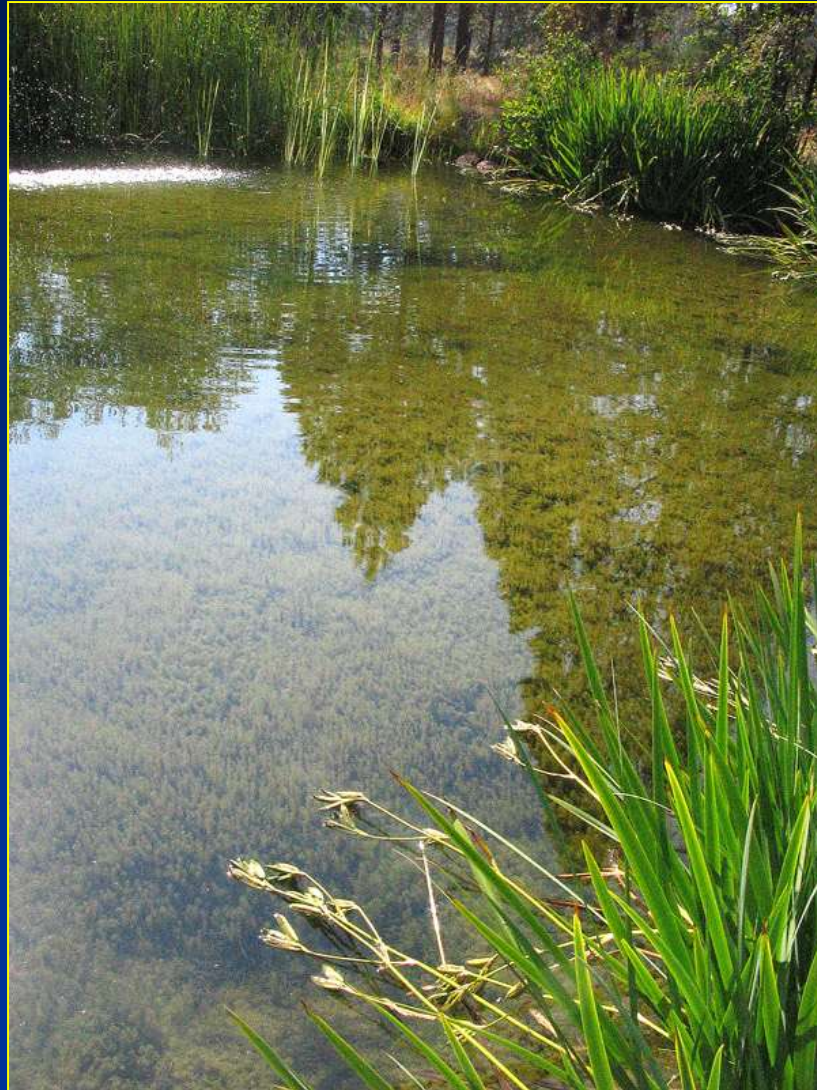
Hydrilla, *Hydrilla verticillata*



Aquatic Weed ID

Hydrilla, *Hydrilla verticillata*

Foothill pond
6'-10' deep



Aquatic Weed ID

Egeria, *Egeria densa*



Aquatic Weed ID

Egeria, *Egeria densa*



Aquatic Weed ID

Egeria, *Egeria densa*



Aquatic Weed ID

Egeria, *Egeria densa*



Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*

- Non-native
- Rare at present
- Under eradication
- Extremely hard to kill
- *Leaves opposite*
- **White** flowers



Found for the first time in Northern California 2017!

Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*



Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*



Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*



Aquatic Weed ID

Alligatorweed, *Alternanthera philoxeroides*



Aquatic Weed ID

Water Hyacinth, *Eichhornia crassipes*



Aquatic Weed ID

Water Hyacinth, *Eichornia crassipes*



Aquatic Weed ID

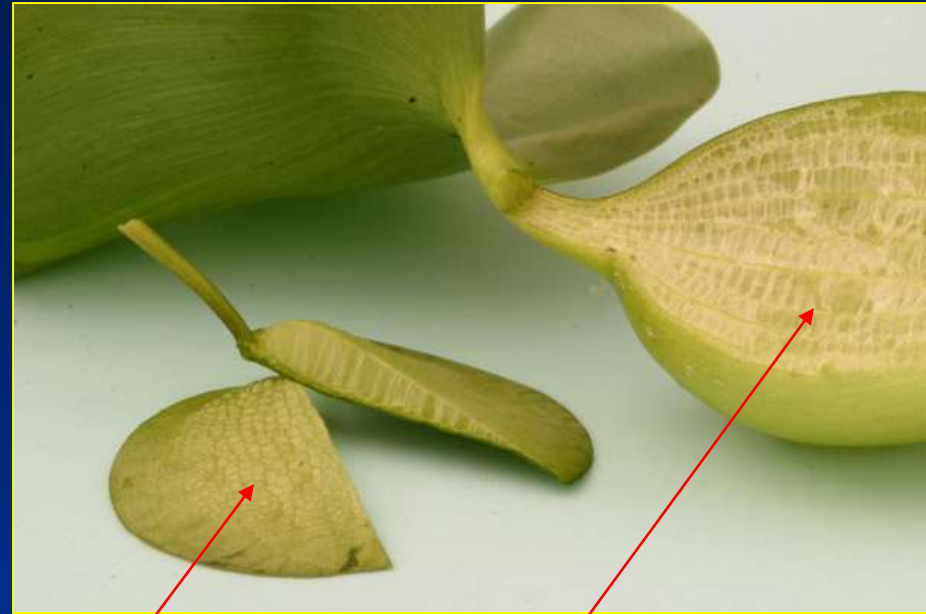
Smooth Frogbit, *Limnobium laevigatum*

- Similar leaf outline to hyacinth, but plant generally smaller
- Most leaves are thickened or keeled, and with crisp, spongy-foamy layer that provides floatation
- In hyacinth, floatation is in stems



Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*



spongeplant

hyacinth

Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*



Aquatic Weed ID

Smooth Frogbit, *Limnobium laevigatum*



Giant Salvinia, *Salvinia molesta*



Giant Salvinia can form dense populations in water storage and delivery systems. Heavy infestations slow water movement, destroy pumps, kill fish and encourage mosquito populations.



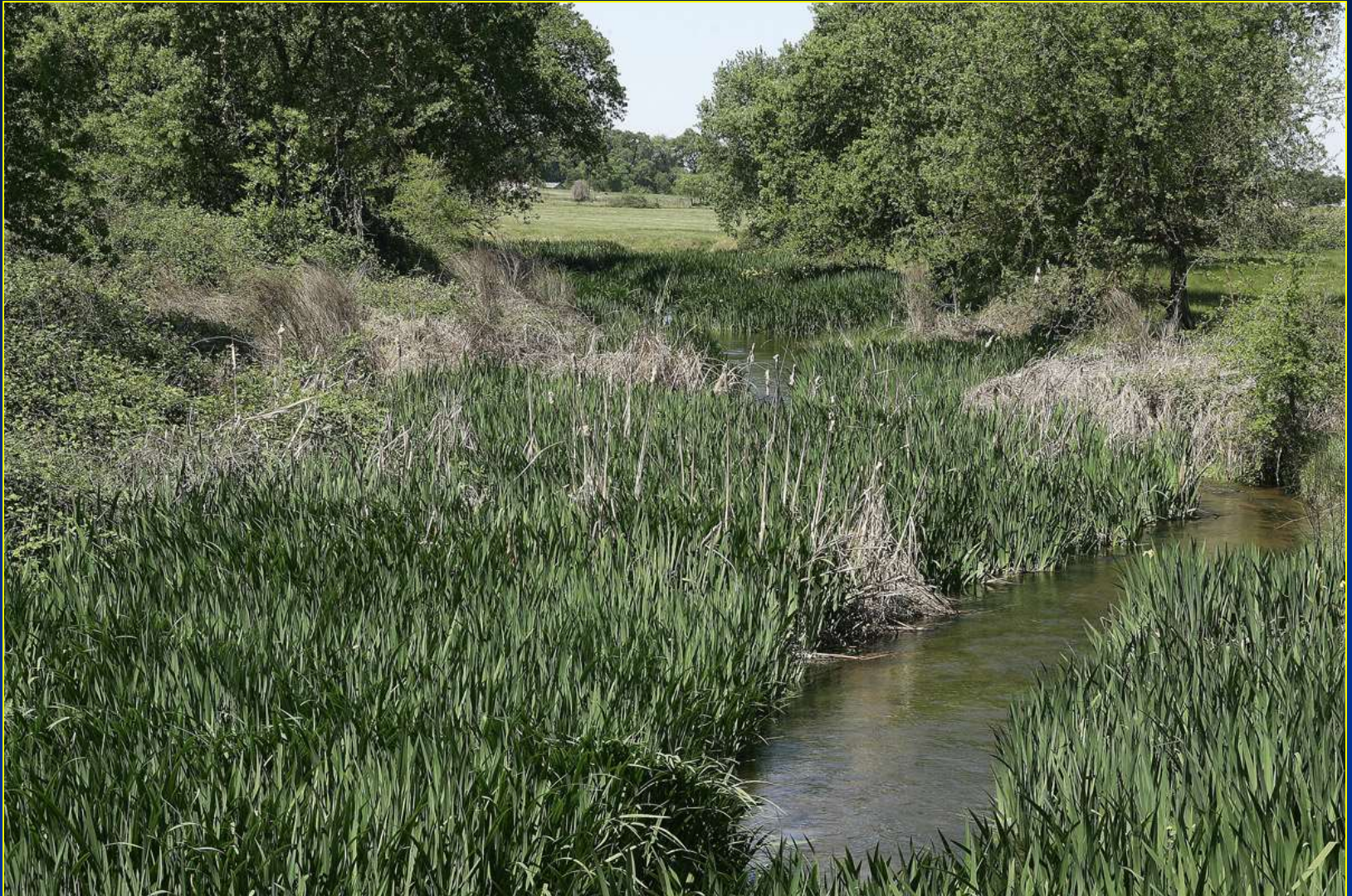
Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*



Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*



Aquatic Weed ID

Yellowflag Iris, *Iris pseudacorus*



Control Methods



Control Efforts

Mechanical Harvesters



Control Efforts

Fragmentation



Control Efforts



Control Efforts



Control Efforts



Control Efforts



Control Efforts



Control Efforts

Biological Control



Control Efforts

Biological Control, Leaf-eating Beetle (*Galerucella*, sp.)



Adult



Larva

Control Efforts

Plants skeletonized by Leaf-eating Beetle (*Galerucella*, sp.)



Control Efforts

Biological Control Agents Established in Shasta County



August, 2002



August, 2004

Control Efforts

Biological control agent collection.



Control Efforts

Biological control agent collection.



Control Efforts

Other Biological Control Agents



Root-boring Weevil,
Hylobius transversovittatus



Seedhead Weevil,
Nanophyes marmoratus

Control Efforts



Chemical Control



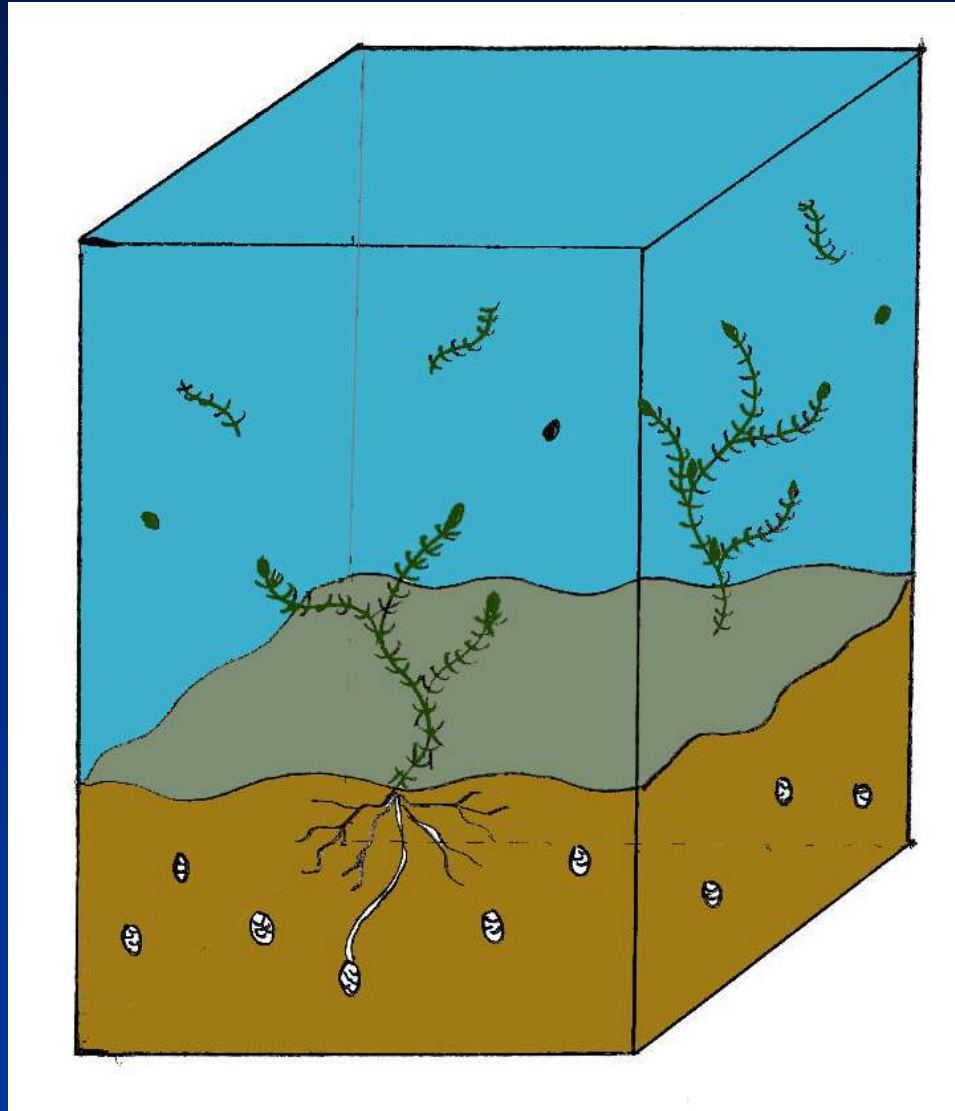
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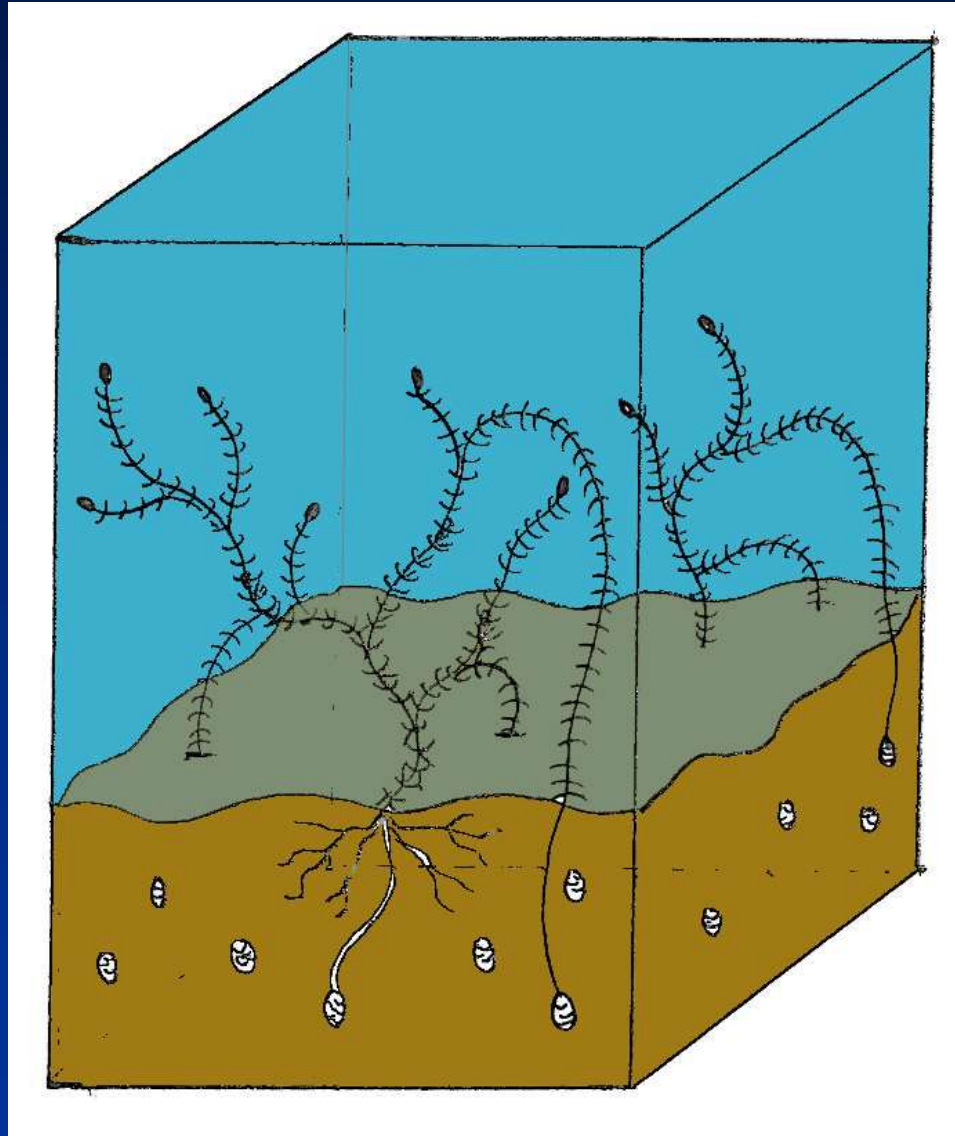
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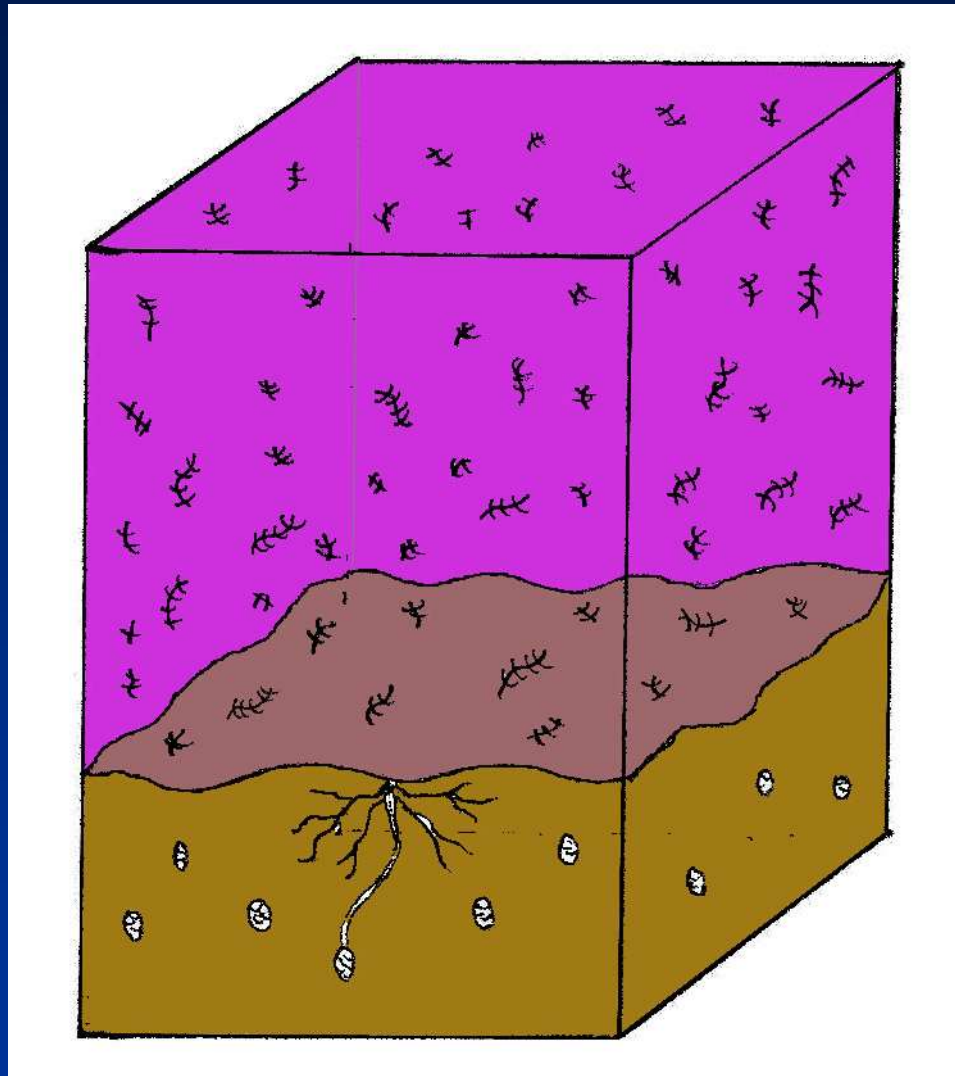
Tubers, turions and fragments



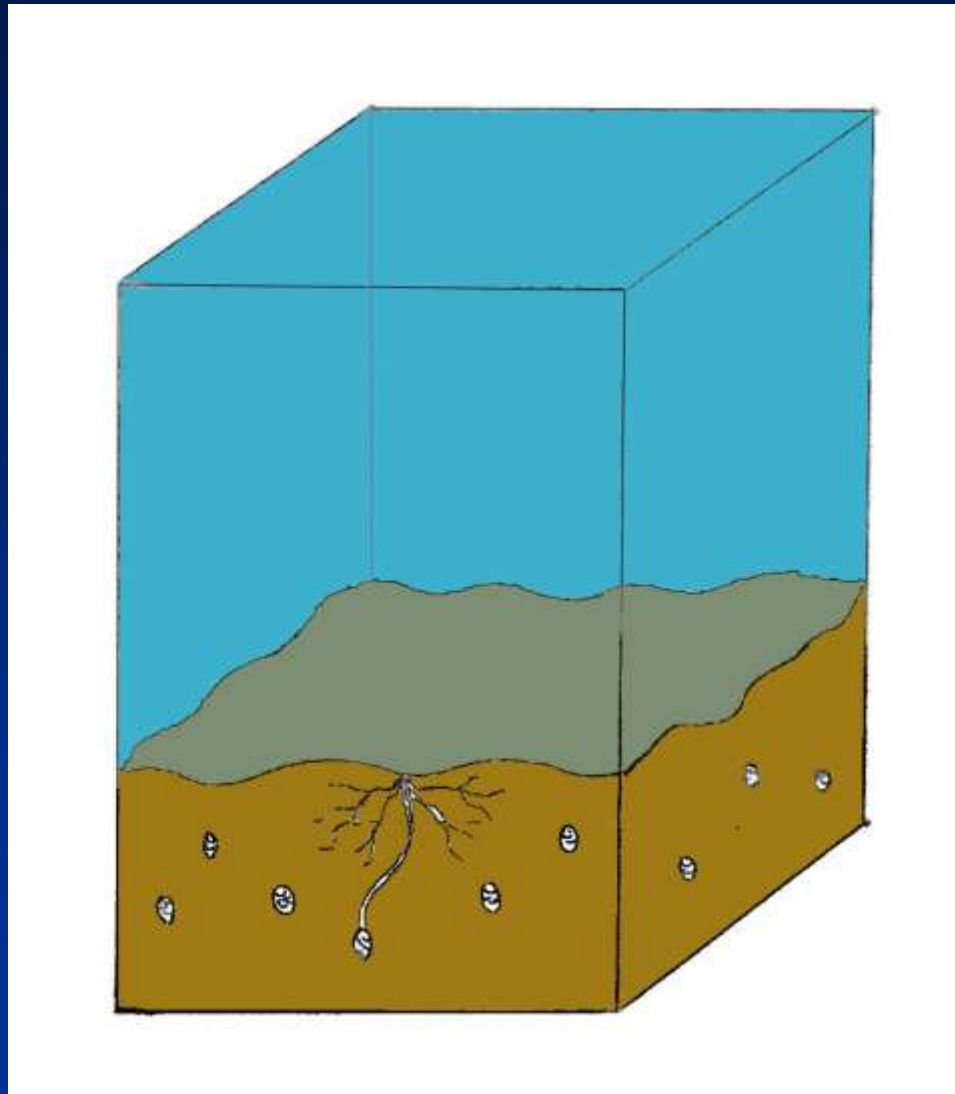
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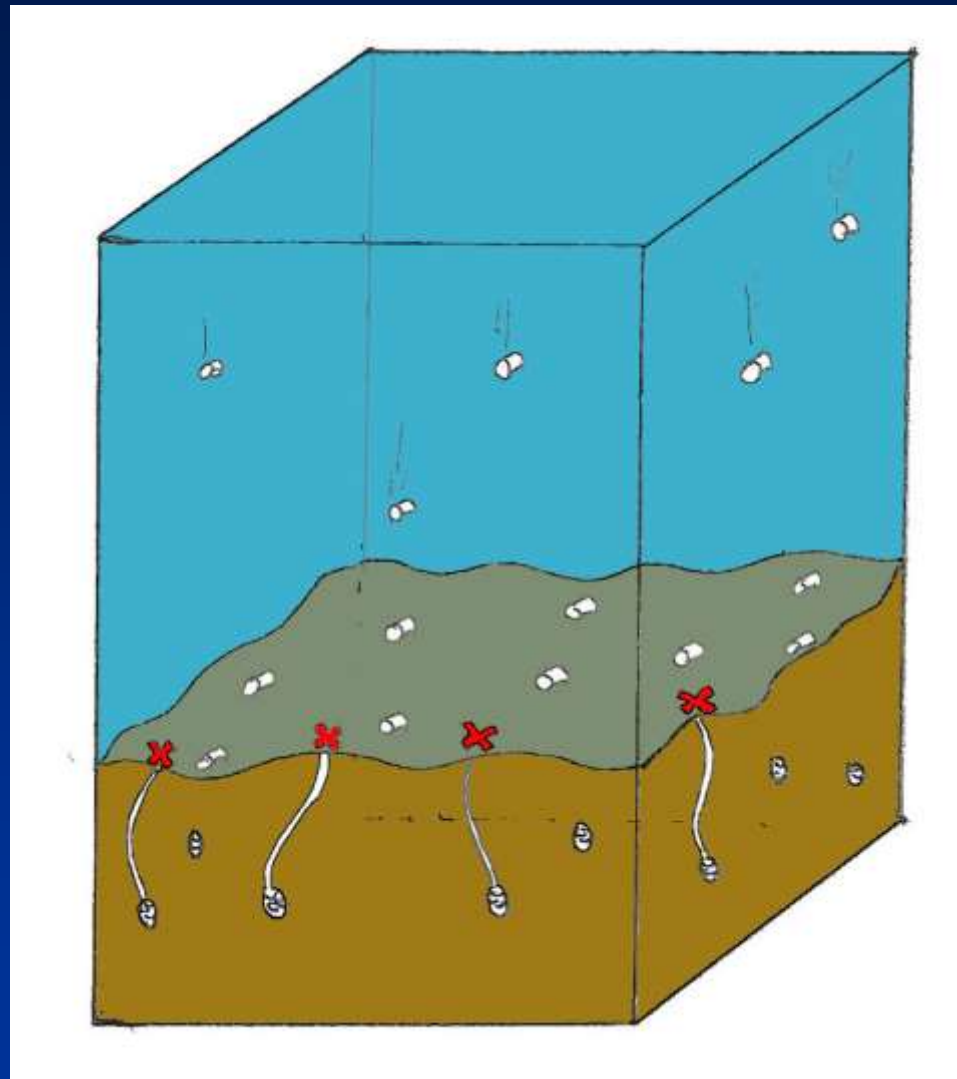
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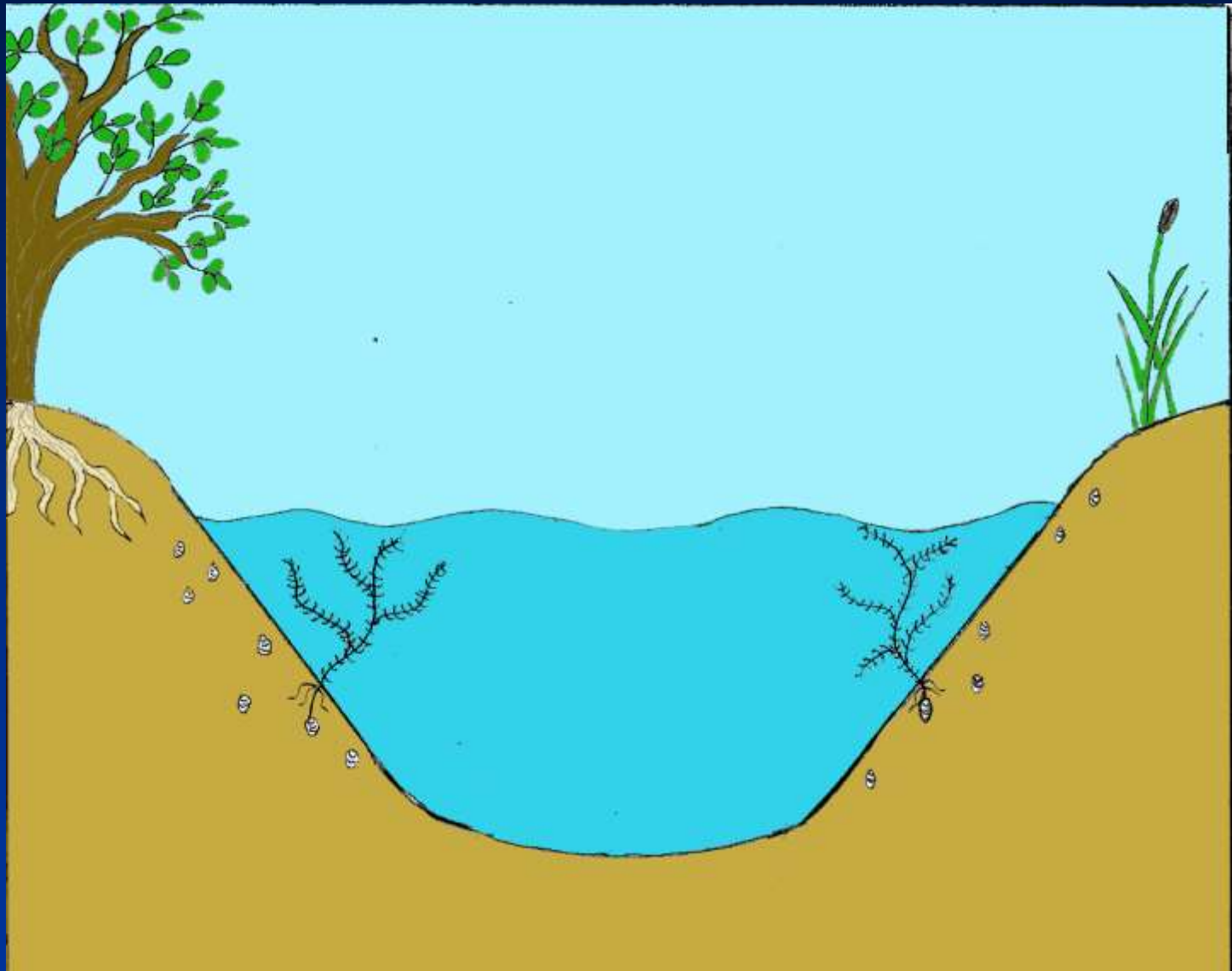
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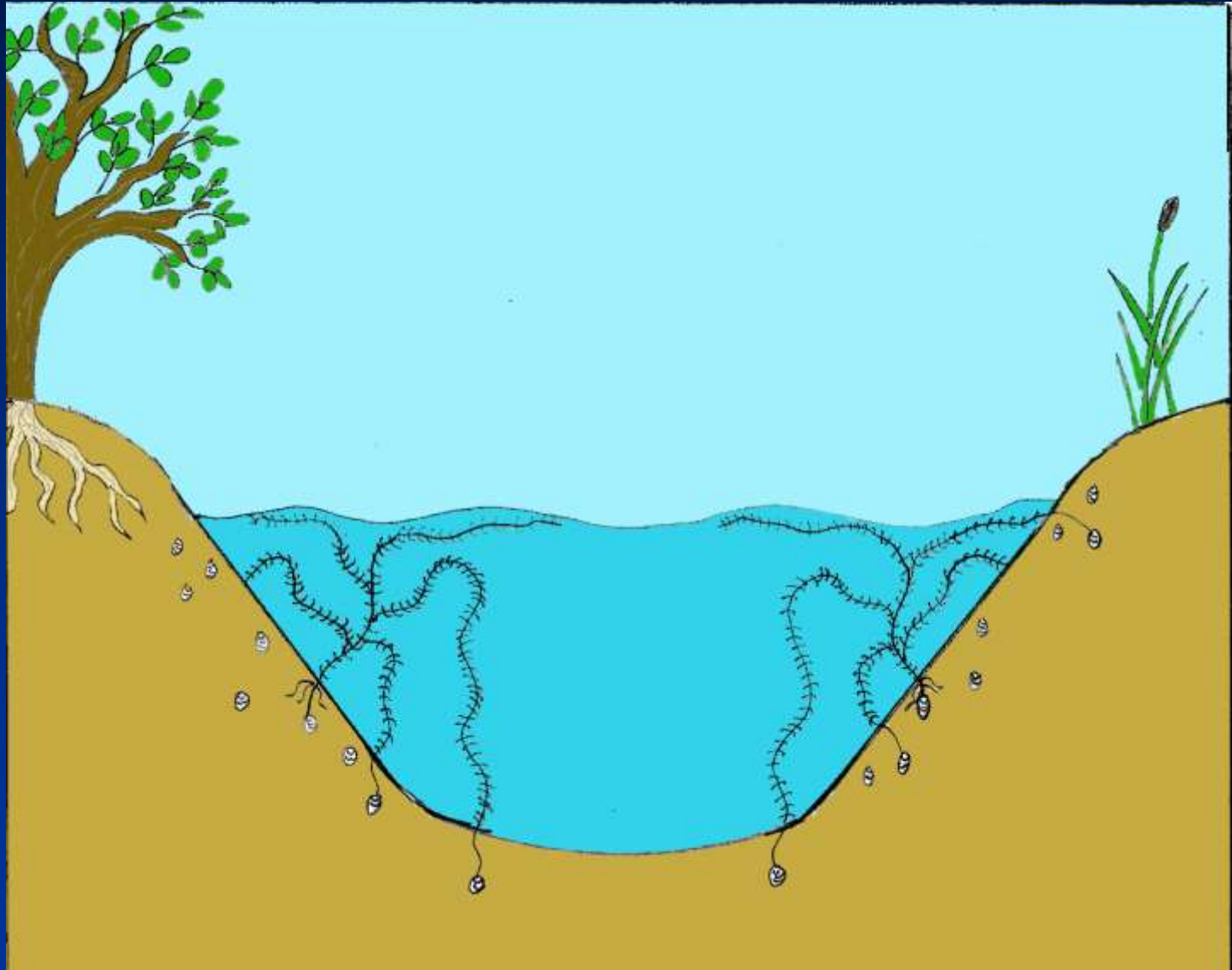
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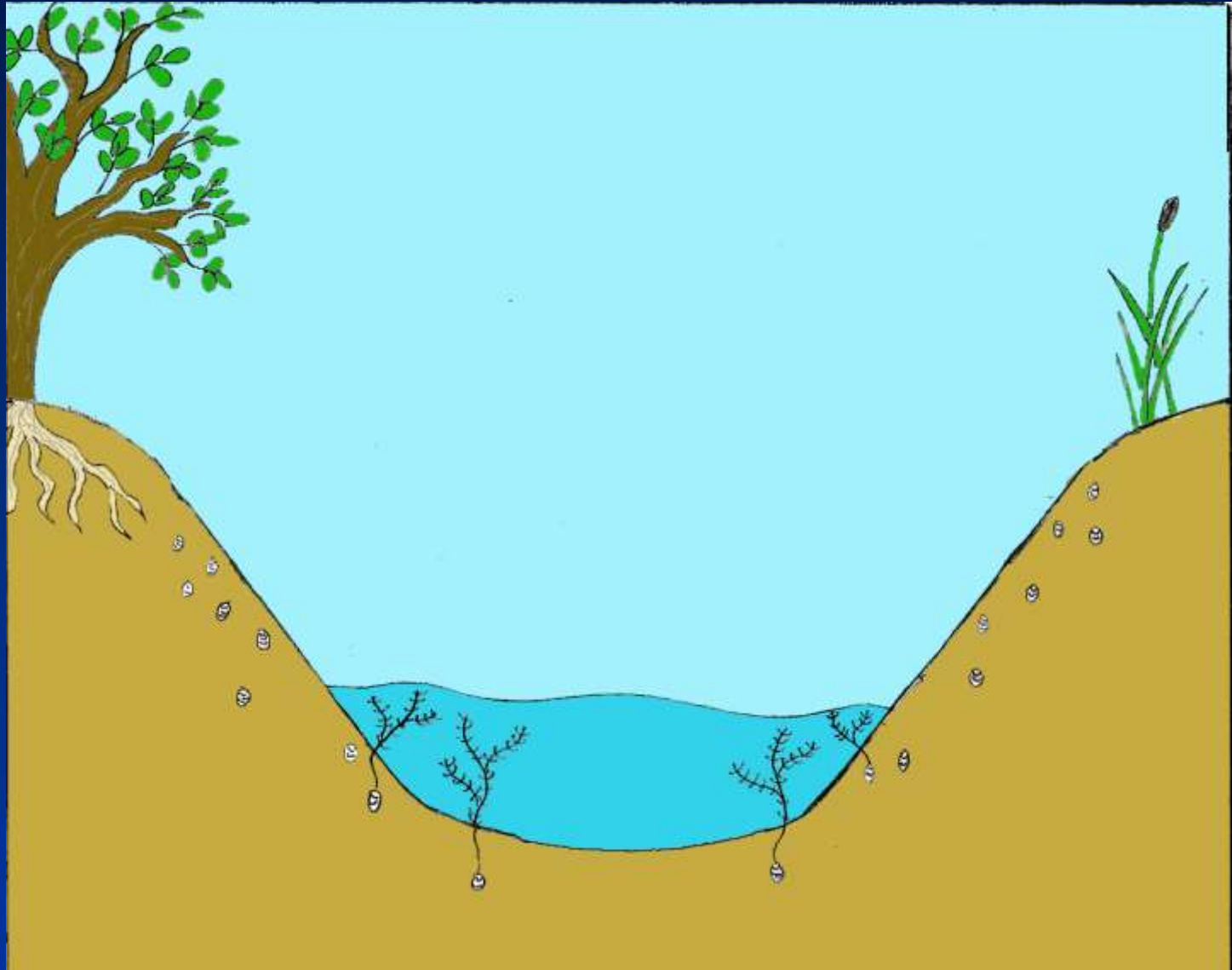
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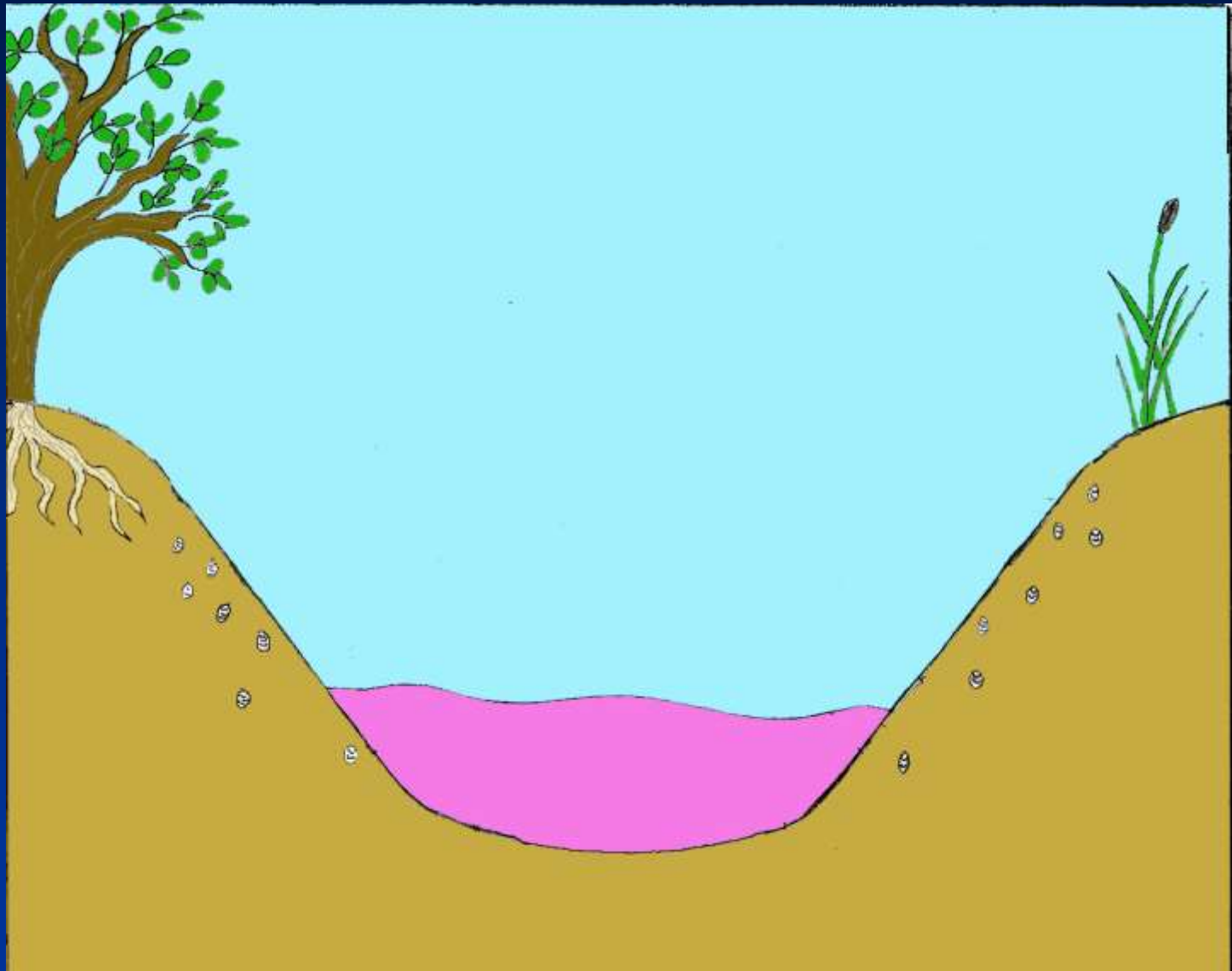
Tuber Production



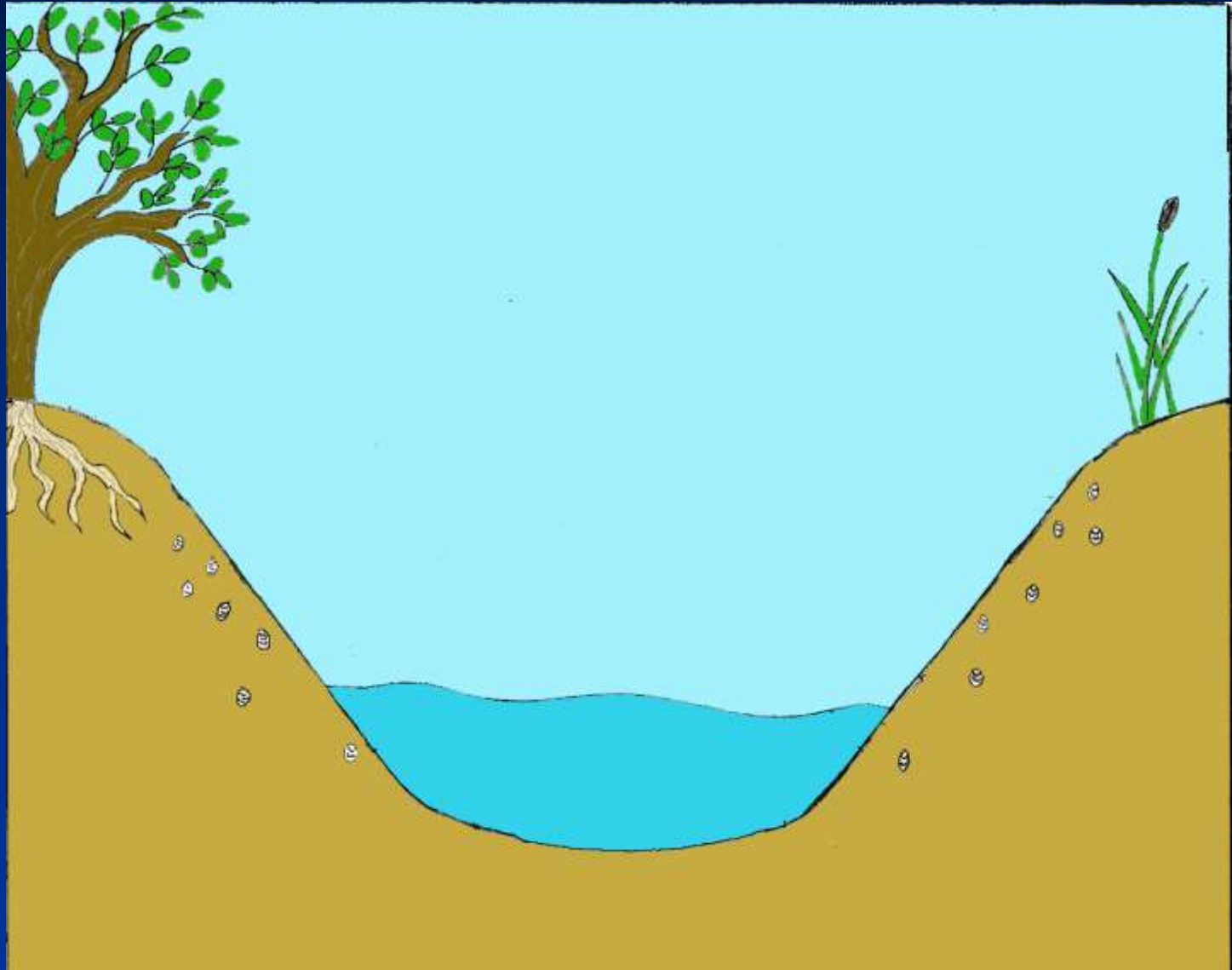
Low Water



Chemical Control

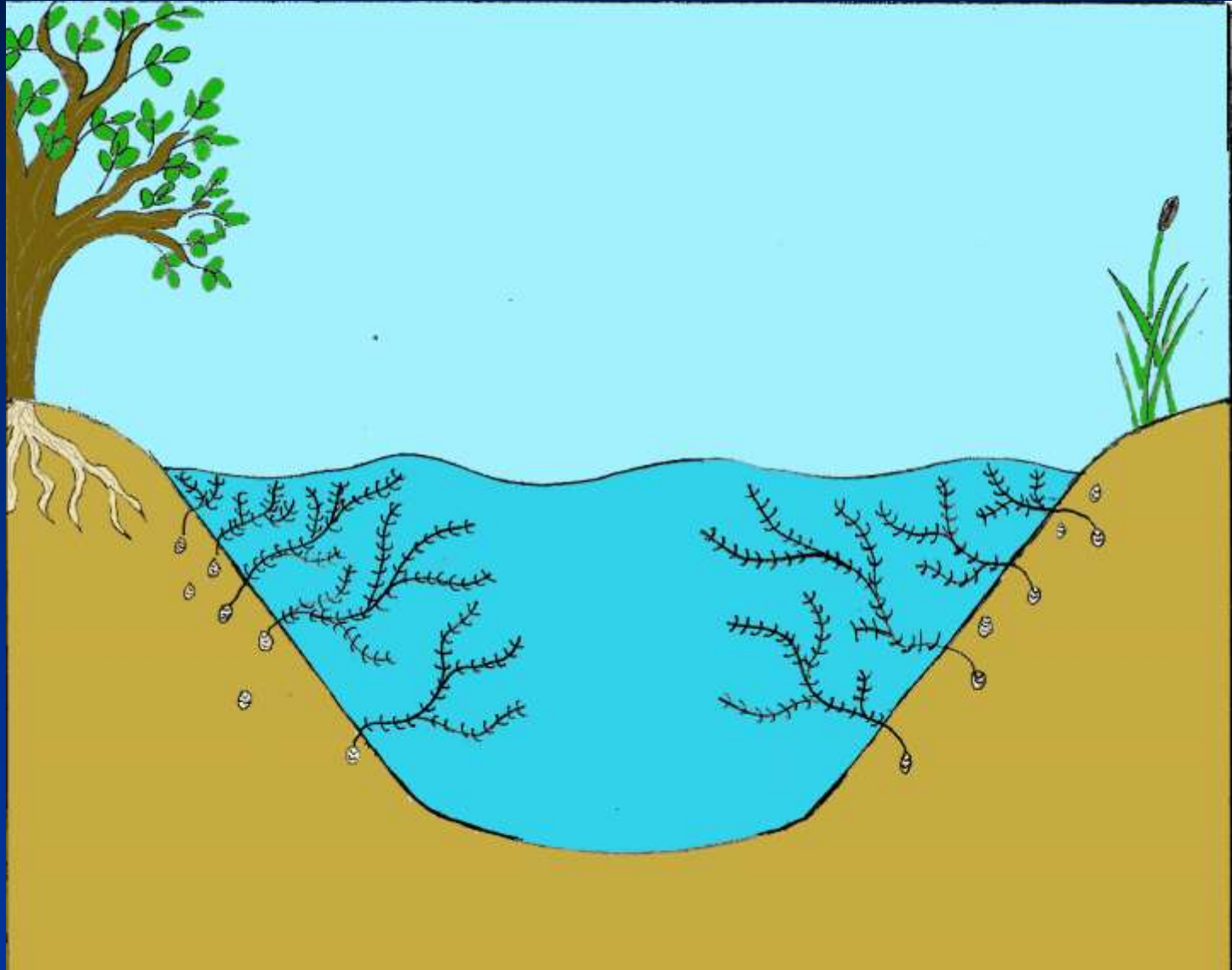


Reduce Tuber Bank



Full Pool

Protected Tubers Sprout



Chemical Control



Chemical Control



NPDES

- Talent Irrigation District.
- US EPA Memorandum “Interpretive Statement on Application of Pesticides to Waters of the United States in Compliance with FIFRA.
- CDFWA continuing water monitoring under NPDES permit.

Thank you

