

Village of Cambria

Population 1,330

Danny Rowatt &
Bruce Hagler

VILLAGE PEOPLE

Macabo Man



The Cambria Lagoon



Community Impact

- Grade School
- Playground
- Lagoon
- Community Center





Emerson St

Railroad St

Railroad Ln

W Mohan St

S Richard St

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Google Earth

In a nut shell....

- History of odor issues
- Installed Solar-Powered Mixers
- Improved water quality
- No major odor issues since
- No power bills and low maintenance

History

- Old facultative lagoon system circa 1960's
- Two main treatment cells ~3' water depth
- Followed by two small/shallow polishing cells with rock filters
- ~12.5 acres of total surface area
- Sludge removed circa 2007
- No electricity on-site
- No 3 phase power nearby



Emerson St

Railroad St

Railroad Ln

W Mohan St

S Richard St

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Problems

- Persistent odor issues in recent years
- Seasonal turnover of water
- Persistent duck weed coverage in summer

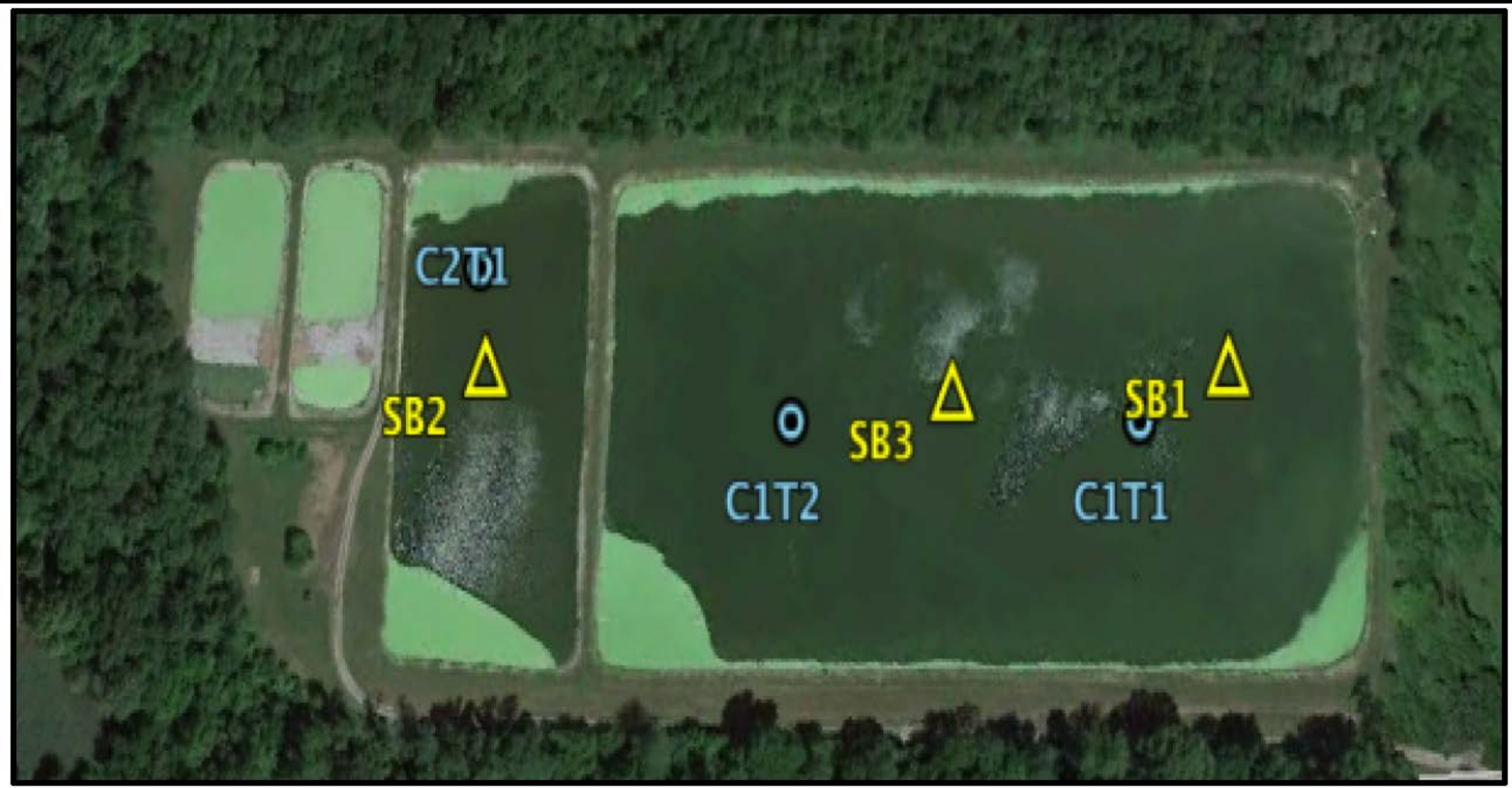


Options

- Submerged aeration
- Surface aeration
- Mixers

Solar Powered Mixers

- Cambria decided to install 3 Medora Solar Bee units
 - Model SB-2500
 - Direct Flow Rate: 350 GPM
 - Induced Flow Rate: 2,150 GPM
 - Combined Flow Rate: 2,500 GPM
- 2 units in the Primary Cell
- 1 unit in the Secondary Cell
- Installed November 2016



C2T1

SB2

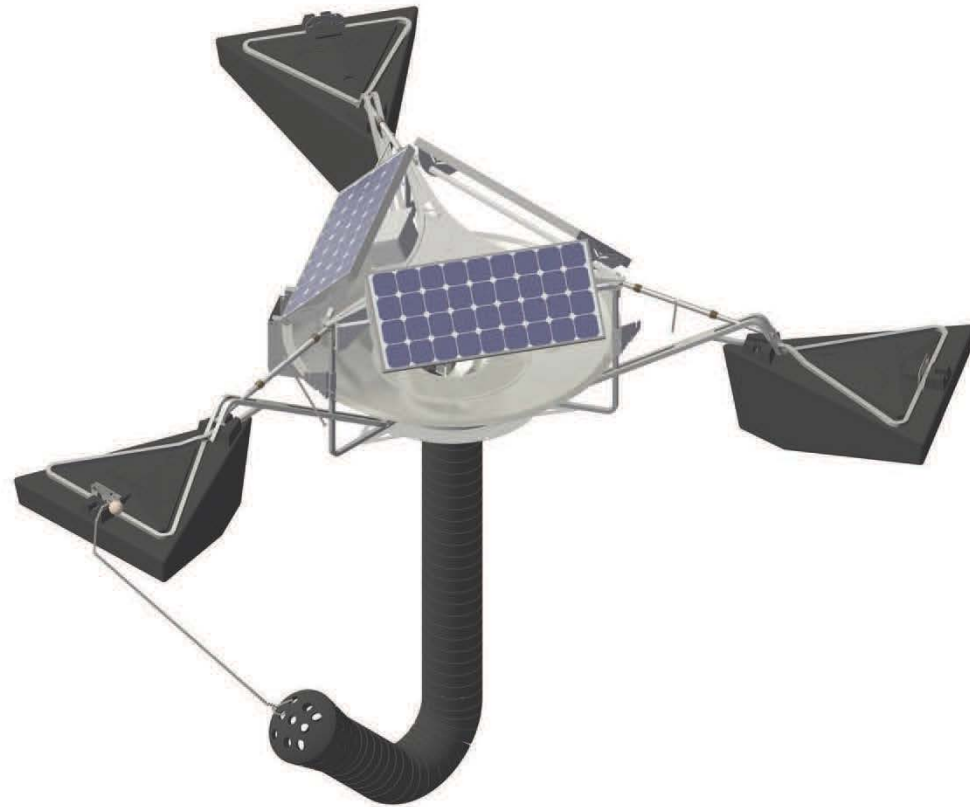
C1T2

SB3

C1T1

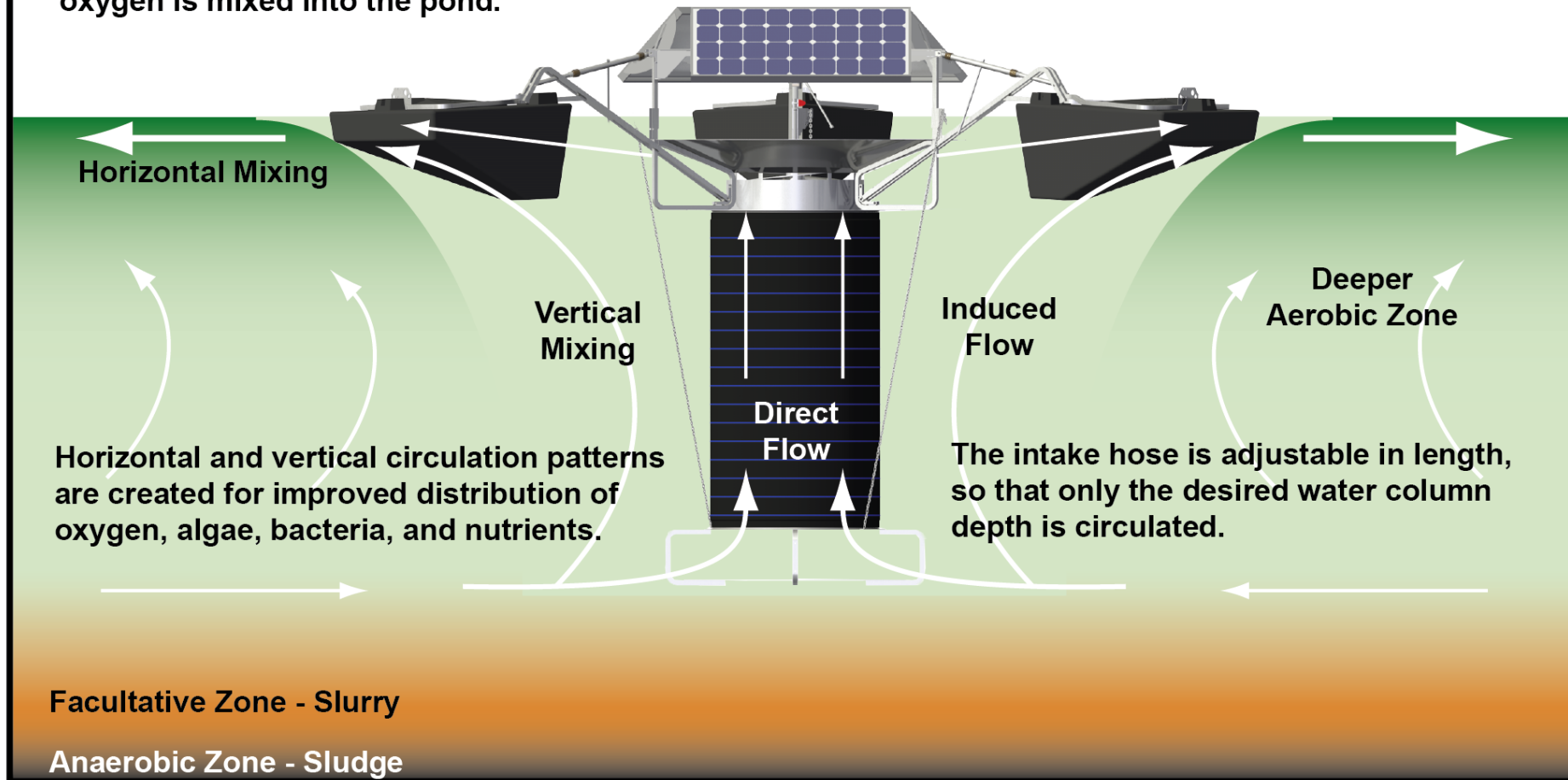
SB1

MODEL SB2500



Wastewater Mixing Large Machine

During the day, supersaturated oxygen in the top two feet are captured and mixed deeper into the pond. At night, when the surface is below saturation oxygen, surface re-aeration occurs and atmospheric oxygen is mixed into the pond.



Observations

- No major odor issues since installation
- Improved water quality
- Freezing event in winter of 2017 – no adverse affects on mixers
- May 2017 – Flourishing Daphnia (“Water Fleas”)
- Low maintenance; Replaced one battery this fall

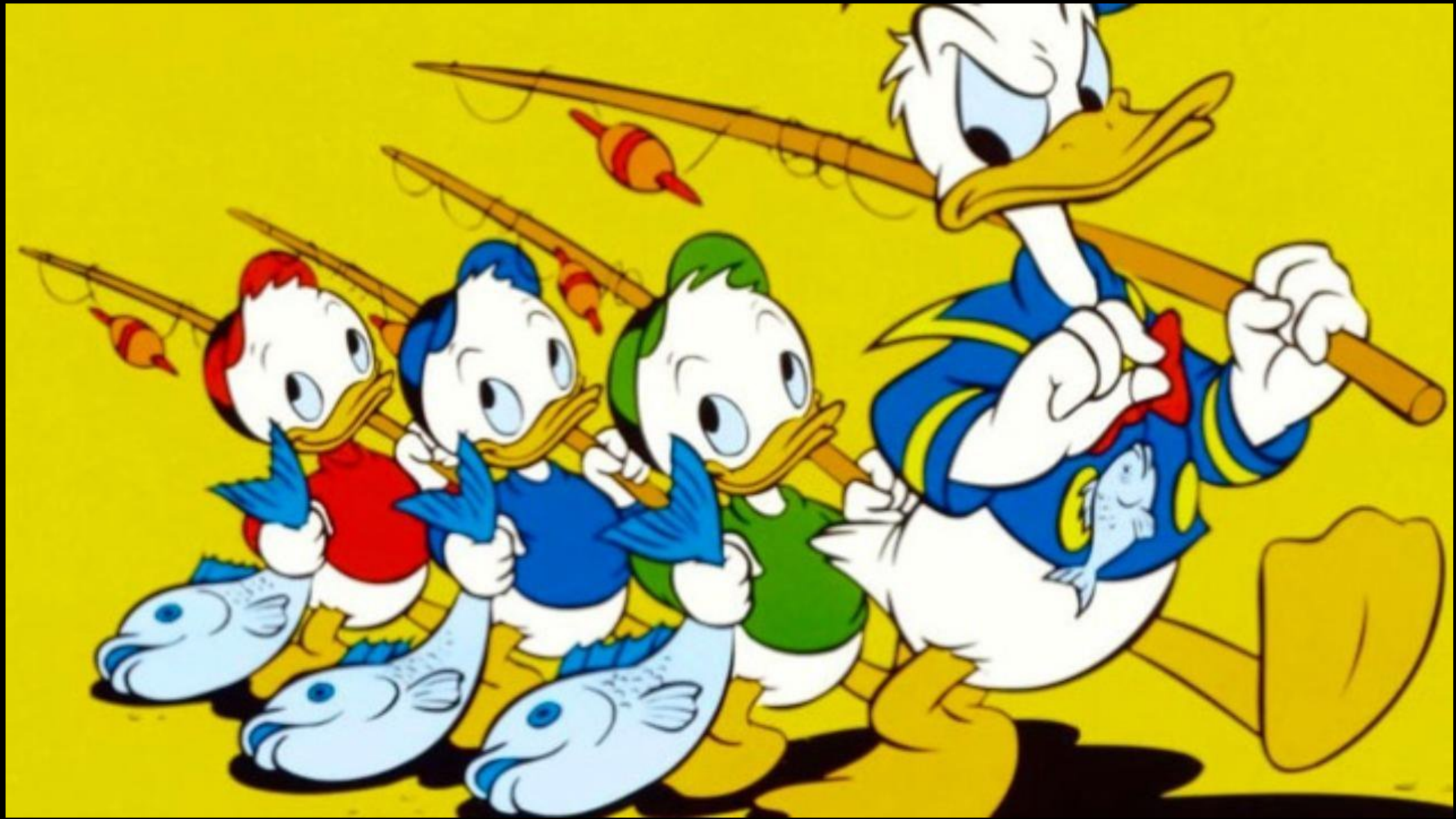


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Pug bugs!!!





Ducks!!!!

- Duckweed is hard to control in summer
- Duckweed blocks out sunlight
- Competes with beneficial algae in water
- Mixing has helped, but duckweed still a nuisance

Summary

- You can improve your treatment process using solar technology
- Mixers can control odors and improve water quality
- Can extend life of your lagoon (better aerobic treatment, less sludge over time)

Other potential applications

- Lagoons
 - Odors
 - Improved treatment
 - Phosphorous Removal via chemical addition
- Excess Flow Basins
- Activated Sludge
 - Separate mixing from aeration
 - Mixing of anaerobic zones for nutrient removal

Thank you !