

# Paradise EWM Management Options (2022-2026)

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# Non-Chemical Methods

# Mechanical Harvesting

## Benefits

- ▶ Cuts aquatic plants from 2-8 feet depth
- ▶ Removes biomass
- ▶ Removes stem nutrients
- ▶ Immediate results
- ▶ Quickly removes canopy
- ▶ Does not require a permit
- ▶ Can be conducted multiple times per season

## Limitations

- ▶ Requires use of launch site and dump (transfer) site
- ▶ Can result in EWM fragments if they are not removed
- ▶ Can create rafts of vegetation that may break loose and float to beaches/shore if not removed

# Benthic Barriers

## Benefits

- ▶ Requires a bottomland permit from EGLE
- ▶ Must be installed in early spring prior to plant germination
- ▶ Prevents most vegetation from growing in a specific area
- ▶ Can be purchased in various sizes—some that exceed 400' x 400'
- ▶ Most applicable in beach areas
- ▶ Affordable

## Limitations

- ▶ Only addresses small areas
- ▶ May float up and create navigation hazards
- ▶ Are not selective in reducing only invasive aquatic plant growth
- ▶ May create negative conditions for bottom-dwelling life

# Diver Assisted Suction Harvesting (DASH)

## Benefits

- ▶ Requires a bottomland permit from EGLE
- ▶ Must use certified divers
- ▶ Very site-specific
- ▶ Uproots plants and removes all biomass
- ▶ Most applicable in beach or small areas

## Limitations

- ▶ Only addresses small areas but can be extrapolated to larger areas with more boats/divers
- ▶ Requires turbidity curtain to contain sediments and fragments
- ▶ Costly per area



# Biological Control

## Benefits

- ▶ Requires an EGLE permit
- ▶ Must be applied to individual stems via divers/snorkelers
- ▶ Specific to EWM
- ▶ Can address dense EWM areas if stocked properly
- ▶ Aquatic fungus being researched but not permitted at this time

## Limitations

- ▶ Subject to successful breeding and stocking
- ▶ Not commercially available at this time so must be cultured for the lake
- ▶ Costly per area

# Chemical Methods

# Diquat dibromide

## Benefits

- ▶ Is a contact herbicide and broad-spectrum
- ▶ Requires EGLE permit
- ▶ Used on nuisance native and invasive plants that are dense/nuisance level
- ▶ Quickly absorbed and assimilated by plant tissue
- ▶ Quick results with dropping of plants within days/week
- ▶ Low in cost (typically < \$300 per acre)

## Limitations

- ▶ Not species-specific
- ▶ Not recommended for large areas
- ▶ Restrictions on areas of applications via permits
- ▶ Limited offshore use
- ▶ Long-term impacts not well understood



# Flumioxazin

## Benefits

- ▶ Is a contact herbicide and broad-spectrum
- ▶ Requires EGLE permit
- ▶ Used on nuisance native and invasive plants that are dense/nuisance
- ▶ Quickly absorbed and assimilated by plant tissue
- ▶ Quick results with dropping of plants within days/week
- ▶ High in cost (typically >\$900 per acre)

## Limitations

- ▶ Not species-specific
- ▶ Long-term impacts not well understood
- ▶ Not recommended for large areas
- ▶ Restrictions on areas of applications via permits
- ▶ Limited offshore use

# Triclopyr

## Benefits

- ▶ Requires EGLE permit
- ▶ Used on EWM but may also treat dense lily pads
- ▶ Quickly absorbed and assimilated by root tissue-systemic
- ▶ Slow death of EWM---requires 4-8 weeks for evidence of dying/death
- ▶ High in cost (typically >\$600 per acre)
- ▶ Comes in liquid and granular formulas)
- ▶ Can be used in areas with shallow well restrictions

## Limitations

- ▶ All applications require relatively calm waters
- ▶ More effective on dense EWM
- ▶ 120 day watering restriction for ornamentals after application—may be released through assays
- ▶ May require use of adjuvant if in large body of water or with winds

# 2,4-D (2,4-dinitrophenoxyacetic acid)

## Benefits

- ▶ Requires EGLE permit
- ▶ Used on EWM but may also treat dense lily pads
- ▶ Quickly absorbed and assimilated by root tissue-systemic
- ▶ Slow death of EWM---requires 4-8 weeks for evidence of dying/death
- ▶ High in cost (typically >\$600 per acre)
- ▶ Comes in granular formulas

## Limitations

- ▶ All applications require relatively calm waters
- ▶ More effective on dense EWM
- ▶ Watering restriction for turf
- ▶ Cannot be used in shallow wells

# ProcellaCOR®

- ▶ Requires EGLE permit
- ▶ Used for spot-treatment
- ▶ Usually has a 3-year guarantee
- ▶ Used on EWM but may also treat dense lily pads
- ▶ Quickly absorbed and assimilated by root tissue-systemic
- ▶ Faster death of EWM---requires 3-6 weeks for evidence of dying/death
- ▶ High cost per PDU (>\$1,000/acre)
- ▶ Comes in liquid formula
- ▶ All applications require relatively calm waters
- ▶ Most effective in shallow waters
- ▶ More effective on dense EWM
- ▶ Cannot be applied frequently
- ▶ Requires special monitoring/sampling per EGLE permit



# Fluridone (SONAR)

- ▶ Requires EGLE permit
- ▶ Whole-lake treatment; some formulas are spot-treatment
- ▶ Used on EWM but may also treat dense lily pads
- ▶ Quickly absorbed and assimilated by root tissue-systemic
- ▶ Slow death of EWM---requires 4-8 weeks for evidence of dying/death
- ▶ Low cost per whole lake area
- ▶ Comes in liquid formula
- ▶ All applications require relatively calm waters
- ▶ More effective on dense EWM
- ▶ May impact other native species
- ▶ May be associated with hybridity resistance
- ▶ Cannot be applied frequently
- ▶ Requires special monitoring/sampling per EGLE permit



# Other Methods

# Do Nothing-No Action

## Benefits

- ▶ No cost
- ▶ Natural

## Limitations

- ▶ Will exacerbate density/spread of EWM
- ▶ Will lead to increased cost of management later
- ▶ May lead to community conflict
- ▶ Will lead to reduced biodiversity of native aquatic plants
- ▶ Will reduce property values

# RLS Recommendations

- ▶ Lake community-wide survey to determine MAJORITY philosophy for management of EWM
- ▶ Hold community-wide meeting (can be part of a special PLIB meeting) outdoors if needed to discuss these options and get consensus
- ▶ Proceed with public hearings using method(s) most supported
- ▶ If herbicides used, have RLS scientists carefully oversee the entire process---permitting, application, evaluation (objective and due diligence)