

STANDLEY LAKE REGIONAL PARK

SECURITY ASSESSMENT

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Study Session

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PURPOSE

To provide information to City Council on the completed Standley Lake Security Assessment, including proposals for protecting water quality, the ecosystem, and recreational amenities.



AGENDA

- **Background and purpose of the assessment**
- **Standley Lake ownership and management**
- **Security assessment results: gaps and top considerations**
- **Boating at Standley Lake**
- **Policy discussion**



MANAGEMENT CONSIDERATIONS



Drinking water

Primary goal of the agreements between the three cities is to protect the sole source for drinking water:

- Protect public health and safety
- Keep water rates affordable



Recreation



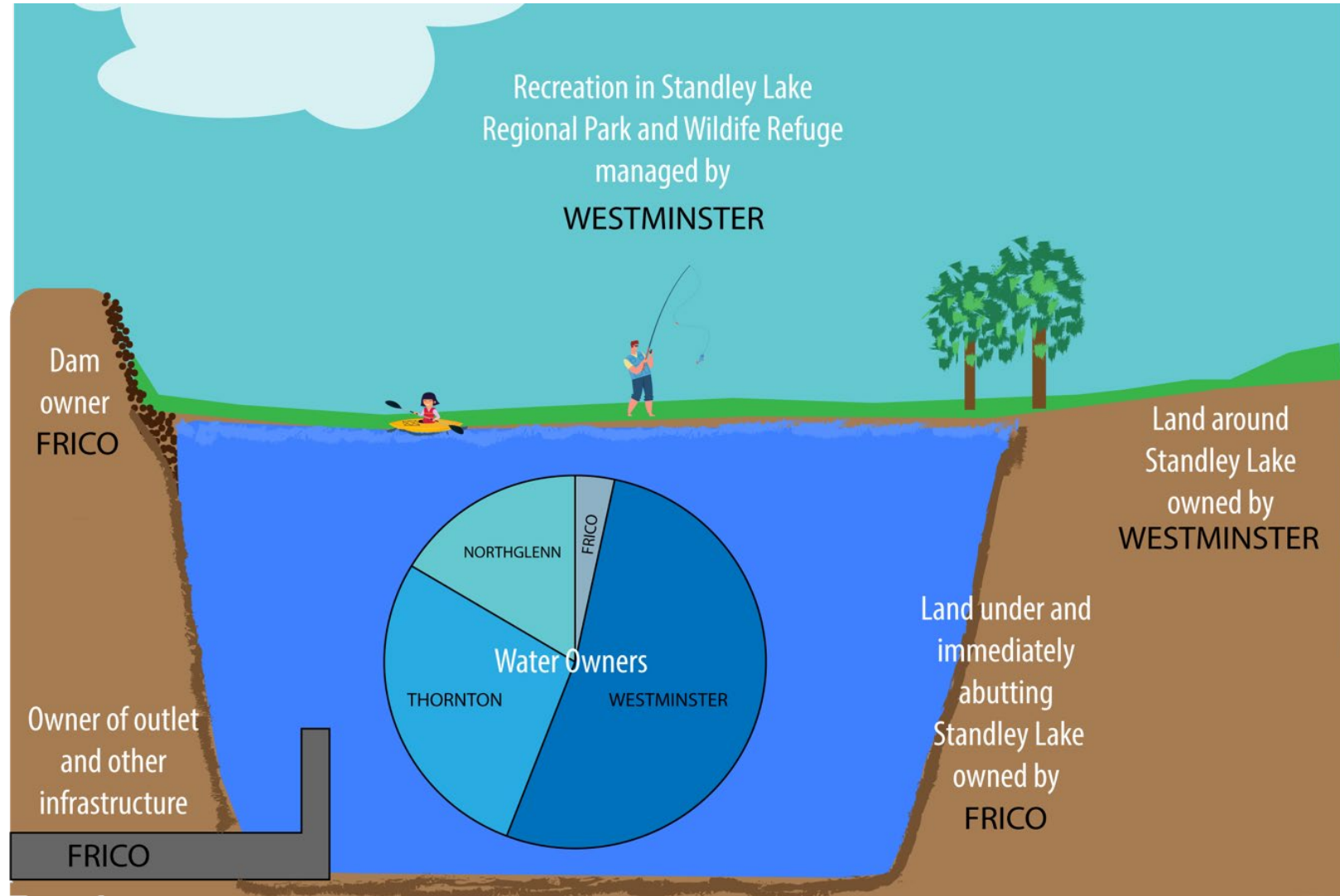
Wildlife refuge



OWNERSHIP AND MANAGEMENT

The 2020 Standley Lake Park Intergovernmental Agreement (IGA) is the legal contract between the water owners for cooperative management of the reservoir as a Regional Park and Wildlife Refuge.

- *“the protection of water quality shall continue to be the top priority, and under this Second Amendment, the Cities have the right to terminate any recreation activity if it impacts water quality”*

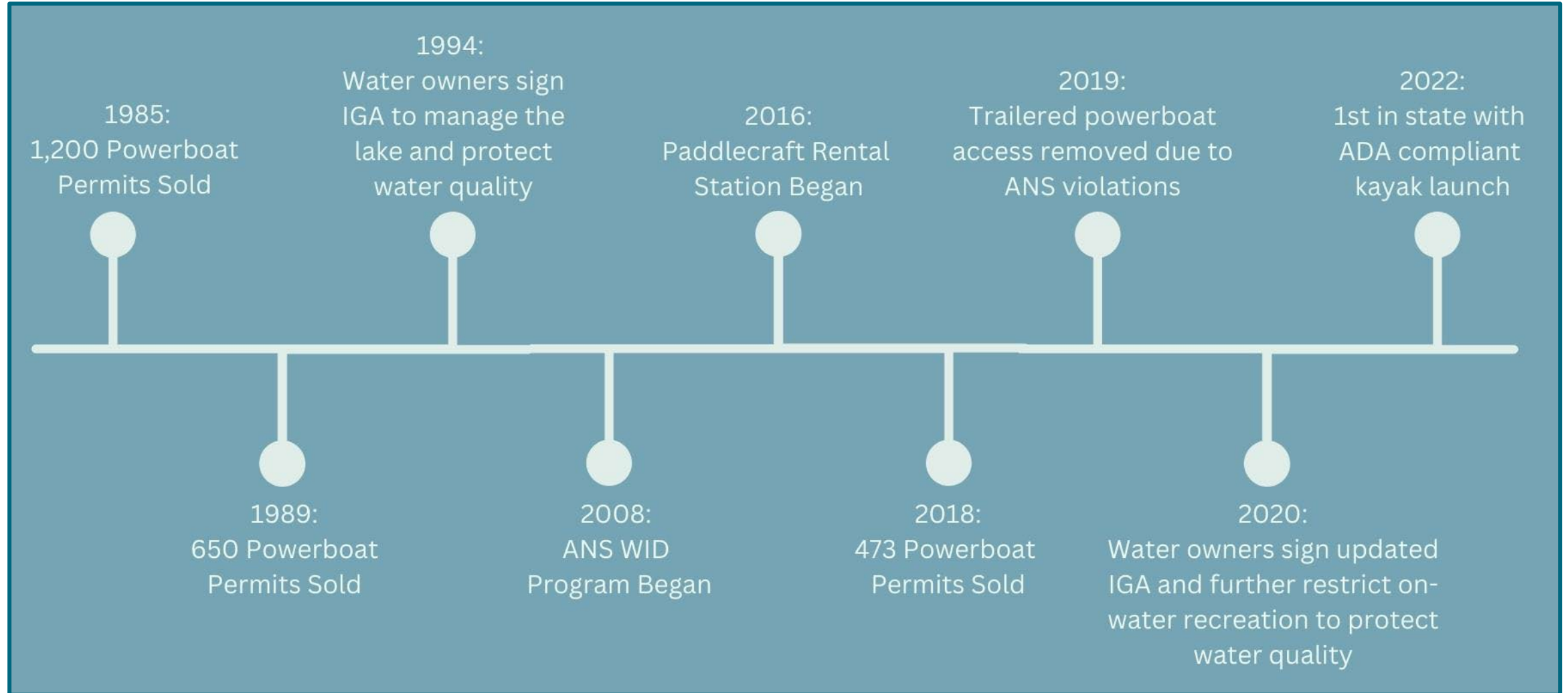


SECURITY ASSESSMENT: IDENTIFIED GAPS AND TOP CONSIDERATIONS

Gap	Consideration
Public Outreach	Coordinated public outreach program
Emergency Preparedness	Coordinated emergency response drills
Extreme Events (fire, flood, contaminant spill)	Agreement for water diversions
Nutrient Loading	Identify and mitigate Croke Canal phosphorous source
Aquatic Nuisance Species (ANS)	ANS Early Detection and Rapid Response (EDRR) Plan Upstream monitoring and management plan development



BOATING HISTORY AT STANDLEY LAKE



BOATING PERMIT SALES

1985	1989	1990	2000	2005	2008	2015	2018
1200	650	625	600	575	550	521	473



AQUATIC NUISANCE SPECIES PATHWAYS OF CONCERN

- Boating
- Fishing
- Organisms in trade
- Professional services
- Natural vectors

WATERCRAFT RISK

STANDLEY LAKE REGIONAL PARK AND WILDLIFE REFUGE

HAND-LAUNCHED &
NON-MOTORIZED =
LOW RISK



These boats pose the lowest risk of introducing an invasive species, disrupting wildlife habitat, or impacting water quality.

Allowed on Standley Lake

SIMPLE BOATS
=
MEDIUM RISK



These non-trailer, open hull boats have no compartments that carry water. Small electric motors are allowed.

COMPLEX BOATS =
HIGH RISK



These boats are motorized, trailered, and have spaces on board that carry water. They pose a high risk of introducing an invasive species and may negatively impact wildlife habitat or water quality.

Not Allowed on Standley Lake

VERY COMPLEX BOATS =
VERY HIGH RISK



The highest risk boats include boats with ballast and boats with raw water systems.



ON-LAKE RECREATION

Currently **ALLOWED**

- **Hand-launched watercraft**
- **Propulsion systems:**
 - Paddle craft (human powered)
 - Sailboats (wind-powered)
 - Small electric motors



ON-LAKE RECREATION

Currently NOT ALLOWED

CONT'D

- Aquatic bait
- Belly boats
- Large electric motors
- Gas, diesel, or jet engines
- Hunting
- Launching any kind of watercraft from a trailer
- Personal float tubes
- Scuba diving, swimming, wading
- Single-chambered flotation devices, including inflatable rafts, inner tubes, mattresses, pool toys or any floating device not designed for open water use



BOATING BENEFITS AND IMPACTS

BENEFITS

- Health (mental, physical, emotional)
- Community
- Direct revenue for Westminster from boating permits
- Ancillary income for Westminster due to associated business sales

IMPACTS

- Aquatic ecosystem
- Aquatic nuisance species
- Noise pollution
- Safety
- Shoreline erosion
- Water clarity
- Water quality
- Cost to mitigate mussel infestation*
 - **Capital: \$11.3 - \$49.3M**
 - **Annual O&M: \$2.3 - \$3.75M**

**Quagga/Zebra Mussel Risk Assessment and Treatment Study Update (HDR, 2018), cost estimate converted to 2022 dollars.*



OPTIONS TO MITIGATE MUSSEL INFESTATION

Method	Notes
Biological – Zequanox (bacteriological)	Cost prohibitive for full scale implementation
Mechanical Filtration	Significant cleaning required; unlikely to be capable of handling the flow demand for Standley Lake
UV Radiation	Effectiveness can be impacted by turbidity; very high energy cost to operate; unlikely to be capable of handling the flow demand for Standley Lake
Carbon Dioxide	Emerging. Only tested in laboratory setting.
Copper Ion*	May not be suitable for high flow demand; high potential for impacts to wastewater treatment plant (few options for managing copper concentrations).
Chemical Oxidants* (chloramines)	Requires high dosing

*Currently the best options for treatment



COST TO MITIGATE MUSSEL INFESTATION

Method	Estimated Capital Cost	Estimated Annual O&M	Notes
Chemical Oxidants (Chloramines at intake)	\$11,118,579	\$3,365,187	Potential for increased disinfection byproducts; may not be compatible with Northglenn’s treatment using free chlorine; potential for additional treatment costs at all plants
Copper Ion*	\$3,229,861	\$269,731	Copper will likely impact compliance at all wastewater treatment plants (WWTP). Estimated cost to remove copper at WWTP is \$15M for reverse osmosis (RO). Annual operation cost will be extremely high due to high energy costs.

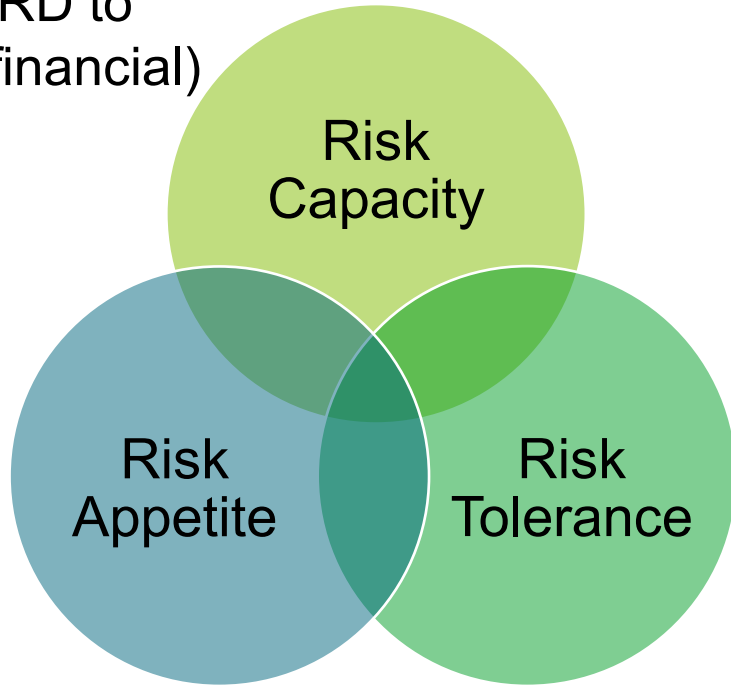
*Likely to be cost prohibitive due to impacts to WWTPs



MANAGEMENT STRATEGIES AT OTHER LAKES

Risk you can AFFORD to take (financial)

Balancing Risk



Risk you can NEED to take (strategic)

Risk you can PREFER to take (psychological)

Lake	Intended Use	Permitted Boating
Evergreen Lake	Drinking water (sole source)	Non-trailerred simple boats <15 ft only
Arvada Reservoir	Drinking water (secondary supply)	Simple watercraft with electric trolling motors
Gross Reservoir	Drinking water (secondary supply)	Non-trailerred, non-motorized boats only
Aurora Reservoir	Drinking water (secondary supply)	Non-motorized and watercraft with electric motors (trailerred allowed)
Chatfield Reservoir	Flood control and drinking water (secondary supply)	Motorized (fuel), trailerred boating allowed



DISCUSSION

- **What level of risk is Northglenn comfortable with?**
- **What is the message to partner council members?**



QUESTIONS?



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