

How can we protect waterbird feeding, nesting and roosting habitat on Lake Lowell from human disturbance while providing quality wildlife-dependent on-water recreation activities?

	Strategy 1: Only no-wake activities allowed in the east pool	Strategy 2: Only no-wake activities allowed in the west pool from sunrise to noon	Strategy 3: Charge a boat launch fee with funds being used to improve infrastructure such as docks and ramps.	Strategy 4: Allow only no-wake uses from March 15 - May 15	Strategy 5: On-water decibel limit	Additional Strategy
Ability of strategy to address issue	<ul style="list-style-type: none"> Yes - Partially. Doesn't preclude disturbance from other no-wake boating Still disturb nesting and roosting w/ no-wake. Very well in east pool, doesn't eliminate disturbance. 	<ul style="list-style-type: none"> Yes - Partially. Doesn't preclude disturbance from other no-wake boating 	<ul style="list-style-type: none"> Launch fees and boating infrastructure do not directly benefit waterbirds unless fees, or portion of fees is dedicated to enhanced enforcement of no-wake, etc 		<ul style="list-style-type: none"> Current state law Moving: 88-90 Stationary: 75 (includes radios and motors) 	1)Apply no-wake restriction to 100-200 yards along entire perimeter in addition to current no-wake zone. 2)Time restrictions based on activities (eg fishing 8-12, jet ski 12-5) 3)No wake restriction buffer (200yds) around perimeter 4)Do not remove power boat activities or restrict them (status quo) 5) Swap wake/no-wake zones so that boating season for wakes lasts longer
Ability of the benefits to outweigh the costs of the strategy	<ul style="list-style-type: none"> Cost is high in terms of lost recreational opportunity, both wildlife-dependent and non-wildlife-dependent Costs: Reduced boating and associated economic opportunity, enforcement, reduced fee source Benefit: Less disturbance, less law enforcement need, less fishing disturbance – potential increase in fishing Reduce boating and economic benefits Cost: lost opportunity and enforcement Benefit: less enforcement, potential habitat and bird benefit/fishing experience 	<ul style="list-style-type: none"> Cost is high in terms of lost recreational opportunity, both wildlife-dependent and non-wildlife-dependent 				2)fee sharing with the sheriff. Difficulty of enforcement
Strength of science to support using this technique	<ul style="list-style-type: none"> Is disturbance really a limiting habitat use? Boat waves more disruptive than natural/wind waves? Is nest site selection affected by wakes? Any data? Pollutant impacts from boating? Is disturbance a problem of tolerance threshold? Does SQ affect nesting and habitat and to what extent. 	<ul style="list-style-type: none"> Is disturbance really a limiting habitat use? Boat waves more disruptive than natural/wind waves? Is nest site selection affected by wakes? Any data? 				2) Activity based restrictions vs time based restrictions

Please provide any additional scientific resources or questions below:

- Boat wave impacts vs storm wave impacts
- Impacts of gas/oil on habitat?

How do we protect shorebird habitat from human disturbance and enhance mudflats for shorebird use?

	Strategy 1:	Strategy 2:	Strategy 3:	Strategy 4:	Additional Strategy
	No public use allowed within 100 yards of the shoreline in shorebird areas from July 15 to the end of boating season.	Remove trees from mudflats adjacent to Field 5 (east shore of West Pool) to create additional mudflats for migrating shorebirds.	Effect of installing a viewing/photo blind in mudflats on the east end of the lake.	Disc vegetation in late fall to incorporate organic matter into the soil and encourage invertebrate growth.	
Ability of strategy to address issue					
Ability of the benefits to outweigh the costs of the strategy					
Strength of science to support using this technique					

Please provide any additional scientific resources below:

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How can we protect emergent beds [and associated species] on Lake Lowell from human disturbance?

	Strategy 1:	Strategy 2:	Strategy 3:	Strategy 4:	Strategy 5:	Additional Strategy
	Close all emergent beds during boating season. <ul style="list-style-type: none"> • NO 	Emergent beds from Parking Lots 3-8 not open to human activity during boating season	500-yd closed zone around active and historic grebe colonies	Protect emergent beds with a buffer (200 to 400m) on the south side of the West Pool.	Emergent beds from Parking Lot 1 east to New York Canal not open to human activity	1) Apply no-wake zone throughout, Designate seasonal no-entry buoys/signage around potential or known nesting areas, brochures and education
Ability of strategy to address issue	<ul style="list-style-type: none"> • NO 	<ul style="list-style-type: none"> • Are all human activities the same regarding disturbance? (e.g. Bank fishing) • No - shoreline access and bank fishing will not measurably impact emergent beds. 	<ul style="list-style-type: none"> • Unknown- what are production/abundance goals? If no-wake buffer applied, additional restrictions might be unnecessary 	<ul style="list-style-type: none"> • Yes- but apply over broader area or even lakewide 		1) A more focused approach for key areas. Could continue access from shore or by boat outside protected zone(s)
Ability of the benefits to outweigh the costs of the strategy	<ul style="list-style-type: none"> • NO 		<ul style="list-style-type: none"> • Difficult to sign/post closure zone without drawing attention to location, might have opposite effect on public behavior. 	<ul style="list-style-type: none"> • Low cost, difficult to enforce, buoy lines not practical 		1) Reduces conflicts other uses, but doesn't exclude them from majority of south shoreline. Costs high initially for buoys/signage/education, but low maintenance costs. Easy to enforce.
Strength of science to support using this technique	<ul style="list-style-type: none"> • NO 			<ul style="list-style-type: none"> • ? 		1) Need to align size of seasonal closure w/security needs for existing nests and potential for expanded nesting. - Lit review of habitat preferences and tolerance to disturbance.

Please provide any additional scientific resources or other comments below:

- Science weak to support what reduction of disturbance to emergent beds will do for grebes and other species
- Opening lake in March – not much advantage – minimal fishing opportunity – require patrol by Refuge law enforcement or CCSO
- Limit access in identified core areas, allow fishing/access in fringe areas.
- Improve law enforcement consistency with refuge and county

How can we provide a quality fishing experience at the Lake Lowell unit while still protecting wildlife?

	Strategy 1:	Strategy 2:	Strategy 3:	Strategy 4:	Strategy 5:	Additional Strategy
	Require lead-free fishing tackle REMOVED FROM ALTERNATIVES	Require barbless hooks when bass fishery is catch and release REMOVED FROM ALTERNATIVES	Require access to be on designated trails and docks except during waterfowl season then restricted to Fishing Areas A and B.	Allow bass tournaments from July 1 to end of boating season to correspond with state fishing regulations. • NO	Are proposed fishing areas sufficient in size and location in each alternative?	No-wake buffer 100 – 200 yards from shoreline
Ability of strategy to address issue	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES		• NO	• Support enhanced access and ADA development at Gotts Point	• Reduce ski/fish conflicts
Ability of the benefits to outweigh the costs of the strategy	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES		• NO	• Significant costs to develop and maintain, enforcement needs, county cooperation	• Low cost but difficult to enforce, reliance on education and outreach
Strength of science to support using this technique	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES	THIS STRATEGY HAS BEEN REMOVED FROM ALTERNATIVES		• NO	• Social demand appears high. Few other options to develop ADA access in relatively good fishing area.	

Please provide any additional scientific resources below:

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Group 3

Group 3

	Additional Strategy	Additional Strategy	Additional Strategy	Additional Strategy	Additional Strategy
	Wake zone unrestricted w/hours for wake/no-wake for examp 9-9 or something	No wake buffer around perimeter of lake	No wake buffer w/activity based time restrictions		
Ability of strategy to address issue					
Cost/Benefits		<ul style="list-style-type: none"> • Difficult to enforce as lake level changes 			
Strength of science to support using this technique					

Please provide any additional scientific resources or comments below:

_CCSO – has no jurisdiction on Refuge past the state code. Refuge law enforcement is minimal

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