

EXECUTIVE SUMMARY

2023 CMSCWD Shoreline Survey and Focus Groups

Background:

In February 2023, Carnelian-Marine-St. Croix Watershed District (CMSCWD) worked with staff from the East Metro Water Resource Education Program (EMWREP) to conduct a mailed survey of 565 lakeshore landowners on ten priority lakes in the watershed district—Big Carnelian, Big Marine, Fish, Goose, Hay, Little Carnelian, Long, North Twin, Sand, and Square.

Survey respondents were asked to self-report characteristics of their property such as size and amount/types of shoreland, shoreline, and aquatic vegetation. The survey also asked people to share values and concerns related to various aspects of shoreline living. Several questions within the survey were also designed to measure landowners' knowledge and understanding of their local watershed, water quality best management practices, and programs offered by the CMSCWD.

A total of 144 survey responses were received (25% response rate).

In addition, EMWREP staff—Angie Hong and Barbara Heitkamp - also facilitated in-person focus group sessions with landowners from Big Carnelian and Big Marine Lakes on March 14 and March 30 to learn about their experience, ideas, and opinions related to shoreline landscaping and shoreline management.

Ten landowners from Big Carnelian and six from Big Marine participated in the focus group sessions.

Key Take-Aways:

1. **VALUES:** CMSCWD lakeshore landowners place a high value on clean water and healthy ecosystems that support fish and wildlife. Shoreline owners also value recreational factors such as being able to see the lake from their homes, boating, and having room to recreate with friends and family.
2. **CONCERNS:** Across all lakes, shoreline owners expressed the most concern about terrestrial invasive species, aquatic invasive species (AIS), and algae in the water. Big Carnelian landowners also expressed concerns about shoreline erosion and not catching as many fish as they used to. Some Big Marine landowners expressed concern about shoreline erosion as well.
3. **VANISHING HABITAT IN SHORELAND, SHORELINE, AND AQUATIC ZONES.**
On average, lakeshore owners reported that 67% of their shoreland area and 77% of their shoreline area is covered in unmowed or natural vegetation. However, the percentage of shoreland and shoreline area covered in trees and/or shrubs was reported to be much lower (61% and 53%, respectively). In addition, Big Carnelian and Big Marine lakeshore owners reported having less trees, shrubs and natural vegetation than other lakeshore owners. Across all lakes, the majority of landowners (61%) reported having little to no shrubs anywhere in their shoreland or shoreline zones.

Roughly half of the survey respondents (48% of all lakeshore owners and 68% of Big Carnelian landowners) reported having little or no emergent, floating-leaf, or submerged aquatic plants within their aquatic zone. Twenty-two percent of all lakeshore owners indicated that they have created open channels to reach the middle of their lakes by boat.

- 4. KNOWLEDGE AND UNDERSTANDING OF WATERSHEDS, BEST MANAGEMENT PRACTICES, AND CMSCWD PROGRAMS:** The majority of survey respondents are knowledgeable about their local watershed and water quality best management practices, but some people are unfamiliar with watershed district programs such as the cost-share grant program, education workshops, and citizen advisory committee.

An impressive 35% of people reported having raingardens on their property to treat stormwater runoff (though this could be an indicator of survey response bias) and 76% said they were definitely or maybe interested in working with the CMSCWD to improve their shoreline habitat.

People are most interested in free site visits (70%), cost-share grants (48%), and landscape design templates (38%). This is good news because these are all programs and services that are already in place through the CMSCWD and Washington Conservation District.

5. ADDITIONAL INPUT FROM BIG CARNELIAN AND BIG MARINE LAKES

During focus group sessions, landowners from both lakes expressed concern about the negative impacts to Big Carnelian and Big Marine from increased boat traffic and wake boats. Numerous landowners from other lakes also shared concerns about boating in their open-ended survey responses.

Big Carnelian landowners also talked about their struggles with shoreline erosion. Some even mentioned losing trees due to high water and erosion. On Big Marine, ice heaves are a concern on the west side of the lake. Participants from both groups shared their observation that the native shoreline projects completed by CMSCWD in the past have not been well-maintained and are impacted by terrestrial invasive species.

Landowners from both lakes care greatly about the fish and wildlife in their areas and have observed species changes and declines over the past twenty years.

Focus group participants suggested a holistic approach to lake management that considers shoreline vegetation, water levels, boating pressure, stormwater management, and fisheries.

Recommendations for CMSCWD shoreline education and outreach:

- **Enhance education about trees, shrubs and aquatic plants.** Traditionally, lakeshore landowner education has focused on the value of maintaining unmowed, natural vegetation in shoreland and shoreline areas to minimize erosion and provide habitat for pollinators, birds, and wildlife. Survey results suggest that most lakeshore landowners understand this value and are maintaining natural vegetation in a large portion of their shoreland and shoreline areas. Future education and outreach should emphasize the ecological importance of trees, shrubs and aquatic plants as well.
- **Educational messages should focus on actions that will promote clean water and healthy ecosystems.** These are strong values shared by survey respondents and focus group participants from all lakes.

- **Consider a modified approach to native shoreline restoration projects.** Landscape designs should consider landowners' desire to see the water and have room to recreate with friends and family. Based on survey responses, however, promoting "low-maintenance landscaping" may NOT be an effective message. CMSCWD should develop new programs to better support landowners in maintaining native planting projects and managing terrestrial invasive species.
 - **Provide more detailed information about lake subwatersheds.** Tailored mailings could help shoreline and near-shore landowners to better understand water flow within their lakeshed (where does water in their lake come from and where does it go?) and the relative impact of different types of land uses on their lake.
 - **Continue to promote CMSCWD programs,** especially free site visits, cost-share grants, and landscape design templates.
 - **Work with Minnesota DNR, Washington County, and Cities/Townships to address concerns outside the jurisdiction of CMSCWD, such as boating pressure and fisheries.** Consider holding joint meetings with lakeshore owners, lake associations, CMSCWD, DNR, county, and cities/townships to set goals and measure progress related to shoreline vegetation, water levels, boating pressure, stormwater management, and fisheries.
 - **Share survey and focus group results with shoreline landowners via mail.** Provide regular updates (at least once per year) on progress made.
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For additional information about the survey and focus group design, methods, and results, contact:

Angie Hong, Water Education Senior Specialist
East Metro Water Resource Education Program
angie.hong@mnwcd.org
651-796-2210

2023 CMSCWD Shoreline Survey Results

In February 2023, Carnelian-Marine-St. Croix Watershed District (CMSCWD) worked with staff from the East Metro Water Resource Education Program (EMWREP) to conduct a mailed survey of 565 lakeshore landowners on ten priority lakes in the watershed district – Big Carnelian, Big Marine, Fish, Goose, Hay, Little Carnelian, Long, North Twin, Sand, and Square.

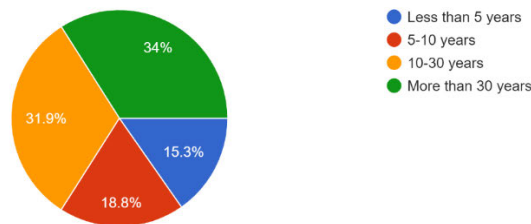
144 people completed the mailed survey (25% response rate).

- We received the highest percentage of responses from Little Carnelian (65%), Goose (48%), Sand (46%), and Hay Lakes (40%).
- Big Carnelian (18%), Fish (13%), and Long (13%) had the lowest response rates.

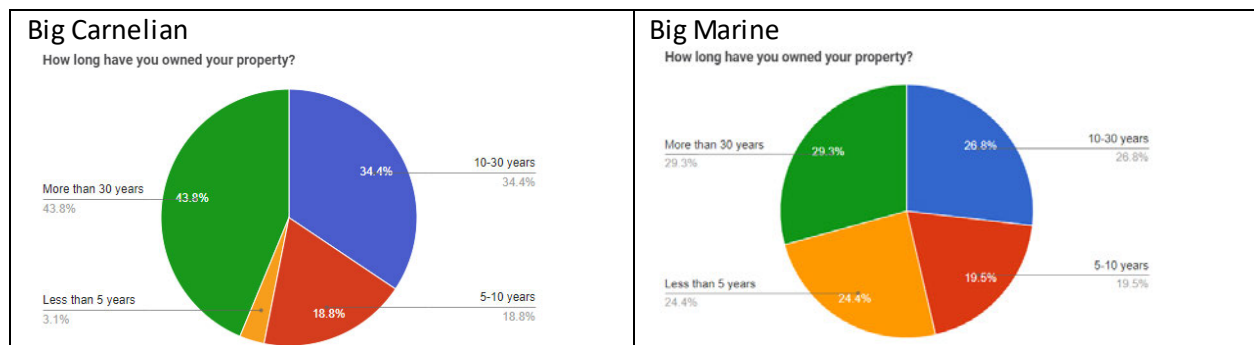
LAND OWNERSHIP

In general, lakeshore landowners within the district are long-term residents. Two-thirds have owned their land for more than 10 years, and half of those people have actually lived here for more than 30 years.

How long have you owned your property?
144 responses

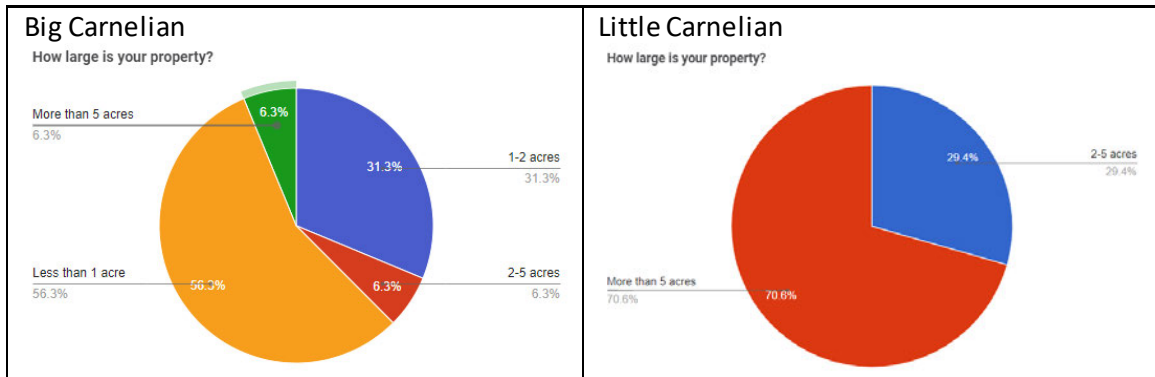


Survey responses suggest that Big Carnelian, North Twin, and Square Lakes have had the least amount of property turn-over in the past 5 years, while Big Marine and Little Carnelian have had the most.



CHARACTERISTICS OF THE LAKESHORE PROPERTIES

- **Size:** There is a wide range of property sizes across the lakes. On Big Carnelian and Big Marine Lakes, half of survey respondents have properties that are less than 1 acre and one-third have properties that are 1-2 acres in size. On Square Lake, half of survey respondents have properties less than 2 acres in size. In contrast, 65-70% of the properties on Goose, Little Carnelian, and North Twin are more than 5 acres in size.

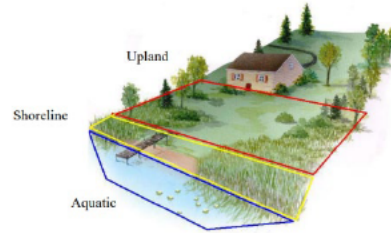


The majority of shoreline properties are 75-200ft in length. Approximately 25-30% of the properties on Big Carnelian and Big Marine have only 50-75ft of shoreline.

It is interesting to note that Big Carnelian, Big Marine, and Square Lakes have all maintained good water quality metrics for the past two decades, despite being the most populated lakes in the watershed district and having some of the smallest shoreline properties.

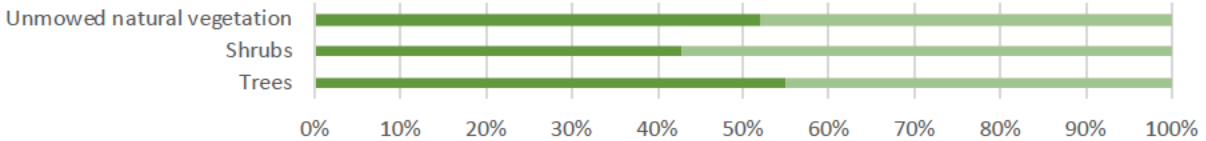
- **Trees and shrubs:** 20% of all lakeshore owners reported having tree cover on less than 25% of their shoreland area and 38% indicated that less than 25% of their shoreline has trees and shrubs. On Big Carnelian Lake, the average reported tree cover in shoreland areas was 55%, while the average amount of shoreline covered in trees and shrubs was only 32%. On Big Marine, the average reported shoreland tree cover was 48% and average shoreline tree and shrub cover was 38%. Across all lakes, 61% of landowners reported having little to no shrubs anywhere in their shoreland or shoreline area.
- **Unmowed or natural vegetation:** On average, lakeshore owners reported that 67% of their shoreland area and 77% of their shoreline area is covered in unmowed or natural vegetation. Five percent indicated that their entire lot is turf grass and 7% indicated that their entire shoreline is mowed grass, beach or rock. On Big Carnelian, landowners reported an average of 53% of their shoreland and 57% of their shoreline covered in unmowed natural vegetation. On Big Marine, landowners reported an average of 51% of their shoreland and 70% of their shoreline covered in unmowed natural vegetation.
- **Aquatic vegetation:** Nearly half (48%) of lakeshore owners reported having little to no emergent, floating-leaf, or submerged aquatic plants within their aquatic zone. Big Carnelian lakeshore owners reported that an average of 50% of their aquatic zone has emergent and floating leaf vegetation and 45% has submerged aquatic plants. Big Marine lakeshore owners reported that an average of 45% of their aquatic zone has emergent, floating-leaf, and submerged aquatic plants. 22% of all lakeshore owners have created open channels to reach the middle of their lakes by boat.

Using the diagram, tell us a bit about the current vegetation on your property.

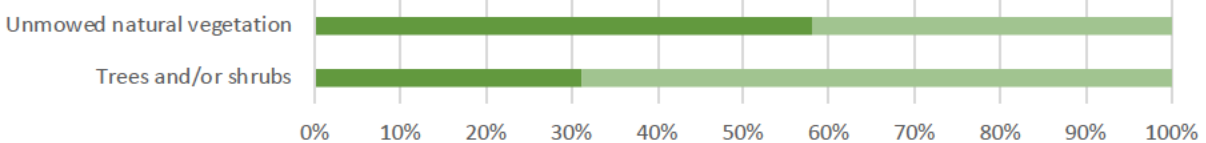


Big Carnelian

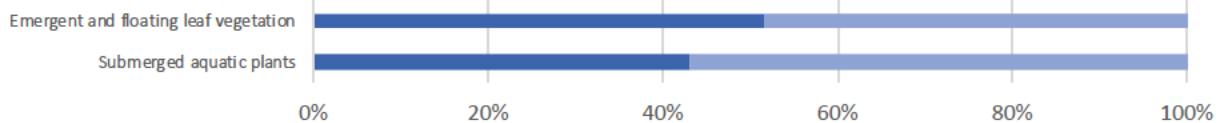
Big Carnelian: Average % of shoreland covered in...



Big Carnelian: Average % of shoreline covered in...

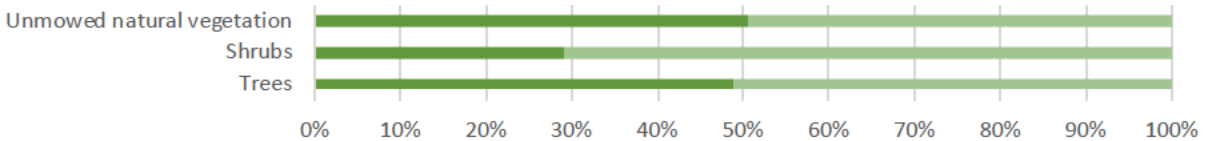


Big Carnelian: Average % of aquatic zone

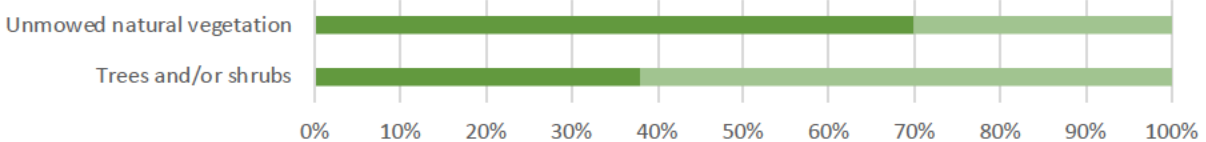


Big Marine

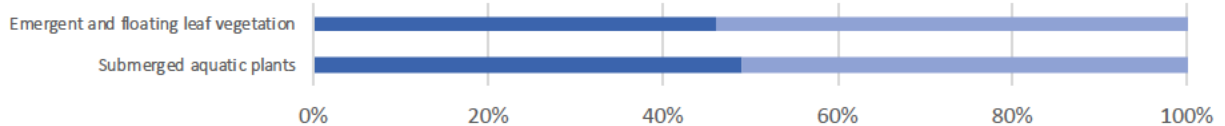
Big Marine: Average % of shoreland covered in...



Big Marine: Average % of shoreline covered in...

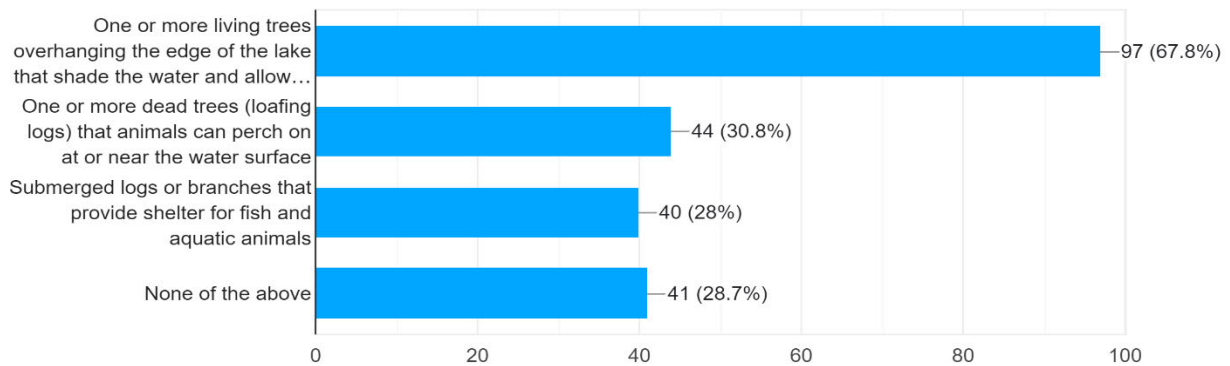


Big Marine: Average % of aquatic zone



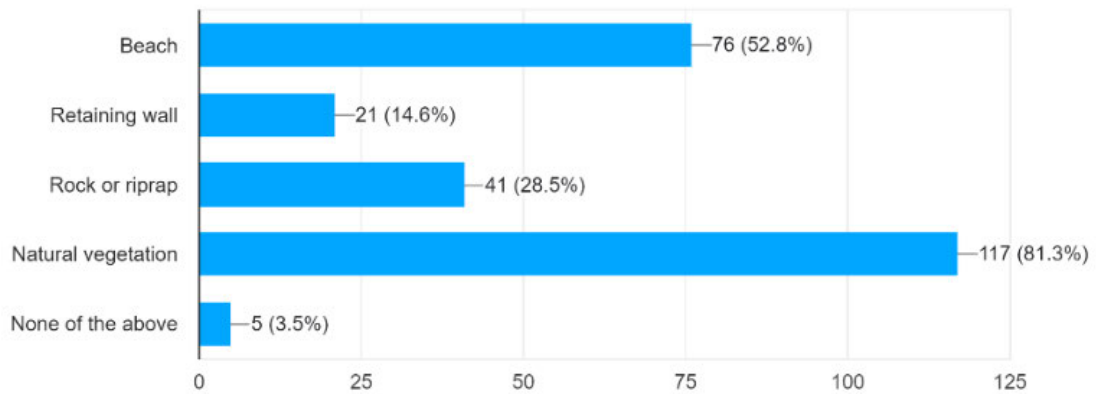
What types of living and dead trees do you have in your shoreline area?

143 responses



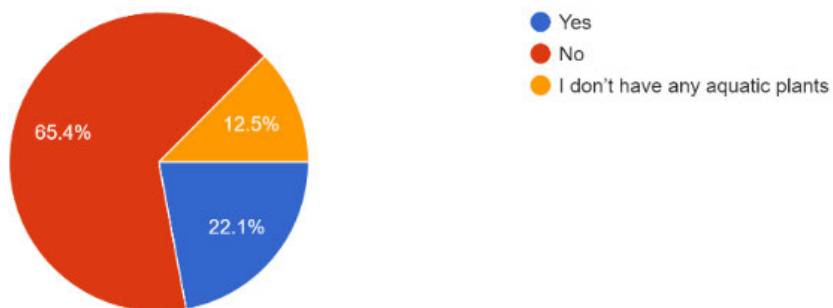
Which of the following do you have in your shoreline area?

144 responses



If you have aquatic plants, have you created or do you maintain an open channel through them to reach the middle of the lake?

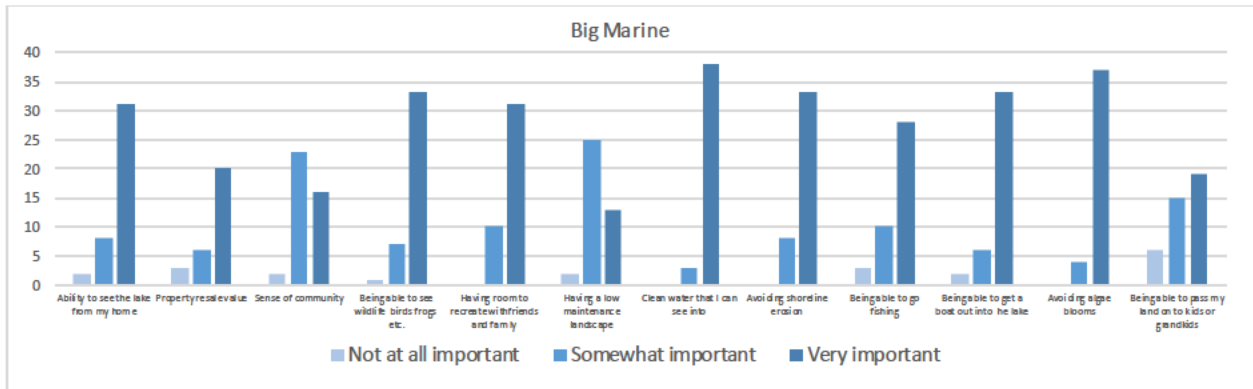
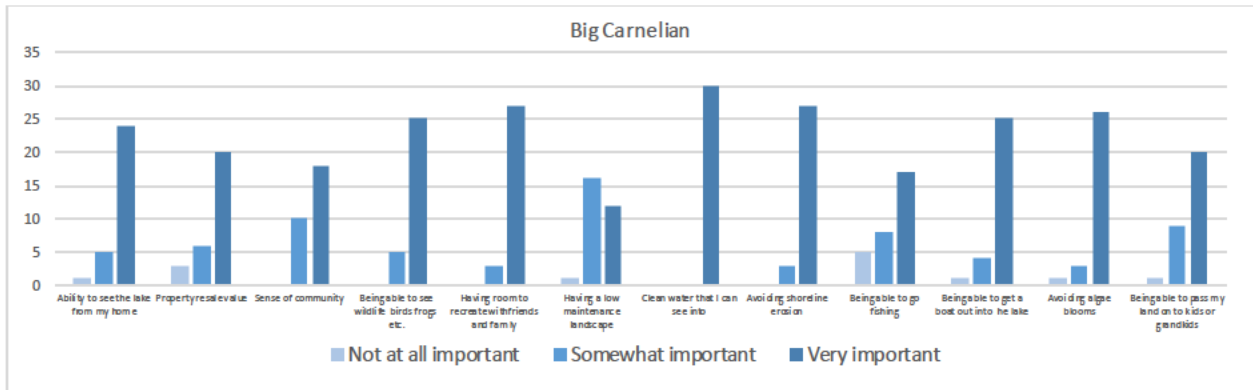
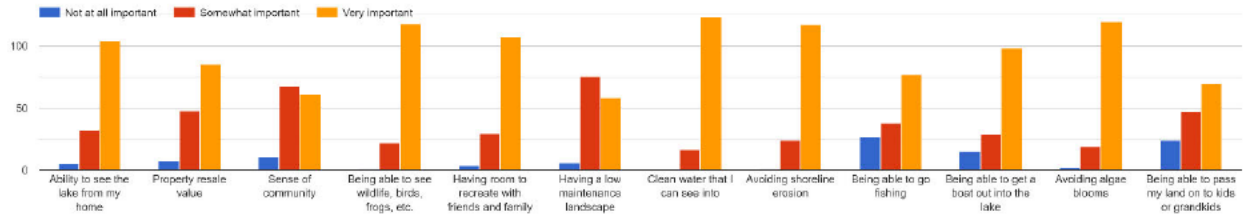
136 responses



VALUES AND CONCERNS

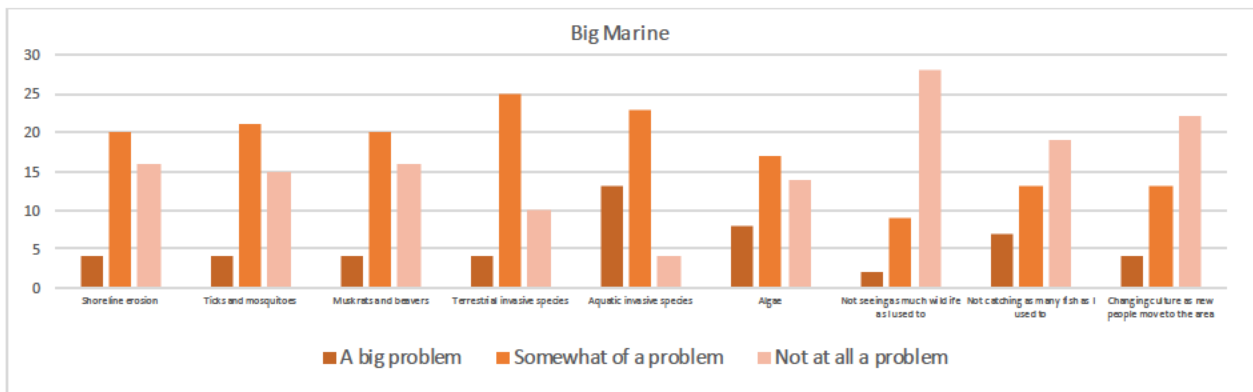
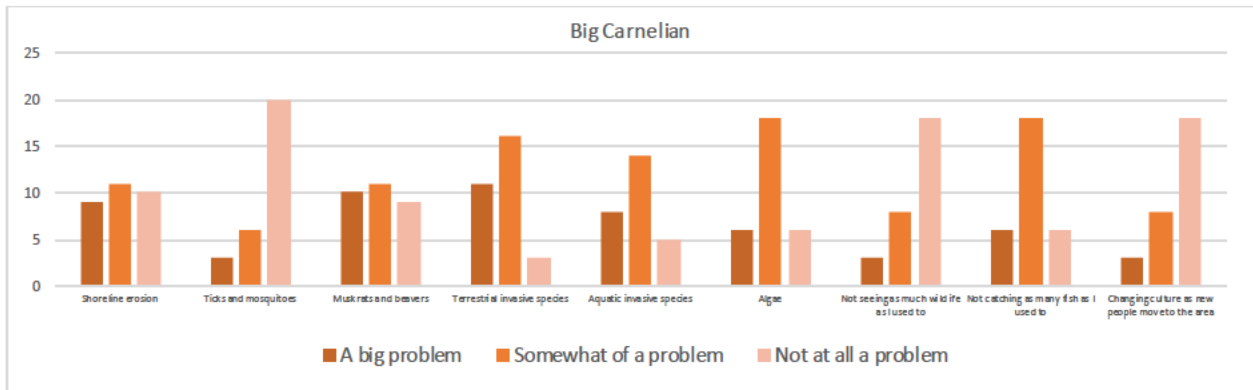
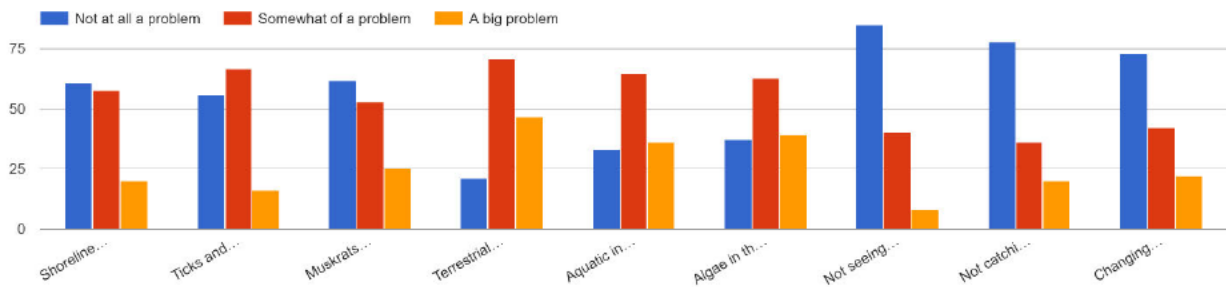
Values: CMSCWD lakeshore landowners place a high value on clean water and healthy ecosystems that support fish and wildlife. Shoreline owners also value recreational factors such as being able to see the lake from their homes, boating, and having room to recreate with friends and family.

When thinking about your lakeshore property, how important are the following qualities and characteristics to you?



Concerns: Across all lakes, shoreline owners expressed the most concern about terrestrial invasive species, aquatic invasive species (AIS), and algae in the water. Big Carnelian landowners also expressed concerns about shoreline erosion and not catching as many fish as they used to. Some Big Marine landowners expressed concern about shoreline erosion as well.

When thinking about your lakeshore property, which of the following do you consider to be a problem currently?



KNOWLEDGE AND UNDERSTANDING OF WATERSHEDS, BEST MANAGEMENT PRACTICES, AND CMSCWD PROGRAMS

The majority of survey respondents are knowledgeable about their local watershed and water quality best management practices. One notable exception in Big Marine Lake, where many survey respondents are unclear where the water goes once it leaves their lake.

Who is responsible for managing stormwater infrastructure in your neighborhood?

- Survey respondents were most likely to cite private landowners (42%) and the city or township (35%) and least likely to cite neighborhood/homeowner associations (13%) or the county (19%)

What percentage of water coming into your lake comes from the following sources?

- Survey respondents estimated the total percentage of water coming from upstream lakes and streams; wetlands, woods and natural areas; farmland; and residential areas. The actual percentages vary based on lake.

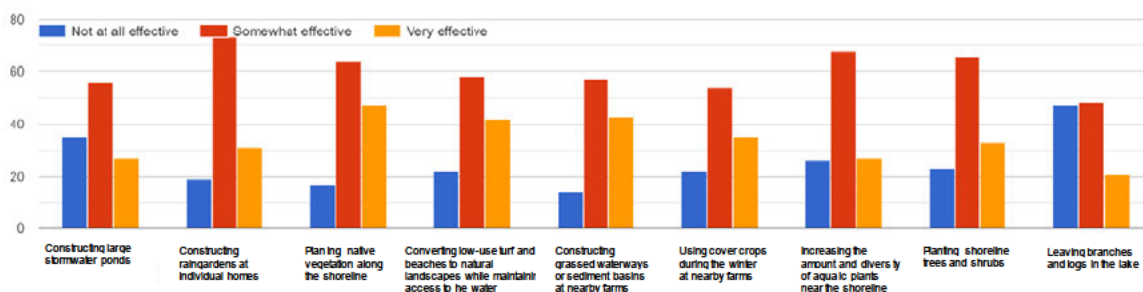
Where does water go once it leaves your lake?

- Big Carnelian lakeshore owners know their water flows to Little Carnelian and then the St. Croix River. Most Little Carnelian landowners know the lake drains to the St. Croix River.
- 50% of Big Marine lakeshore owners have no idea where the water goes when it leaves their lake. Other survey respondents said they only know that it eventually reaches the St. Croix River.
- The majority of Goose Lake landowners reported that their lake has no natural outlet.
- All Hay Lake landowners know their water goes to Sand Lake. Sand Lake owners know their lake flows to William O'Brien State Park and then the river.
- North Twin landowners know their lake outlets to the north to other lakes and then the St. Croix
- Square Lake landowners reported a variety of different answers for where their water goes.

Stormwater management

- 35% of survey respondents say they have raingardens to treat runoff from their rooftop or driveway
- The three strategies that survey respondents thought would be most effective in reducing stormwater runoff pollution and improving the health of their lakes were 1) Planting native vegetation along the shoreline; 2) Constructing grassed waterways or sediment basins at nearby farms; and 3) Converting low-use turf areas and beaches to natural landscapes. Survey respondents indicated that leaving branches and logs in the lake and constructing large stormwater ponds would be least effective strategies.

How effective do you think the following strategies would be at reducing stormwater runoff pollution and improving the health of your lake?

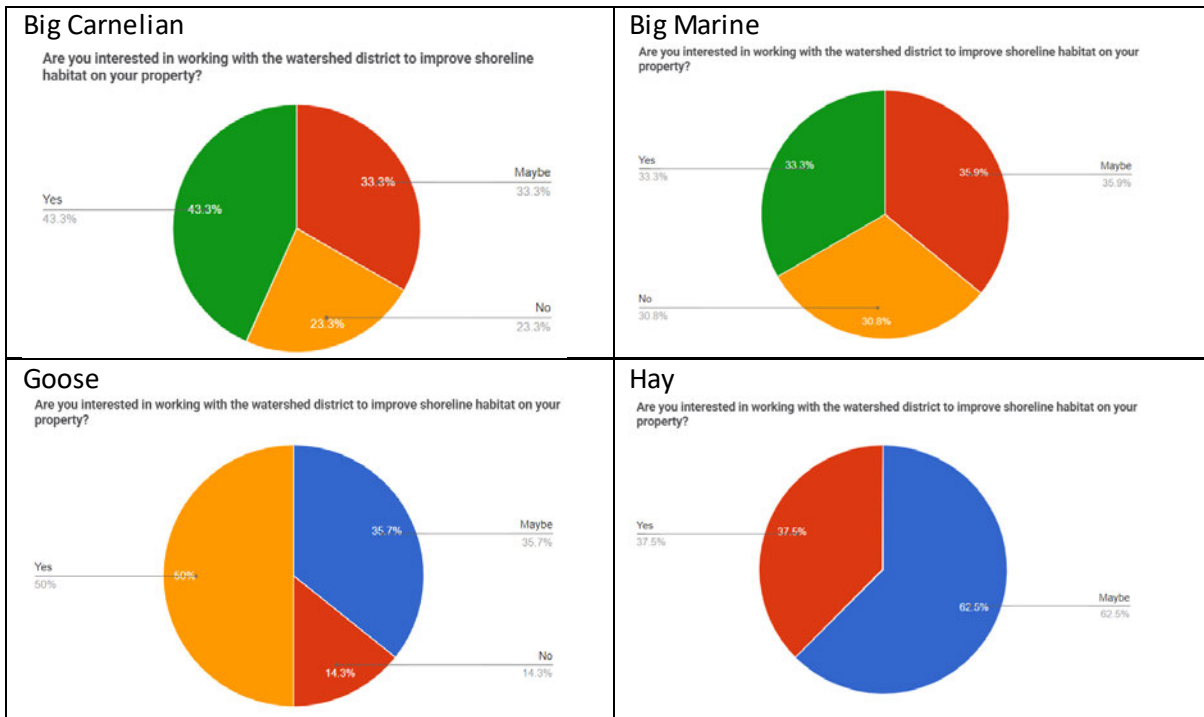
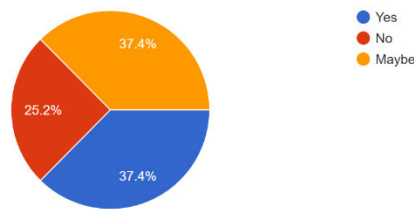


CMSCWD Programs:

38% of survey respondents indicated they are interested in working with CMSCWD to improve shoreline habitat on their property. Another 38% indicated they might be interested in working with the watershed district (76% reporting yes or maybe).

Big Carnelian lakeshore owners were slightly more likely than other shoreline owners to want to work with CMSCWD (43% yes, 33% maybe) and Big Marine landowners were slightly less (33% yes, 36% maybe). Of all the lakes, people living on Goose and Hay are most interested in working with the watershed district.

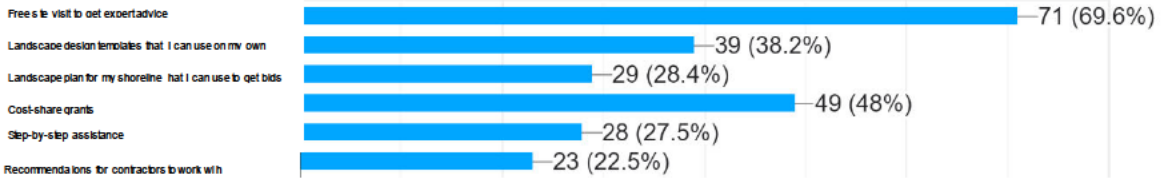
Are you interested in working with the watershed district to improve shoreline habitat on your property?
139 responses



People are most interested in free site visits (70%), cost-share grants (48%), and landscape design templates (38%). This is good news because these are all programs and services that are already in place through the CMSCWD and Washington Conservation District.

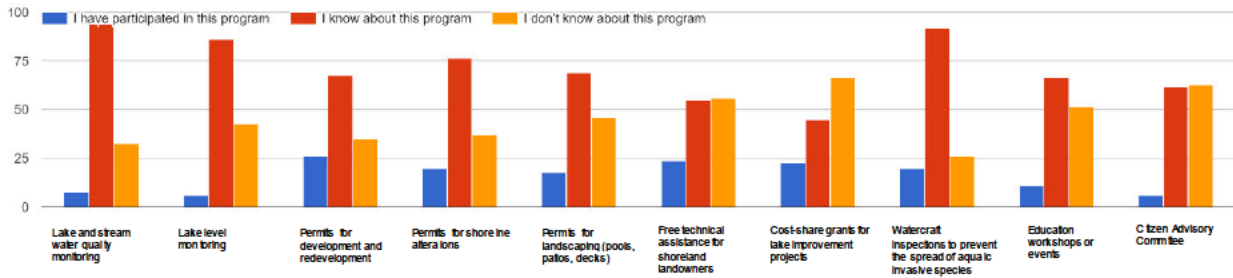
If yes, which types of support would you consider valuable?

102 responses



Lakeshore owners are most familiar with the CMSCWD permit program and technical assistance. They are least familiar with the citizen advisory committee, cost-share grants, and education workshops.

How familiar are you with the following programs of the Carnelian-Marine-St. Croix Watershed District?



Themes from open-ended question responses:

When prompted, survey respondents shared numerous questions, concerns, and suggestions in an open-ended question at the end of the survey. A brief summary of themes is included below, with the full list of responses on the following pages.

Big Carnelian

- Wake boats cause erosion and safety issues for other water users (4)
- Shoreline erosion (3)
- Native plantings “not effective” or taken-over by invasive species (2)

Big Marine

- Over-fertilization of lawns (3)
- Erosion and ice heaves
- Wake boats
- Failing septic systems
- Lake association invests time and money to protect the lake and manage AIS but more than half of water users live somewhere else.
- Inconsistent enforcement of rules

Goose

- Motorized boat speeds (2)
- Water levels (3)

Hay

- Very interested in terrestrial and aquatic habitat. Landowners indicate they’re working to manage invasive species and increase native vegetation but have concerns about the lake filling in with lilies and other aquatic plants.

Little Carnelian

- General agreement that the lake is in good condition
- Concern about wake boats and other motorized watercraft (3)

North Twin

- Concerns about too much aquatic and emergent vegetation and aquatic invasive species

Sand

- Concerns about a private landowner who has altered drainage flowing into the lake
- Invasive species such as reed canary grass

What else would you like for us to know about your lake and lakeshore property?

70 responses

Big Carnelian

-I love our lakes -They are a big part of what makes MN - Minnesota! -We need to prioritize improving and maintaining the health of our lakes -The wakes of boats waves are very damaging to the beaches on Big Carnelian Lake. They typically are repetitively passing, often for extended periods of time. for up to 2.5 hours at a time.

1. Most folks still don't get it. They try to remake entire shoreline. They cut down all the trees and use leaf blowers to blow leaves into the lake.
2. The fisheries could be enhanced by fixing South side culvert and stream work to allow travel upstream to Big C. The fish cannot move upstream under Co. 11 from Carnelian Creek to upstream wetlands. Reshaping adding rock to bring stream bed up.
3. Carnelian Creek was ditched when District was formed. More work and wetland restoration need at Big C outlet.

I think most of the native plants we planted along our shoreline have been invaded. Who can I contact to tell me which plants are invasive species and how to best get rid of them?

I'm interested to know what kind of support is available to change individual property's hard surface cover.

Its dismissing that Big Carnelian is the only area lake that has gone down in water quality. I purchased my little home/lot the way it was, but welcome ideas to help. There is a considerable amount of daily lawn watering around here, both from the lake and ground water. Could the watershed mail out flyers about responsible watering? Would the county ever ask landowners to curb watering during droughts? Nobody seems to care.

More enforcement for watercraft too close to shore (motorized). Would love to see a weekday moratorium on motorize water surface watercraft 1.5-2 hours per day, e.g. over the dinner hour.

My property is [REDACTED] Some of my answers maybe a bit mixed, part of my shore is riprap and natural as it foes into the inlet of Carnelian. 1. My biggest issue is these big boats throw such a high wake. My grandkids have been knocked and pushed over by waves/waves thrown. 2. Lakeshore disappearing such as the sand, rocks, pop cans coming to the surface, barbed wire, tires, these had been buried before we bought the property and now I find these while trying to be maintained! Grateful for our voice to be hears, thank you, [REDACTED]

Property has been in the family since 1958

The w.s needs to work with property owners make a shoreline that will last. A good example is property at [REDACTED] they have had boulders put in 5 years ago. now no erosion. Everyone wants a clean lake but lets be practical. Please contact anytime [REDACTED] The problem in this area is the gravel road. They need to fix the road, this has been going on for too long. nothing gets done.

We have a large Cottonwood that needs help ASAP from shoreline erosion.

We have owned and lived on our property for just under 30 years. We take our roles as stewards of the lands and waters we enjoy very seriously and are interested in effective measures to improve things. Our observation is that the shoreline planting program has not been effective on Big Carnelian Lake. The holding pond program has been effective and other holding ponds may be helpful. However, we believe that most positively impactful step to improve water quality would be to address damage caused by wake/surf boats, enforcing restriction that only allows the boats on the lake in time of low water levels may help shoreline erosion. the wave action from the boats even in times of low water levels may be part of the cause of the large increasing prevalence of algae blooms. We did not see these blooms prior to the presence of the large wake boats on the lake. I have conveyed these thoughts in writing to MNDNR with no response. Thank you for your service and interest in helping to improve water quality!

Big Marine

We are glad Mike White is a Manager.

My parents purchased their property at Big Marine Lake and constructed a cabin in 1951. When the water level rose in the 1970s to about 3 feet, they were forced to abandon their cabin and retire permanently to Florida. They were informed by Washington County that their cabin was a hazard and had to be raised because of the high water, it was therefore removed. At that time there were restrictions on raising the level of their property by adding fill. Later on, the county, for a short period of time, gave property owners the option of raising the level of their property above the newly established maximum adjusted lake level. About 20 years ago, we requested the MNDNR to review the status of the vegetation that replaced the former mowed grass. Their review indicated that the cattails and other vegetation growing there were not to be disturbed. I understand the position of the DNR in the protection of the environment, but this is a very small piece of property and is a distraction for surrounding property owners. I would like to invest in adding fill to the same level of the same status it had prior to the high-water levels of the 1970s. One of the questions on this survey referred to "Permits for development and redevelopment". How do I request this type of permit? My property is located on [REDACTED]. Any help or assistance you can give me to get the necessary permits to help restore my property to its original condition will be much appreciated.

Thank you,

[REDACTED]

I lived on the lake for over 50 years and the lake weeds have become a bigger problem. I think water quality is still good.

Ice heaving messes up shoreline. If water was lower, would be a sand buffer to prevent. If you worked with landowners instead of making it harder for people trying to save properties would be great. There has been no government help through the flooding years causing bad blood.

The CMSCWD helped us with our shoreline, and we are very happy with the results. It's a beautiful lake and were glad efforts are being made to preserve it!

Big Marine lakes water quality is decreasing. Water transparency intermittently decreases due to algae. In the last 2 years, a smell has accompanied this decrease in transparency. In 2021, in the southwest corner of the east bay, there was a complete absence of large leaf pondweed and sparse populations of narrow leaf pondweed. In 2022, the pondweeds began to re appear.

Lake association spends significant time and money on inspections and treatment of milfoil and prevention of other AIS. I would estimate that well over 50% of boating hours are logged by non property owners. Property owners spend significant time and money cleaning up refuse and the affects of public boating. Everyone has a right to use the lake, but more education and ownership is needed. Wake boats are becoming more and more common and homeowners are paying the costs of the damage done by them. In addition, there are numerous properties that are draining their water into the lake, while lakeshore owners are required to build storm water ponds!

Lake Association does a wonderful job of reducing AIS

I feel that families doing fertilizer on their lawns is a huge problem.

The ice alters my shoreline every year- protecting my shoreline would require altering the laws of physics.

Member of Ti Gavó

HOA shared lakeshore with several watershed features that seem to be working well

Take a look at all the green lawns on the lake in the bliss addition and probably elsewhere. Fertilization harms the water!

People who use lake in winter (fishing) need to clean up garbage after themselves! Especially in front of Vets camp with garbage and human waste! Need decontamination stations!

We would like to have the channel made deeper and slightly wider.

Why are homeowners allowed to fertilize their lawns with various services? I would think this would increase the weed growth in the lake. I have a neighbor who drives his diesel tractor in the lake and am told nothing can be done.

Homeowners with failing sewer systems don't have to pay for repairs to their won systems-why increase everyone's taxes to cover these repairs and why use covid monies that should be used on roads and road maintenance to benefit a small number of homeowners. Also, Mayors and council members be required to recognize and make corrections before systems fail completely.

Visit properties- illegal drainage very obvious- pumps, pipes etc.

Bliss addiction (West side of Big Marine)

Ne side big marine- using outdoor sump pumps to drain (sewage?) into the lake. Failed mound systems

I am very concerned about the lack of oversight at the number of boats the vets camp is allowed to dock and use on the lake. I know and understand what a delicate issue this is. But feel this issue poses one of the biggest threats to our lakes water quality. Possibly a simple solution is that there are so many daily permits allowed for the

boats that can leave their dock or boat launch per day- they would need to self-manage this. Thanks for listening.
On our 20 feet of shoreline, we have mostly natural plants including cattails. Are these okay or should they be removed and replaced?
If a lake property cuts cattails and floats them away from the property, is this legal? Who would enforce this if it is illegal? [REDACTED]
On Big Marine the water level is significantly dropping. Some shallow areas cant even get boats to the docks as it has gotten so shallow. Several homes are irrigating their lawns from the lake which can't help the water level or the aquatic nature. As well as the deep concern for chemical lawn maintenance when washed into the lake it isn't good for aquatic life or human life and feel both should be forbidden.
Consistency in law enforcement of watershed regulations for all homeowners. Enforcing regulations on a complaint-based system is unfair and creates tremendous negativeness for all partners.

Goose

Our lake levels go up and down, there is nothing in place to control the lake level. One year is very high water, flooding yards, next is very low. It is difficult to have a natural shoreline when the lake levels are so unpredictable. Boat traffic is damaging to shorelines, as there is no enforced speed limit or distance from shoreline requirements. The county doesn't care, the DNR doesn't care, the city council doesn't care, the watershed district doesn't care. Goose lake in Scandia.
We would like to see the results of your survey, plus the number of responses vs total goose lake surveys sent. [REDACTED]
Thank you
Would like to see serious discussion to eliminate all "motorized water vehicles" from lakes <300-400-500 acres.
Thank you for your works to improve our state/community waters! County Resident [REDACTED]
Currently not on the lake, but expect to have water in the bay after snowmelt this spring!
We just sold our home, new owners like to canoe
Very concerned about the amount of salt used on the roads. And the private businesses use excessive salt to ward off lawsuits. Would like to know what the watershed knows about the milfoil problem and is anything being done about it.
I would like to know what feeds the lake and is there an outlet? get various conflicting answers
Control lake levels
The Bever is filling the Bay with trees on the north end of Goose Lake

Hay

Our property has been vacant for probably 30 years and is wild and overgrown but my desire is to turn it into a natural habitat with wildflowers, native grasses, flowering trees and pollinators plants. I also want to build up the shoreline with native plants and flowers to prevent more erosion and provide food for wildlife. We will be planting out two large raingardens in the spring and installing seed around the entire house of a low-maintenance variety that doesn't need mowing or fertilization. My desire is to eventually have the entire property built up into a sustainable natural environment that benefits pollinators and birds.
I have participated in buckthorn removal by cut and burn project and one year of buckthorn and reed canary overspray using a cost share grant from watershed district. I had a site visit concerning lakes here by watershed district in 2014 but had no follow-up from the person who did the visit.
Approximately 6 years ago, the watershed told the neighbors Hay Lake is doomed and will probably dry up. When we moved here in 1994, we could canoe the lake. The bog has choked off our end of the lake. Lily pads have choked off most of the lake. We have lots of wildlife, we pay taxes for the lake shore, but it is unusable. It would be helpful to get a second opinion. Thank you, [REDACTED]
Keep Hay Lake on environmentally protected lake- keep speed boats off of lake!
Low lake levels and improving water quality results in many water lilies. It does affect ability to get a kayak into the lake.
Would it be possible for watershed district to send out lake water quality report to landowners? It would be good

not to have to hunt it down.

Thanks

Lakes invasive species have gotten very bad over the past 10 years (lily pads, coontail, curlyleaf pondweed). Water level way down over the past two years. Fish population has dropped significantly over past 2-3 years (bass, sunfish)

Long

I have 400 ft of shoreline, of which is about 300ft of plant prairie, well established more than 10 years old.

Little Carnelian

We are the last lake in the chain in our watershed district. Lake level can fluctuate wildly. I would like the district to be able to close the outflow pipe or restrict the outflow to help protect against dramatic drops in the lake level. Last year from July 4 to September 15 I estimate the lake dropped 3.5 feet. I had to move my dock and boats!

We have a beautiful, small, super clean little lake in Little Carnelian. This is a rural setting. Biggest issue from our standpoint is the few darn jet skis-noisy, polluting, irritating. What does it take to keep them off our lake?

Thanks for this survey

[REDACTED]

In the last 5 years I have seen a lot more issues and damaging lakeshore work on Little Carnelian Lake. Clearing trees, erosion from wake boats, clearing of shoreline vegetation and more. Lakeshore owners need to comply and be held accountable.

[REDACTED]

Unmonitored, unsuspected boat and motor launching at the Stillwater township park- Little Carnelian.

Unmonitored, uncontrolled shoreline landscaping.

Wakeboard boats, surfboard boats with large wakes on a 160-acre lake.

These boats are already causing erosion.

My wife and I are lifelong residents of the St. Croix valley. We now reside on Little Carnelian, a "Very Special Lake".

Whatever can be done or whatever we can do to protect it and its watershed is of the utmost importance.

Thank you!

Rick and Jenny Schneider

Just one wake boat is more than enough to destroy the underwater vegetation on little lake Carnelian and erode the shoreline and destroy the shallow places where fish lay their eggs or turtles like to live. Wake boats should not be permitted on small or medium sized lakes. They are a nightmare. In 10 years, the fish population on Little Carnelian has reduced noticeably. I swim with snorkel gear every day from June 1st to September 30th so I can see the changes. I estimate that the fish in 2022 were almost 25% of what I saw in 2014 and 2015. Same in regard to turtles. I am also wondering why we see toads but no longer frogs in this lake or nearby.

I think it is a really healthy low use lake. The only concerns we have are the extreme swing in water depth in the summer and there are many dangerous tree stumps sticking out of the water.

We are committed to the wildlife and vegetation preservation to the best of our abilities, but the size of invasive buckthorn and avoiding ticks (and lack of personal) makes it difficult to pursue it 100%

North Twin

Lily pads seem to be gradually taking over the lake.

Cattails are starting to take over the shoreline.

Water remains very clear throughout the summer months

We live by N and S twin lakes. They have gotten worse each year for a long time. All the vegetation rots and sinks to the bottom making a thick muck and the lake more shallow. More weeds and islands are starting to form on the north lake. I wish we could hire the weed cultivator machine they use in White Bear to clean out the muck before it becomes a swamp.

[REDACTED]

The shoreline here at [REDACTED] on North Twin is planted mainly with some species of willow (not native I believe). They are dying and we are interested in how to manage transition to native trees and shrubs.

[REDACTED]

Sand

Sand lake should be declassified as an environmental lake. The wave action from boats and jet skis is excessive and causes shoreland erosion and undercutting the bank. The lake is simply too small and narrow to support motored boat traffic.

We have a landowner upstream [REDACTED] near Oakhill, who has altered drainage from large pond/wetland. Our association has been totally frustrated with watershed, dnr and scandia city for not enforcing normal flow and his damming up culvert draining the wetland. He's replaced culvert under his driveway and changed the drainage and nobody or no organization had stopped him. I'm beginning to think watershed district is worthless! lots of tax money we've paid with no enforcement!

We lived on Sand lake for 49 years and watched the lake level fluctuate depending on snow and rain fall. Because of more action, we have seen erosion even though rock covers a lot of the shoreline. Our greatest disappointment was the lack of control in an area where a property owner added a culvert and dammed the watershed (upper 1/3 to 1/2) by raising a culvert (very evident from topographic map). Water is held back in the upper watershed and natured flow is impeded.

New lake homeowners are tearing down trees, removing vegetation on shoreline and installing rip rap with no consequences.

Education for new homeowners?

Keep public to a minimum as it is now. There is minimal public parking. Recommend keep parking to current size

There are portions of sand lake that have a substantial buffer of permanent vegetation, many are monocultures of RCG which has affected the diversity and structure of the shoreline. The sand iron filter, while effective in removing p from inflow to the lake, is almost entirely now culture of RCG in its upland buffer. There is no real wildlife habitat value to these areas and shoreline infiltration rates are limited due to the shallow root system of RCG.

It would be nice to have the CMWD come and present on the value of shoreline and littoral vegetation to residents as there are misperceptions regarding vegetation. However, our lake residents really value clean water and good fishing so making the connection between the value of shoreline buffers, aquatic vegetation and clean water (algae free, low p, low n) and good aquatic habitat for fishing structure and sustained fish populations is important.

we have a neighbor rerouting the melting snow from reaching our lake

There is a deliberate and unjustified blockage of the free flow of water into sand lake from [REDACTED] property located at [REDACTED]. An unapproved culvert of reduced size and raised in elevation has been installed under his driveway. He blocks the culvert at will, to raise the water level in his pond. This activity severely lowers our water level and renders the Sand Lake iron filter inoperable. The Department of Natural Resources and the Carnelian Marine St Croix Watershed district have been made aware of the problem but have taken no action.

Side note: The DNR has property on sand lake, offering kayak launch for public use. I would think they would be concerned how the unusually low lake levels effect the quality of this public recreational facility.

Thank you,

[REDACTED]

Square

Please contact [REDACTED] [REDACTED] to further discuss how our Square Lake Association can further advance CMSCWDs program to protect and rescue Square Lake.

[REDACTED]

FOCUS GROUPS SUMMARY

Big Carnelian shoreline owners focus group – March 14, 6:30-7:30pm

10 participants. Angie and Barbara facilitated.

Key themes

- **Values and motivations – what they care about the most:**
 - Wildlife–fish, deer, otters, turtles, birds, etc.
 - Rural character - “Up North feel” close to the city, larger lots & not being able to see your neighbors as much
 - Deep, spring-fed lake with clear water
- **Concerns:**
 - Shoreline erosion
 - Wake boats
 - Water levels
 - Seeing less fish and wildlife
 - Loss of shoreline habitat due to erosion and high water, not intentional removal (a few people talked about their property getting “spongy” and trees dying as a result)
 - Who and how to fix problem spots? (broken culverts, etc.)
- **Interested in:**
 - Creating a community-based approach that ties into intrinsic motivations vs establishing and enforcing more rules
 - Using a holistic approach that thinks about shoreline vegetation, water levels, and boating together
 - Creating a lake association
- **Questions for CMSCWD:**
 - Is there a study underway to figure out why biodiversity is going down on the lake?
 - How will shoreline owners find out the results of the study when it is done?
 - Are other lakes in the area seeing the same problems as Big Carnelian?
 - What are we going to do about the biodiversity decline?
 - How will information and next steps be communicated?
 - Who should they report problems to (ex. broken culvert, people not following wake rules) and how can they best follow-up to make sure those are addressed? Are there people who can take the noticed issues and do something about it?

Big Marine Shoreline Owners Focus Group – March 30, 2023

6 participants. Angie Hong and Barbara Heitkamp facilitated.

Key themes

- **Values:**
 - Big Marine is a hidden gem that is less-developed and quieter than other big lakes
 - Close to the cities but less-developed than White Bear, Forest Lake, Minnetonka
- **Concerns:**
 - Fisheries have changed over the past 25 years. Would like to see refuge areas to protect fish spawning.
 - More boat traffic, especially on the weekends. The park limits entry once the parking lot is full but the north launch could have 75-100 cars on a weekend day. People come down to Big Marine when Forest Lake launches are full. Shoreline owners don't go on the water on the weekends because it's so busy and people are going fast.
 - Water levels and ice heaves. There is more erosion when the water is high. Ice heaves on the west side of the lake.
 - Rules aren't enforced.
 - Many roads and neighborhoods around the lake weren't designed to include stormwater management
- **Questions/comments for CMSCWD:**
 - How is the metric for biodiversity measured? Is it based on the percentage lost or is there a standard that is the same for all lakes? Is Big Marine still good compared to other lakes?
 - The BMP program is well-intentioned but has not been well-executed. Numerous projects have been installed but almost none of them are still in place. People don't know how to maintain the shoreline plantings and projects are impacted by high water and ice heaves. They spend a lot of money on a project and then it gets ruined. Need follow-up assistance for people who do raingardens and shoreline plantings on how to maintain.
 - CMSCWD should investigate legacy pollutant-loading from the former cattle farm on the northwest side of the north boat launch. 170 acres that might become a PUD with 40 homes.