

POA Lake Dredging Frequently Ask Questions (FAQ)

January 11, 2023

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1. I hear they are going to lower the water level of my lake. How far down will they go? Do they lower the water level the same for all of the Village lakes when they are dredged?

The amount of water that is taken out of each lake is specific to that lake and the amount of dredging that is required. The target level is an estimate that is based upon depth readings taken at various locations in the lake prior to the drawdown. Using these readings, a comprehensive dredging plan is created for each area/cove. Once the water level is drawn down to the near target level, it is determined if the target level will be sufficient or if additional drawdown is required. As the drawdown progresses, the lake bottom is revealed thus giving the POA a greater understanding of the magnitude of dredging needed. This can necessitate a change in the drawdown target level. Each of our lakes is different and requires a different strategy and dredging plan in order to perform the dredging in the most cost-effective way. [\(Return to top\)](#)

2. What is dredging and why does it have to be done periodically?

Dredging is a process where unwanted silt is removed from the lake bottom. The buildup of silt is the result of erosion that occurs along the lake perimeter and is a greater issue in the coves and streams where water enters the lake during normal drainage and run off after rainfall. The reason the dredging has to be done every few years is the erosion is an ongoing problem. The POA and Lakes Department, working in concert with the Lakes Committee, is investigating opportunities for mitigating the amount of erosion that occurs in each lake with the intent of extending the time frame between drawdowns and dredging. The collection of silt in our lakes due to erosion has been a complicated and costly issue for decades. [\(Return to top\)](#)

3. Why do they have to draw down the lake to do the dredging?

There are two primary methods for removing the silt from the lake bottom, mechanical dredging, and hydraulic dredging. Hydraulic dredging is a method that could be performed with minimal to no lake drawdown, however, the cost is prohibitive. In the interest of good stewardship and removing the silt in the most effective manner, the mechanical method is preferred, and this requires the water to be drawn down so the silt can be exposed and accessed with various pieces of machinery and hauled out for disposal. [\(Return to top\)](#)

4. What is the difference between mechanical dredging and hydraulic dredging?

Hydraulic Dredging – This method creates slurries (combinations of solids and water) which are pumped to the surface of the lake. Next, the pump moves the slurries through floating and/or land-based pipes to a sorting and/or disposal site. Many hydraulic dredging processes are continuous. While there are many good reasons to use hydraulic dredging, for our needs in POA lakes, this is a very expensive

alternative. While we have used hydraulic dredging in the past years, we do not anticipate doing so in the future because it is a cost-prohibitive method.



Figure 1: Typical hydraulic dredging equipment that could be used on most POA lakes

Mechanical Dredging - In essence, mechanical dredging is the act of using a dredge that digs materials from an extraction site. Most often, there is a stationary, bucket-oriented machine that scoops the desired materials before transporting them for sorting and/or disposal. There are two basic types of mechanical dredgers – (1) land operated, and (2) amphibious machines.

Land Operated Dredging - Usually track driven and requires the water level to be lowered before the machines can access the material that needs to be removed. Silt is removed mechanically using a loader or bucket. This has been a very common method of dredging for decades and is one that has been used on POA lakes. Like any method, land dredging has its disadvantages. The access to the shoreline that requires dredging may be obstructed which prohibits silt removal in all needed areas. In addition, in many cases the areas to be dredged must drain and dry after drawdown before they can be accessed with the equipment. This extends the draw down period which shortens the recreational time available. Still, when land operated dredging can be used, it is far more cost effective than the hydraulic method described above. For POA lakes, the mechanical method has proven to be more economical when it is feasible to use this method.



Figure 2 Three land operated dredging machines working diligently on the West end of Cortez Lake

Amphibious Dredging – Like the land operated machines, material is removed using a loader or bucket and then deposited on the shore for complete removal. The big difference is these machines can move around on land or in the water. They use tracks (like a bulldozer) to move forward, backward, and to turn. However, these tracks are attached to floats (like pontoons) that keep the machine afloat. While amphibious dredgers move slower when floating, the ability to remove silt from on land or while in the water makes these machines very effective and versatile. In fact, many dredging operations can be performed without drawing down the lake! In addition, access to the area to be dredged is no longer an issue because the machine just moves from place to place in the water. While not the answer to every dredging need, this method has proven to be very effective on the 2022-2023 Cortez Dredging Project with over \$200,000 being saved when using only land operated and/or the hydraulic methods. [\(Return to top\)](#)



Figure 3: Amphibious dredging machine working on silt removal on Cortez Lake



Figure 4: The amphibious dredging machine can work on land or water making it a very versatile alternative

5. Because the amphibious method of dredging does not require the lake to be drawn down, does this mean the POA will not be doing lake draw downs in the future?

Lake drawdowns will still be done in the future for two primary reasons. First, as noted above, neither the land operated machines nor the amphibious machines are the total solution to properly dredging our lakes. They both must be used to satisfy all the dredging situations in a lake. Second, we need to periodically give the property owners on all lakes the opportunity to inspect and repair/reinforce their shoreline. The best way to do this is to periodically draw down the waterline. One of the advantages of the amphibious dredging is we do not have to wait for a drawdown in order to address a situation where a property cannot use their boat because of the accumulation of silt under their dock. Rather than them having to wait perhaps several years until the next drawdown, we can schedule periodic dredging on lakes to address these needs sooner. ([Return to top](#))

6. When the lake is drawn down, is there anything I need to do with my dock and boat while the lake is being dredged?

Well, that depends upon whether you have a fixed or floating dock and if you use a boat lift to elevate your boat out of the water when not in use. In short, you want to use the drawdown as an opportunity to not only take care of your dock and boat, but also make sure that your dock and seawall are in good condition. Periods of drawdown are an excellent opportunity to perform inspections and maintenance to your property and better assure you get the greatest utility from living on POA lake. Many residents will use this time to have a boat dealer do annual maintenance to assure their boat is in top condition for the next year's boating season. ([Return to top](#))

7. I have a floating dock and a boat. Can I just not worry about the drawdown and let the dock (and possibly the boat) sit on the lake bottom?

As a property owner it is certainly your prerogative to “do nothing” to prepare for the lake drawdown. Some dock and boat owners in the past have chosen the “do nothing” option. As a result, as the lake level goes down, their floating dock follows the water down to the point where it bottoms out on the lake floor. If in fact your dock is in an area where the lake floor is relatively flat, it’s possible to have your dock sit on the lake bottom during the drawdown with minimal to no damage. For that condition where the lake bottom is relatively level one could also do the same with their boat especially if it is a pontoon or aluminum hull fishing boat. While not ideal, and not recommended, it is possible. [\(Return to top\)](#)



Figure 5: Dock and boat resting on the bottom after the drawdown

If on the other hand the lake floor has a steeper slope, as the lake level recedes and your dock begins resting on the lake bottom, it will actually tilt, rack in place, thus inducing undue stress on the structure of your dock. This may or may not result in permanent damage to the dock. Regardless, it is definitely not recommended as boat docks are not designed to withstand such forces. Please see the pictures below that illustrate situations where homeowners have elected to have their docks rest on the bottom rather than moving them out from shore to deeper water. [\(Return to top\)](#)



Figure 6: Dock is distorted and racked as it is hung up on a guide pipe



Figure 7: While doing nothing is an option, it doesn't look good for this property owner

To avoid this situation, dock companies recommend that the owner move the floating dock out to deeper water so as the water level is lowered, the dock continues to float as designed. In these situations, for the boat owner that leaves their boat in the water in their dock slip, this allows them to leave the boat in the water for the duration of the drawdown if they decide to do so. This way the dock and boat remain floating as they are designed to do. It is recommended that the homeowner contact a qualified dock company to reposition their dock to deeper water and have it moved back to its original position once the normal water level returns. While there is an expense incurred in moving the dock, it is a fraction of the cost of correcting structural damage which comes as a result of the dock racking on an uneven lake bottom or being suspended by the pipes that are only designed to maintain the docks position in the water and not withstand the weight of the dock once the water level drops. The dock shown below will most likely sustain permanent structural damage totaling far more than the cost to move and reset. ([Return to top](#))



Figure 8: Dock is stuck on the guide pipes putting additional stress on the structure

8. I have a fixed dock and a boat. Is there anything I need to do or worry about relative to the drawdown?

If you have a fixed dock and a boat lift, your preparation for the drawdown can be a simpler process. In this situation your dock obviously does not need to be moved, and your boat would be suspended on the lift during the drawdown. Even so, the drawdown is an excellent opportunity for you to inspect your dock to assure that you have no subsurface (below normal lake level) repairs that need to be made. In addition, this is a great time to do any maintenance on your dock especially if it requires you to be up underneath the floor of the dock. Do not miss this opportunity to make sure that your dock is ready for many years of boat storage and enjoyment. [\(Return to top\)](#)



Figure 9: Fixed docks take away some of the concerns. You still must check your dock and shoreline.

9. I don't have a dock or a boat. Is there anything I need to be doing with my waterfront during the drawdown?

Even if you do not have a dock or a boat, it is recommended that you use the drawdown as an opportunity to inspect your shoreline. Whether you have riprap or a seawall, it is much easier to inspect the condition of your shoreline and make any corrections (if necessary) while the water level is down. It is much easier and more cost effective to do repairs and maintenance of your shoreline during the drawdown. When the lake is full of water and you then discover you have a problem, you have a much bigger and more expensive problem to correct. [\(Return to top\)](#)

10. I have an irrigation system that pumps water out of the lake for watering my lawn. Is there anything I need to be doing with this system during the draw down?

It is difficult to say for certain what each property owner should do with their irrigation system because each system is different and is a function of the amount of water being taken out of the lake. Like docks and shorelines, the drawdown is a great opportunity to inspect these systems and make whatever repairs or modifications needed to keep your irrigation system operating correctly. The property owner should keep in mind that the drawdown may be enough to expose most if not all of your piping and the pump itself. You want to make certain that your pump is not damaged if you are having your floating dock moved to deeper water during the drawdown. With the waterline lowered, there is a greater chance your pump and piping could be damaged by a boat or the dredging machine if they are working close to your pump. It is always best to be extra diligent about marking your irrigation system with a buoy or flag so that everyone knows the system is there and they can avoid it should they be working in its vicinity. [\(Return to top\)](#)

11. I have a geothermal heating and cooling system that includes piping in the lake. Do I need to be concerned about this system during the drawdown?

Well, that depends. When a lake, river or pond is used for the heat transfer in a geothermal heating and cooling system it is a hybrid system as compared to the traditional systems where the heat transfer loops are placed underground. For most conditions, when a lake system is installed, the heat transfer loops should be placed at a depth of at least 8' taking into account the variation of the water level. Therefore, knowing a lake will be periodically drawn down 6' to 7', means the lake loops should ideally be placed at a depth of 14' to 15' to assure the system will operate properly during the drawdown. If this was done when your system was installed, you have little to worry about as your system's performance will not be impacted and you are deep enough to avoid damage from the dredging process. EXCEPT, many times these systems are not at the greater depths, and they are not marked so that others (fisherman, recreational boaters, and **dredging crews**) know the lake loop is there. Prior to the drawdown, it is strongly recommended that you have your geothermal loop location marked with a buoy or warning sign so that others know the system is there and they can be more careful when in that area of the lake. As with docks and seawalls, a drawdown is a great time to have your geothermal service team inspect the system and make any needed corrections. [\(Return to top\)](#)

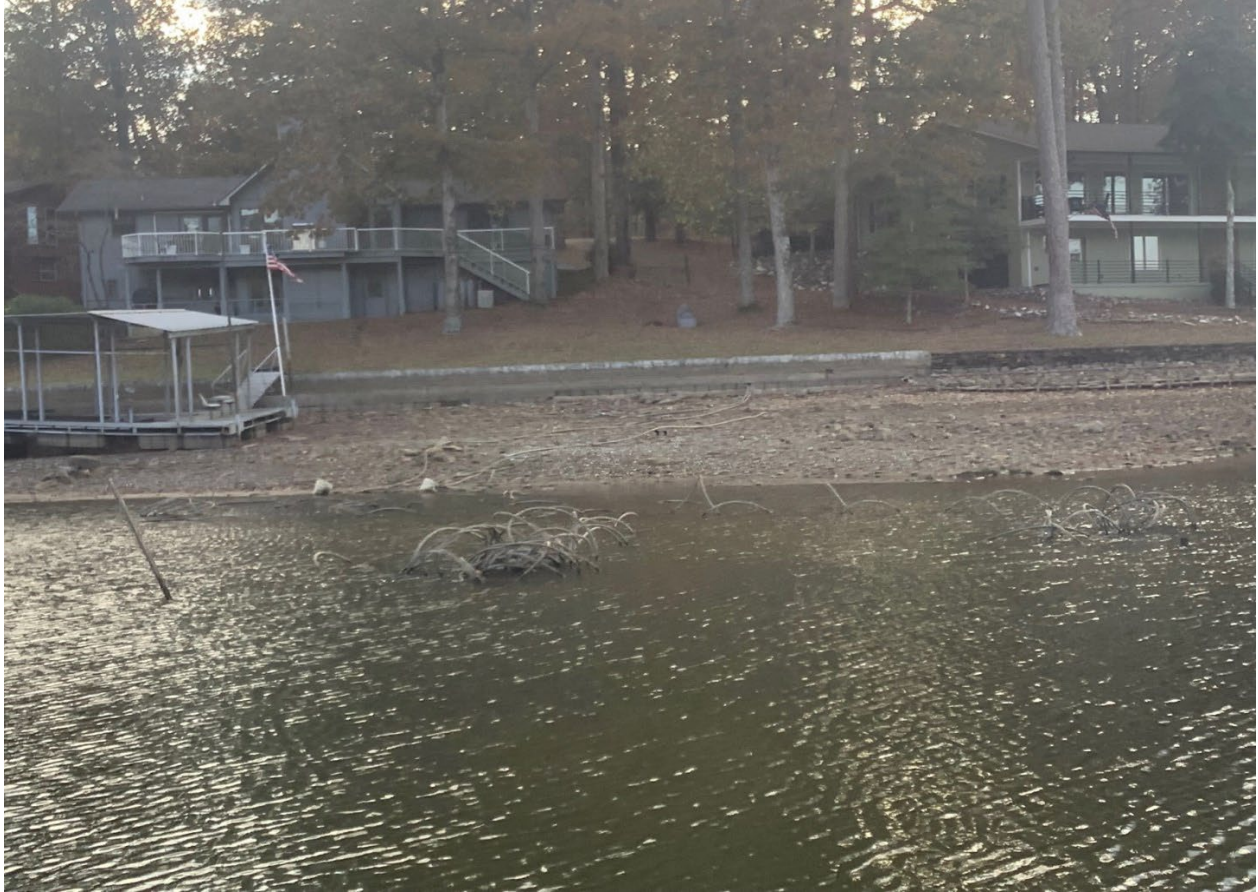


Figure 10: Those are not tree branches. They are geothermal lake loops. This condition should be inspected and corrected while the lake is in drawdown.

12. I have a seawall. So, can I assume I do not to have to worry about doing any maintenance during the drawdown. Is this correct?

Just because you have a seawall on your shoreline doesn't mean that you are immune to damage from wave action. Some homeowners with seawalls, after their drawdown, have discovered there's erosion under the base of the seawall that threatens the integrity of the wall. During the drawdown this is a great time to make that discovery and take the necessary steps to shore-up and reinforce the wall so that you are better assured it will do its job for decades to come. [\(Return to top\)](#)



Figure 11: Notice the erosion under the base of the seawall. This was not noticeable at normal water level.

13. My shoreline is riprap. Can I assume I do not have to worry about doing any maintenance during the drawdown. Is this correct?

As with the seawall, it is recommended that you take the opportunity to inspect your rip wrap to assure you do not have damage behind the wall. We are aware of homeowners who thought their riprap was in good condition only to find that better installation would have prevented erosion from behind the wall. See photo below. This erosion compromised the integrity of several trees which ultimately had to be

removed. At the risk of sounding repetitive, the drawdown is your opportunity to inspect your shoreline and correct any deficiencies that may need attention. [\(Return to top\)](#)



Figure 12: This erosion could not be seen until the riprap was removed. The void under the tree was deep enough that a full-size man could disappear under the tree. Thanks to the drawdown, it was caught, and tree removed before it fell on the roof of the dock.

14. I noticed the POA has continued to leave the drain open even though the drawdown is at the target level. Shouldn't the valve be closed so the lake level does not drop further?

At first thought, it would seem likely that as soon as the water level was down to the target level, the valve would be closed as the dredging was conducted. The problem is during the drawdown, water is continuing to flow into the lake through the coves and streams that feed the lake. In addition, it's not unusual to have several rainy days during the winter and each of these rains brings additional water into the lake. Therefore, in many instances, the valve has to remain open although the target drawdown level has been reached. This is necessary so the desired water level can be maintained while the dredging takes place. It's not an exact science and it requires constant attention toward watching weather conditions and water flow both in and out of the lake. [\(Return to top\)](#)

15. How long will it take for the lake to refill after the valve is closed?

The amount of time it will take to refill the lake after the valve is closed is determined by many factors. One certainly is the degree of rainfall that we receive once the valve has been closed. During a period of heavy rains, for some lakes they can refill in a matter of days. For others the refill could weeks or months. There's no way to know for sure until we see what Mother Nature delivers. [\(Return to top\)](#)

16. What can I be doing as a property owner to help prevent drawdowns from being necessary?

There's actually a lot that you can do as a property owner to help prevent drawdowns. One is to manage your property in such a way that you maintain ground cover throughout and as a result, erosion is minimized. In addition, when you spot areas of erosion, whether on your property or not, please notify the POA or the Lakes Committee so that it can be examined and addressed at the appropriate time. We all love our Village and we all have the responsibility to be good stewards of what has been entrusted to our care. Help us to maintain our lakes so they provide recreational enjoyment for decades to come. [\(Return to top\)](#)