

Prevent Monofilament from Becoming the Next Texas Invasive

*Instructions to make a PVC fishing line collection tube
and how to recycle and reuse the fishing line*



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Why should you recycle fishing line (monofilament)?

Used fishing line left on the shoreline, on piers or docks, or in the water is harmful to fish, wildlife, people, and boat motors. Fishing line or monofilament takes 600 years to disintegrate. Recycling offers a way to keep it out of the environment and convert it to make useful items.

To learn about the importance of keeping fishing line out of our waterways, understand the recycle steps, who does the actual recycling, and how you can educate others, visit these websites:

- Monofilament Recycling Recovery Program, <https://mrrp.tamu.edu/>
- Berkley Fishing, <http://www.berkley-fishing.com/Berkley-recycling.html>
- Boat US, <http://www.boatus.com/foundation/monofilament/>

What can be made from recycled fishing Line?

Currently, Berkley Fishing is the only company that recycles fishing line or monofilament. One of the items that they have created is the Berkley Fish-Hab structure (Figure 1).

As noted on their website, a Berkley Fish-Hab (Figure 1) is an artificial, 4' x 4' underwater habitat structure made from recycled monofilament fishing line and line spools, along with other post-consumer materials like milk cartons and soft drink bottles. The Fish-Hab attracts fish and encourages plant growth almost immediately, providing the natural cover essential to the growth of a healthy fish population.



Figure 1. It takes 39 of these 4-foot long panels to make the 4-foot cube Fish-Hab structure that can be anchored underwater.

How to plan your recycling efforts

Leave No Trace, principle number 1 tells us to *Plan ahead and prepare*.

There are two potential components to a fishing line recycling program:

1. Outdoor (PVC) collection stations
2. Indoor (cardboard) recycling containers.

For outdoor stations, you will need to figure out what size of PVC collection station is best for you. The size of the PVC collection tube needs to be made to the size that will handle the traffic and how often you can empty the contents (at least every 2-4 weeks). It would look bad if your collection tube was always full and spilling onto the ground. It would not be good if the person giving you permission asked you to remove it.

Indoor cardboard recycling containers are best installed at tackle shops or marinas.

How many collection devices would be needed for your area? A rule of thumb will be to start with one unless there are multiple entrances. Place the container next to a trash can to limit the amount of trash deposited in your device.

Permission to Place

In the planning phase, obtain proper permissions before installing collection devices. If you use metal signs, please have these approved. Some parks may have sign policies and regulations.

Placement & Maintenance of PVC fishing line collection stations

Decide where and how the tubes will be mounted (outside) or displayed (indoors).

For outdoor installations, decide if you want a permanent free-standing or a portable system. For a permanent free-standing installation, use a T-post or U-post when installing near a pond, lake, or stream. For a portable system, a 5 gallon bucket filled with concrete is a great choice for a base. This is also better for the smaller diameter PVC mentioned later in this guide.

When mounting to personal property, decks, and walls be sure to get the proper approval. Ask the property owner if they have a preferred way to attach these devices. Never attach stations to live vegetation, including trees.

Make a plan to regularly check on the collection stations so that they do not become an eye sore. Also decide who will be responsible for collecting fishing line and continued maintenance.

Type and size of PVC fishing line collection station

There are many sizes and shapes when it comes to Polyvinyl Chloride (PVC). Typically a 6 inch diameter of (PVC) round pipe is used. But smaller and larger tube sizes can also be used.

Diameter Guide

- Freshwater** 4" – Small lakes and ponds or community fishing areas with light traffic
 6" – Large lakes or waterways with heavy fishing traffic
- Saltwater** 6" – Bay access areas, fishing piers

How to build a PVC fishing line collection station

Tools & Equipment (will vary depending on size)

Power Tools

- Dremel and bits (optional)
- Power drill with 1/8" and 1/4" drill bits

Hand Tools

- Cutting pliers
- Flathead screwdriver
- Phillips head screwdriver
- Saw (appropriate size to cut PVC)
- Sledge hammer or T-Post driver
- Wire cutters

Miscellaneous

- Caulk gun (to dispense construction glue)
- Mat or tarp (to cover construction area)
- Pencil and/or marker
- Safety glasses
- Tape measure
- Vaseline

Materials for building 4" dia. PVC collection station

Item Description	Quantity	Picture	Estimated Cost
4" PVC pipe, 10' SDR 35 Solid Sewer (SW)	1		\$13.00
4" PVC 45 degree elbow, sewage grade	1		\$3.00
4" PVC Drop-in Grate Styrene drain grate	1		\$2.00
4" PVC cap, Sewer/Drain Cap or thread option.	1		\$2.00
Option (Higher Cost): Female adapter w/male plug	1ea.		Will add about \$7.00 to your costs. D3034 would not be needed
6' U-Post	1		\$6.00
¼ inch X 1-½ inch round head machine screw, (#20) with nut	2		\$1.00
3" – 5" stainless steel hose clamp, #072 SS Clamp	1		\$2.00
Construction Glue (water proof)	1		\$2.50
PVC glue	1		\$5.00
Sandpaper (med grit)	1		\$4.00
Wire Clothes hangers	1		\$0.00
Sub-Total:			\$ 40.50

Additional materials to construct a portable collection tube			
Cement mix (quick set), 80 lb bag	1		\$3.50
5 gallon bucket	1		Free to \$4.50
Sub-total:			\$ 8.00
Total:			\$48.50

Materials for building 6" dia. fixed PVC collection station

Item Description	Quantity	Picture	Estimated Cost
2' of 6" diameter PVC pipe, Pre-cut	1		\$8.97
6" elbow	1		\$9.33
6" female threaded adapter	1		\$13.99
6" threaded male plug	1		\$7.31
6" plastic lid from coffee container	1		Free
Total:			\$39.40
Mounting type			
2x4x8 treated lumber Or			\$3.77
4x4x8 treated lumber			\$6.67

Construction of collection tube

Safety and Environmental awareness

Please wear safety glasses at all times. Sweep or vacuum all the plastic shavings and pieces to prevent runoff into the street drainage system. Let's try and keep the plastic out of our water systems.

Body

If pre-cut PVC is not used, measure and mark the PVC pipe and cut to length using hand saw or Dremel tool. Use sand-paper to smooth any rough edges. Set pieces aside until needed.

Top

4" dia. 45 degree Install - To exclude birds and trash, use a drain grate on the top of the 45 degree elbow. First, remove the middle two (2) grate pieces from drain grate (Figure 3.) A dremel tool with the drill type cutter works well. Next, use sandpaper to smooth any rough edges, to make sure there are NO sharp edges. Remember, kids may be using these and we do not want anyone to accidentally cut their finger or hand. Finally, secure with construction glue and set aside to allow glue time to dry.

6" dia. 90 degree install – If a grate is not available, use a 6" plastic coffee or other food container lid to help exclude birds and trash. Make 4 cuts and glue top down inside the 90 degree elbow on the ledge (figure 4.)



Figure 3. Assembly of top grate excluder.



Figure 4. Assembly of top plastic lid excluder.

Bottom (two types)

Type 1 – Cap Bottom (4" dia.)

Use wire cutters to cut a 7½" length of wire from the wire clothes hanger. Bend it as shown in figure 5.

Use the power drill with the 1/8" drill bit to drill two holes – one on each side of the PVC cap. The holes should be ½" from the bottom of the cap. Then, drill multiple drainage holes in the PVC cap. (See figure 6)

Insert the wire hanger and place the PVC cap on the tube, but DO NOT glue the cap on to the tube. The wire is only used to keep the cap from falling off.

NOTE: before pushing the cap on, wipe a little Vaseline around the inside of cap.



Figure 5. This clip is used to keep the cap on, **not** to be used as a handle.

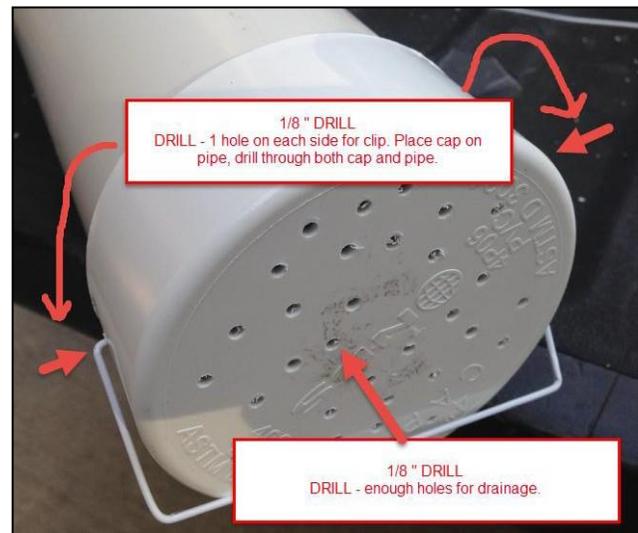


Figure 6. The cap comes off to provide easy access to remove the collected fishing line.

Type 2 – Threaded female/male adapter (4" or 6" dia.)

Glue the non-threaded side of the female threaded adapter to the PVC Tube. Be careful to not get any glue on the threads. Use a ¼" drill bit and drill 5 holes in the threaded male adapter. This allows water to escape (Figure 8). Add a little vaseline to threads.



Figure 7. Threaded female adapter with threaded male adapter.



Figure 8. Threaded male adapter with five ¼ in. holes for water drainage.

Final assembly

4" dia. 45 degree install - Attach the top 45 degree elbow/drain gate assembly to the top of the PVC pipe. Make sure that the grate is in line with the bottom clip. (See Figure 9) Secure with PVC glue and set aside to allow glue time to dry. PVC glue dries very fast. After glue is dry, place stickers on tube.

6" dia. 90 degree install - 90 degree elbow is installed the same way.

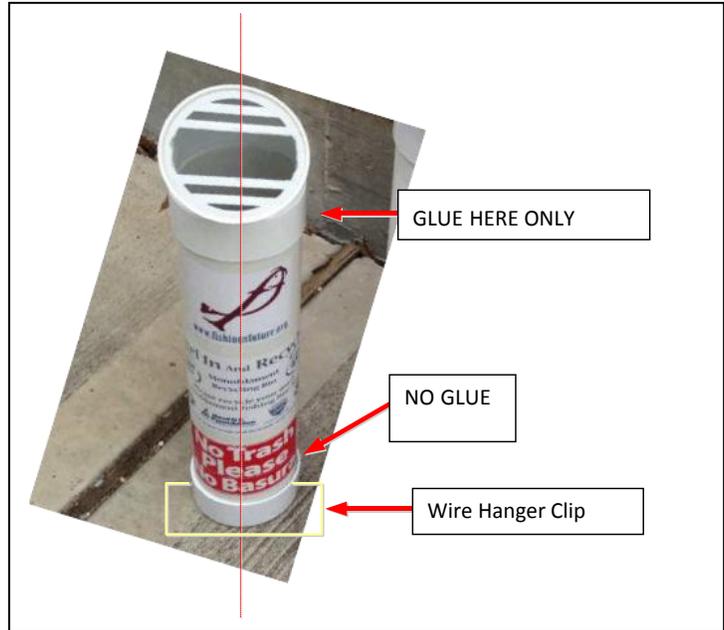


Figure 9. Final tube assembly with stickers.

Collection station Installation

There are many ways to display or install the collection stations:

- 1) Fixed, free-standing: use a U-post
- 2) Portable setup: use a 5 gal bucket
- 3) Ready-made indoor cardboard collection bins

Fixed, free-standing collection system

For 4" dia. devices, the U-post size is determined by the length of the collection tube, and if a 12"x18" metal sign is attached. The posts come in several sizes: 3ft, 6ft, or 8ft.

The samples are based on a typical 6ft U-post.

Assembly Steps:

1. Install the U-post into the ground using a sledge hammer or post driver.
2. Use the metal hose clamp to attach the collection tube to the U-post.
3. Use the metal screws to attach the metal sign to the U-post. (Note: You may have to drill holes in the sign.)



Figure 10. Final assembly to post.

Larger 6" devices will need a little more support. Attach these to 2x4 or 4x4 posts, fence posts, or directly to a fixed object.

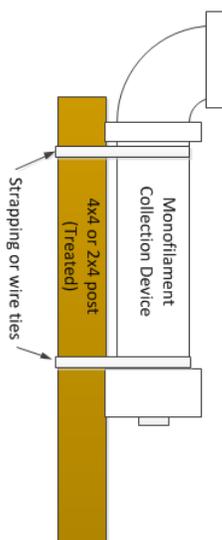


Figure 11. Installation examples for large tubes.

Portable collection system

A portable collection system can be used at a fishing event or in front of a store or tackle shop for a weekend service project. These events are also great places to educate the public.

Assembly steps are the same as outlined above, except the U-post will be set in the concrete inside the bucket.

Assembly Steps:

1. Mix the concrete per the directions of the manufacturer in the bucket, insert the U-post and stabilize the post with supports until the concrete has dried.
2. Use the metal hose clamp to attach the collection tube to the post.
3. Use the metal screws to attach the metal sign to the U-post. (Note: you may have to drill holes in the sign.)
4. Dress up the 5-gallon bucket with your group's name or photos (figure 12.)



Figure 12. Portable recycled fishing line collection tube.

Indoor cardboard collection container

These cardboard containers are about 3' tall and about 17" wide and 17" deep. The display holds 2 cardboard boxes; one for fishing line and the other for spools.

The cardboard recycling containers are available from Pure Fishing (the parent company of Berkley). They can be ordered free of charge by writing a letter to:

Berkley Fishing
1900 18th Street
Spirit Lake, IA 51360



Figure 13. Indoor collection bin.

Signs & Stickers

Contact BOAT US (CleanWater@BOATUS.com) for signs and stickers. If you make a donation to Boat US, they will send you five (5) sets. A set includes one 12" x 18" *Reel In & Recycle* metal sign, a 4"x6" *No Trash* sticker, and a 5"x7" *Monofilament Recycling Bin* sticker.

Southern Tape & Label, Inc. in Cocoa, Florida is another great place to purchase stickers. Email: donna.dougherty@labelstl.com or Phone: 321-632-5275 for pricing.



Figure 14a. Examples of signs and stickers available from Boat US.



Figure 14b. Examples of stickers from Southern Tape & Label, Inc.

Customized signs can be ordered from a local print or sign shop and typically cost about \$30.00 for a 12" x 18" metal sign. Stickers can be printed at home or ordered from a print shop with your organizations contact information.

Line Collection

After you have mounted your collection device and have added it to the Texas Monofilament website (see page 14), please remember to take care of it. Create a maintenance schedule for removal of the fishing line.

Here are a few items to take with you. Depending if your devices are inside or outside will determine what you need to take.

1. Bag, box or bucket to hold collected line.
2. Nail clippers or small pair of scissors (to remove hooks, etc.)
3. Large pair of pliers or large wrench (in case bottom threaded male plug is too tight.)
4. Vaseline (used on threads of the male plug or slip on cap.)
5. Short stick with hook on the end (use to reach inside container and remove line without having to put one's hand inside it.)
6. Spray bottle with 10% bleach (for occasional rinsing of inside of containers.)
7. Any other special tools needed for your device.

NOTE: When checking outdoor collection stations, please be sure you tap on the device to get rid of any unwanted guests that might be living in the collection device.

Handouts & Reporting

The Texas Monofilament Recovery and Recycling Program (MRRP) has an information brochure about recovering and recycling monofilament. Copies can be obtained by contacting John O'Connell, Texas Sea Grant Extension Agent, at 979-864- 1558 or j-oconnell@tamu.edu

All are encouraged to create an online account with MRRP at <https://mrrp.tamu.edu> to record the location of your device and periodically report the weight of fishing line (monofilament) collected.



Figure 15. MRRP brochures

Recycling Company

Now that you have finished all the hard work to construct, install, and collect the used fishing line, it is time to send the fishing line to the recycling center at Berkley Fishing Company, <http://www.berkley-fishing.com/Berkley-recycling.html>

The following REQUIRED cleaning preparation must be done before shipping:

- Remove all tackle: hooks, weights, swivels, and any other tackle.
- Remove all seaweed, algae, and aquatic plants.
- Remove all trash.

Place the “cleaned” used line in a cardboard box and mail it directly to the collection center at:

Berkley Recycling
1900 18th Street
Spirit Lake, Iowa 51360



Figure 16. Free indoor collection bins come with free return shipping boxes upon written request to Berkley Fishing Company.

If you ordered an ***indoor recycling bin*** (Figure 16) from Berkley, they will send a prepaid shipping box. Just fill the box and hand it to UPS.

Take the next step . . . Help educate others!

Educating the public is also an important step in clearing our waterways from fishing line. Make displays for use at fishing and community events to teach others about the importance of keeping Texas' waterways free of this "invasive" trash. Pictured (Figure 17) are a few ideas to get you started.



Figure 17. Use your imagination to create a fun and educational display to teach others about the importance of recycling used fishing line.

If you have any suggestions or anything you would like to add to this guide, please contact me.

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"Teaching today, to catch one tomorrow"

www.fishingsfuture.org



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