

Prevent Monofilament from Becoming the Next Invasive

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



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VER. 12

MHS0012-MONO (1/20)

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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 while in the water. Recycling offers a way to keep it out of the environment and converts it to make useful items. Remember, we can only do this with monofilament. Fluorocarbon and braided type lines cannot be recycled. Berkley separates these lines from the mono.

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:

- (Texas) Monofilament Recycling Recovery Program, <https://mrrp.tamu.edu/>
- (Florida) Monofilament Recycling Recovery Program, <http://mrrp.myfwc.com/>
- Berkley Fishing, <http://www.berkley-fishing.com/Berkley-recycling.html>
- The Meadows Center for Water and the Environment, www.txmonofilament.org
- Boat US, <https://www.boatus.org/monofilament/>

Check with you own local agency to see what your state is doing. Please use the email below to share anything your state may be doing that other could follow.

What can be made from recycled fishing Line?

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

(UPDATE) Jan 2020 – We have found a 2nd Company that will take monofilament. More to come.

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.

Measuring the Success

You may be asked how is this helping the land and water and all our fins and feathered friend? This area is based on a few known and given examples without having to measure the fishing line. So, what do we know? All of this is not actual but a good start +/- .

From <https://mrrp.tamu.edu/> : 782lbs = @1,060 miles. Based on diameter size of 12 lbs test line.
 $1060/782 = +/- 1.35$ miles per pound. (**Miles / Pounds = Mile Per Pound +/-**)

I stuffed the following cylinders full of **various** size test line to get the weight of the line only. I used 24" long pipe since that is what we use in the guide. All pipe was weighed prior to the stuffing. But you can use the same to get something close.

- 4" dia. X 24" Long - Thin wall Sewer Grade PVC
- 6" dia. X 24" Long - Sch 40 Pipe.

4" x 24" held 2 lbs. of line which is **@2.7miles +/-**

6" x 24" held 4.3 lbs. of line which is **@5.8miles +/-**

As time goes on, I might find someone with better results. The first picture is the 4" dia. And the 2nd is the 6" dia. Stuffed.



4" & 6" pipe stuffed



This is 50 lbs. of various sizes of fishing line. @ 36" x 36" or **67.5 miles** of fishing line.

How to plan your recycling efforts

Leave No Trace, principle number 1 tells us to *Plan 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. Also check surrounding wildlife. Nesting birds, bee's, endangered species. This will help you decide the type of container to make. You do not want these containers to become a trap only to find in your container when you do a clean out.

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. Always follow your state agencies policies. Never dig before asking.

Placement & Maintenance of PVC fishing fine 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. ***Note: 5-gallon bucket of concrete is heavy.***

Check surrounding wildlife to be sure the area is safe.

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.

Create a plan to regularly check on the collection device location so that they do not become an eye sore. Also decide who will be responsible for collecting fishing line and continued maintenance. If you find that animals are entering your devices and dying, please consider ways to prevent them from entering your device. See topic [Construction of collection tube](#).

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

IMPORTANT purchasing note

When purchasing PVC type tube there are a few types. Schedule 40/80 and sewage grade. When purchasing 4" sewage grade PVC, please purchase ALL other parts in 4" sewage grade. Schedule 40 type PVC fittings DO NOT fit, even though it is 4". PLEASE test fit at store before purchasing. Will save you a trip back. Also, when purchasing sewer grade pipe, you will lose about 6" when you cut off the wider end piece. (prices below may change)

Materials for building 4" dia. PVC collection station (cost on 4" Pipe verified 4/4/2018)

Item Description	Quantity	Picture	Estimated Cost
4" PVC pipe, 10' SDR 35 Solid Sewer (SW) or Drain (D)	1	 Est cost for 5 – 22" - \$2.07	\$10.33
4" PVC 45 degree elbow, sewage grade	1	 (4P03)	\$1.94
4" NDS Round Grate OR 4" Plastic Round Black Foam Polyolefin Grate	1	 (911) OR  (11)	\$2.99 or \$2.50
		NOTE 1: when using (911) Construction Glue is needed. When using (11) PVC Glue Only 4" Coffee Lid optional to block bee's and birds. Page 8	
Female adapter w/male plug (4P11 & 41P8)	1ea.	(4P11 & 41P8)  	\$7.00
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	2		\$4.00
Construction Glue (water proof) see note 1 above	1		\$2.50
PVC glue	1		\$5.00
Sandpaper (med grit)	1	Used to smooth the rough edges	\$4.00
Stickers		Stickers are a nice added touch.	See sticker page

(based on items in RED) Sub-Total:			#36.44
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" 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
Sub-total:			\$39.40
Mounting type			
2x4x8 treated lumber Or 4x4x8 treated lumber			\$3.77 \$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. When using glues, have adult supervision and work in well ventilated areas.

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 - Insert the drain grate (911) into the top of the 45-degree elbow. (Figure 3) Secure with construction glue and set aside to allow glue time to dry or use (11) and use PVC glue to secure (Figure 3a). Note: the drain grate (11) seems to have a better fit and is a better choice if adding the 4" coffee lid to help keep bee's and bird's out of the container

Remove the middle two (2) grate pieces from drain grate (911) or (3) from grate (11). (Figure 3) Dremel tool works well here with the drill type cutter. Use sandpaper to smooth any rough edges. When removing the center grate pieces, please 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.

6" dia. 90 degree install – 6" coffee container lid (Figure 4) to help keep bugs & birds

Figure 3. Iso works very well with the 4", using the small coffee container lid. (Figure 4a) Make 4 cuts and glue top down into 90 elbow ledge at red arrow (Figure 4)

Figure 3a.



Figure 4a.

Figure 4.

Bottom

Threaded Female/male adapter (4" or 6" dia.)

Glue the non-threaded side of the 4P11 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 41P8. 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 or T-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 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.

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

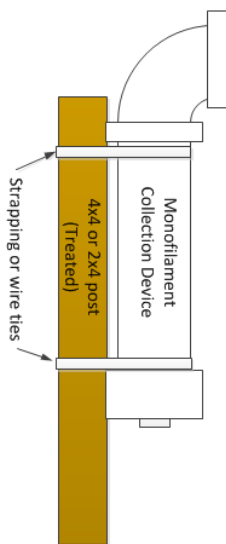


Figure 11.



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, 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 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.)
4. Dress up the 5-gallon bucket with your group's name or photos (Figure 12).

Figure 12.
Portable recycled
fishing line



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 bottom box is set sideways to catch the spools. Spools and line can be shipped in the same box.

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 or calling

Berkley Fishing
1900 18th Street
Spirit Lake, IA 51360.
1-800-237-5539

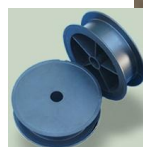


Figure 13.

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 *Monofilament Recycling Bin* 5"x8" sticker. <https://www.boatus.org/monofilament/>

Southern Tape & Label, Inc. in Cocoa, Florida is another great place to purchase stickers.

Email: donna.dougherty@labelsstl.com or Phone: 321-632-5275 for pricing. Approx. .84 ea.

Uprinting – Uprinting can make you personalized stickers - <https://www.uprinting.com/>



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



Figure 14b. 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 contact info organization. I use <http://www.buildesign.com>

Line Collection

After you have mounted your collection device and have added it to the Texas Monofilament website or your states site, please remember to take care of it. Create a maintenance schedule for removal of the fishing line. THIS IS THE MOST IMPORTANT STEP.

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 (something to hold the 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 (used to reach inside container and pull line without having to put one's hand inside it)
6. Spray bottle with 10% bleach (for occasional rinsing of inside of containers) Also can use a product called Cooler-d-funk or boat-d-funk from <http://dfunkwipes.com/>
7. Gloves
8. 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 unwanted guests 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.

Please also check with your state agencies and find out about your Monofilament Recovery Programs, reporting sites, and any specific rules use must follow for you state.



Figure 15.

Recycling Companies

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.
- Remove ALL braided type fishing line

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 13), they will send a prepaid shipping box and label (figure 16). Just fill the box with fishing line, fill in your address, and hand it to Fedex or take to a Fedex Store. Once you send your filled box back to Berkley, they will send you 2 more boxes with shipping label.

Braided Fishing Line – What do I do with it?

First and foremost, if the braid in question has only been on your reel for a season or two, it isn't necessarily time to recycle it, unless you have a bad wind knot deep in the spool. Remember that emptying a spool and then winding it back on in reverse is a great way to get another season or two from your braid.

Other great ideas are

- Sewing Thread for ripped tackle bags
- Repair fabric tears, stitch seams, and reattach buttons on outdoor gear and apparel
- Cut into smaller 6" lengths and put in the trash

Be sure to wear gloves to protect your hands from thin diameter when you're pulling or tightening down the braid.

Great resources

- Monofilament Recycling Recovery Program, <https://mrrp.tamu.edu/>
- Berkley Fishing, <http://www.berkley-fishing.com/Berkley-recycling.html>
- The Meadows Center for Water and the Environment, www.txmonofilament.org
- Boat US, <http://www.boatus.com/foundation/monofilament/>
- Flyvines, <http://www.flyvines.com>
- Keep America Fishing www.KeepAmericaFishing.org – Pledge to Pitch It, [HTTP://www.pledgetopitchit.org](http://www.pledgetopitchit.org)
- The Montana Loon Society – <http://montanaloons.org/> (select Boater information)
- Visit your States Parks, nature centers, or DNR (Department of Natural Resources) sites
- D.O.A – www.DOAlures.com – They recycle used plastic baits.

School Programs

- Outdoor Adventures curriculum, www.dallasecologicalfoundation.org

The Outdoor Adventures curriculum was developed by the Dallas Ecological Foundation. The program is going off in a big way as over 250 schools in Texas now use it, and 16 states have at least one school that has implemented it. The mission of the Outdoors Tomorrow Foundation is to take the Outdoor Adventures curriculum and expand it nationwide so that every student in America has the opportunity to participate in this amazing class. We want to expose as many kids as possible to as many positive outdoor experiences as we can. The kids are the future leaders of tomorrow and we want to ensure they are great stewards of the hunting, fishing, and outdoors experiences.

Sponsorship Kits

Put together a Sponsorship kit to help cover the cost of material for projects. Add your own sticker to your tubes to let others know who is keeping that area free from fishing line. Always remember to add a phone number.



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 our waterways free of this “invasive” trash. Pictured (Figure 17) are a few ideas to get you started.

This guide will also be a part of the Outdoors Adventure Curriculum produced by the Outdoors Tomorrow Foundation starting in 2017.



Figure 17. Use your imagination to create a fun and educational display to teach others about the importance

(update 8/8/2016 – If you would like a PDF on the above items. Please send me an email.)

Donations

If you are interested in helping in other ways, a donation of \$20.00 will help us build 1 - 4" Fishing Line Collection device. Please see contact information below. I will also send you a little gift of thanks. This little Christmas ornament can be hung on your tree, placed at your desk, or used as a teaching tool.



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

Michael Scherer

michael@fishingsfuture.org

"Teaching today, to catch one tomorrow"

www.fishingsfuture.org



Thank you for all you do.



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