

A Mini Kreisel

Marianne Niedzlek-Feaver

North Carolina State University Biological Sciences, 112 Derieux PL., Raleigh NC 27695 USA
(mnfeaver@ncsu.edu)

Extended Abstract

Kreisels with circular flow patterns have always been the best types of housing for developing and planktonic forms. We have developed at NCSU, using a two gallon aquarium, small beta tank and filter with spraybar, a kreisel that individuals can put together (with no tools except a hacksaw) for about \$60.00. We have maintained small Ctenophores, Cnidarians and other invertebrates for as long or longer than our \$800.00 to 1200.00 larger commercial kreisels. Now everyone can have a small Ctenophore with iridescent combs (ctenes) feeding in their classroom.

Materials Needed to Build the Kreisel

A small water pump with spraybar suitable for nano tanks
A suitable beta tank (Figure 1 and 2)
Insect netting
Aquarium sealer
Two gallon tank (with lid to help control evaporation)
Rock or gravel to use in filter if the tank will hold salt water
Sponge filters that come with the pumps are suitable for fresh water kreisels.
18 inches of nylon tubing that fits tightly on filter opening and spraybar
Hacksaw
Hair dryer or Nylon cable ties
Secondary control valve if needed.

Assembling the Kreisel

1. Use the hacksaw to carefully cut one end off of the beta tank (Figs. 1 and 2).
2. Attach insect netting to opening in Beta tank with sealer (Figs. 1 and 2).

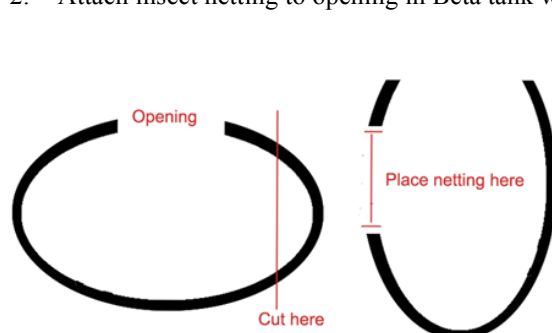


Figure 1. Diagram of how to prepare Beta tank.



Figure 2. Photo of Beta tank before and after it is cut and prepared for use in larger tank.

3. Cut off excess screening and place Beta tank in two gallon tank
4. Assemble pump, replacing rock or gravel for sponge filters if tank is to be filled with salt water.
5. Place pump in 2 gal aquarium, extend using extra nylon tubing the distance between the pump and spray bar so that the bar can be placed over the edge of the beta aquarium (Figure 3).

- Remove the pump from the tank. Use a hair dryer (heat tubing attached to pump or spraybar to mold it to those openings) or nylon cable ties to secure nylon tubing to filter pump and spraybar. Over time the nylon tubing will detach at either end if not secured firmly to pump and spraybar.
- Place the pump back into the tank, fill with spring or salt water and adjust the flow to your liking. You may, if you feel you cannot control the flow properly by simply adjusting the supplied control valve, orientation or height of the spraybar, want to place a second control valve close to the pump.

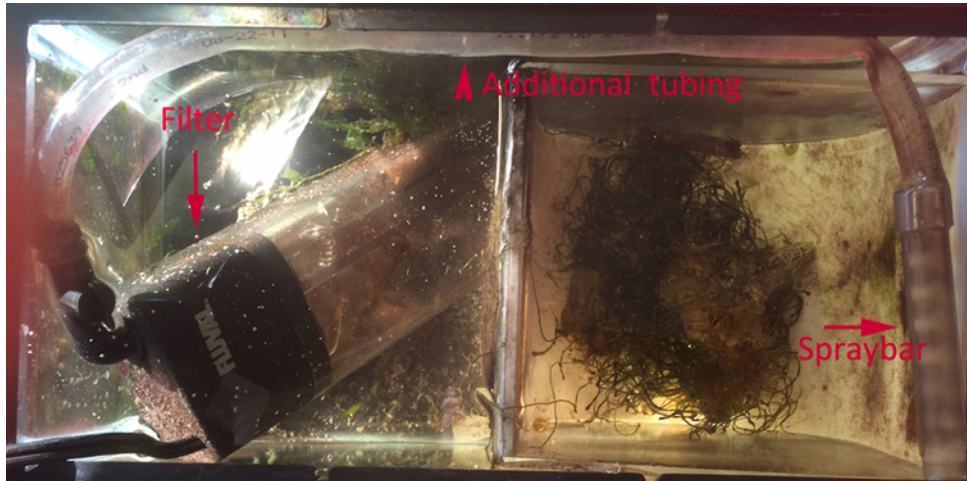


Figure 3. Top view of assembled Kreisel showing additional tubing between spraybar and filter.

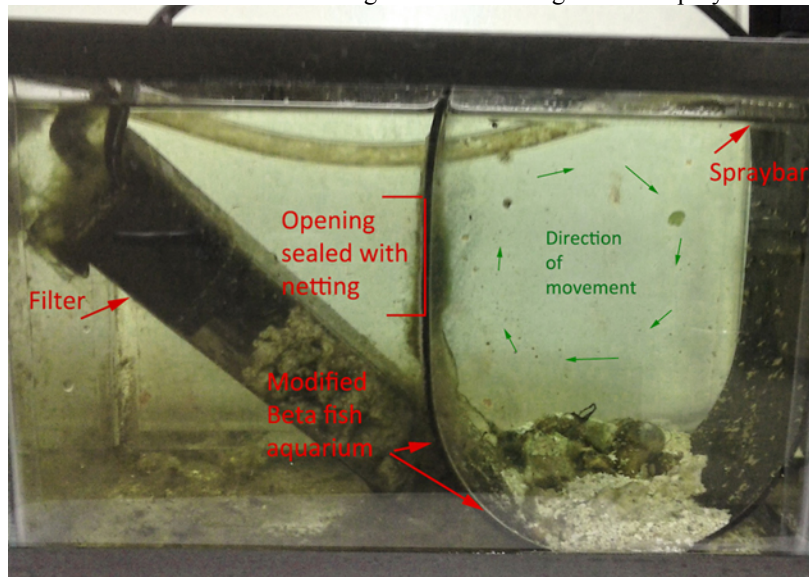


Figure 4. Side view of Kreisel. Circular flow pattern created by spraybar (inflow), screening and pull of the water filter (outflow), and shape of Beta tank, is indicated.

We have successfully kept small Ctenophores and Cnidarian medusa for months in these kreisels. Specimens stay in center of tank and do not bump into tank walls, etc. We also house several cultures in these tanks that would not do well in our main tank such as our *Berghia* nudibranch colony. Bottoms of tanks can be cleaned as needed with turkey basters. Fresh water should be added to salt water tanks as needed to maintain proper salinity.

Link to Original Poster

<http://www.ableweb.org/volumes/vol-37/poster?art=81>

Mission, Review Process & Disclaimer

The Association for Biology Laboratory Education (ABLE) was founded in 1979 to promote information exchange among university and college educators actively concerned with teaching biology in a laboratory setting. The focus of ABLE is to improve the undergraduate biology laboratory experience by promoting the development and dissemination of interesting, innovative, and reliable laboratory exercises. For more information about ABLE, please visit <http://www.ableweb.org/>.

Papers published in *Tested Studies for Laboratory Teaching: Peer-Reviewed Proceedings of the Conference of the Association for Biology Laboratory Education* are evaluated and selected by a committee prior to presentation at the conference, peer-reviewed by participants at the conference, and edited by members of the ABLE Editorial Board.

Citing This Article

Niedzlek-Feaver, M. 2016. A Mini Kreisel. Article 81 in *Tested Studies for Laboratory Teaching*, Volume 37 (K. McMahon, Editor). Proceedings of the 37th Conference of the Association for Biology Laboratory Education (ABLE). <http://www.ableweb.org/volumes/vol-37/?art=81>

Compilation © 2016 by the Association for Biology Laboratory Education, ISBN 1-890444-17-0. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the copyright owner. ABLE strongly encourages individuals to use the exercises in this proceedings volume in their teaching program. If this exercise is used solely at one's own institution with no intent for profit, it is excluded from the preceding copyright restriction, unless otherwise noted on the copyright notice of the individual chapter in this volume. Proper credit to this publication must be included in your laboratory outline for each use; a sample citation is given above.