

FishTank v1.1 for Windows 95/NT

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FishTank is basically a aquarium size calculator. You enter size data for the aquarium and the water type, and the program computes various information about the prospective aquarium.

FishTank is a 32-bit Windows program intended to be used on Microsoft Windows 95 and Windows NT. If you're using Windows NT, you need at least version 3.51.

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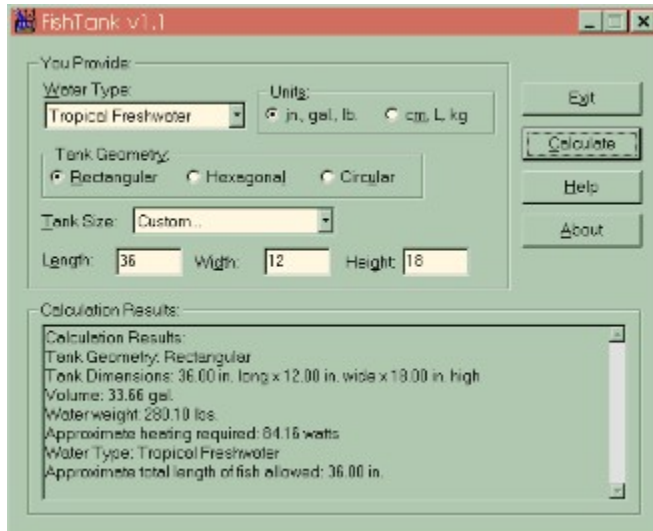
FishTank is freeware. Feel free to distribute it anywhere, as long as it is transmitted in its original archive file FISHTANK.ZIP with all associated files unmodified and included. You may not sell or distribute FishTank for profit without first obtaining permission from the author. This program and its associated files are provided as-is, and the author accepts no liability for damages incurred by the user from the use of this software.

Please refer to the FishTank home page for up to date information:

<http://robot1.poky.srv.net/~mboone/fishtank.html>

The FishTank Window

Below is an example of the FishTank display window.



This window provides all the tools you need to perform calculations. The top half of the window contains the controls that you modify to customize the aquarium type. The bottom half of the window displays the results of the last calculation you made.

To perform a sample calculation, follow these steps:

1. Select the type of water you want to use in your aquarium. This selection will affect the approximate fish length you can keep in your aquarium.
2. Choose a tank geometry. You can select from Rectangular, Hexagonal, or Circular shaped aquariums. If you select hexagonal or circular, the width button is shaded since it is not used in these geometries.
3. Select the type of tank you want to have. There is a large list to choose from if you select the drop-down button. These aquarium types are those found in the file [FISHTANK.DAT](#).
4. Choose the type of units you want to make calculations with. If you already have data in the length, width, or height boxes, they will be converted when you change the unit type.
5. If you select the “Custom” aquarium type, the length or diameter, width, and height values will be editable. Enter these values based on the units you have selected. These values will be in inches for the U.S. units, or in centimeters for the Metric units. Refer to the [Tank Orientation](#) to see which dimension is where.
6. Click on the Calculate button. A report will appear in the bottom window providing details about the aquarium.

Please note that for accurate results, the values you provide for the length, width, and height should be measured from the *inside* of the aquarium. Unfortunately, the data provided in the FISHTANK.DAT file is taken from the outside of the aquarium and will yield larger-than-expected values when calculations are made. This will be remedied as soon as better data is available.

Tank Orientation

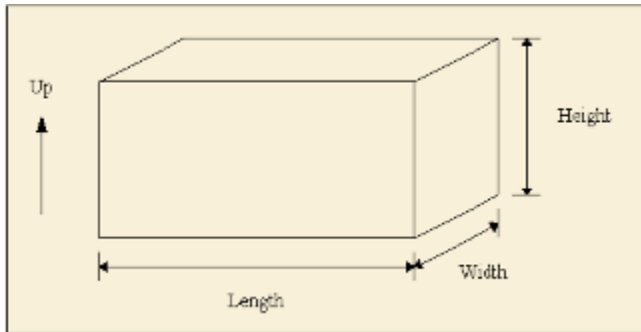
FishTank allows you compute information for three different shapes of tanks:

- Rectangular
- Hexagonal
- Circular

For more information on computations, see [How the Calculations are Made](#).

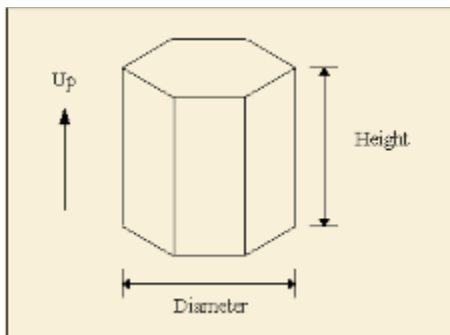
Rectangular Aquariums:

This is the standard “box” aquarium shape. The following system is used for volume and surface area computations for rectangular geometry aquariums:



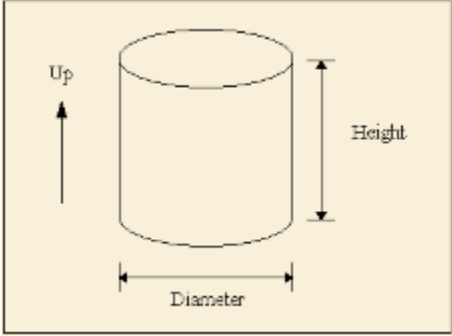
Hexagonal Aquariums:

Hexagonal tanks have six sides. FishTank assumes that all sides of the hexagon are equal. The following system is used for volume and surface area computations for hexagonal geometry aquariums:



Circular Aquariums:

Circular aquariums are cylindrically shaped. This calculation is more useful for people who keep fish in large cylindrical containers (as is done at some hatcheries). The following system is used for volume and surface area computations for circular geometry aquariums:



The FISHTANK.DAT File

The FISHTANK.DAT file is a simple text file used to fill in the Tank Type box in the program. It contains the necessary geometry, length/diameter, width, height, and empty weight values for various tanks. FishTank expects to see the FISHTANK.DAT file in the same directory as the FISHTANK.EXE file. If it cannot find the data file, FishTank will warn you and then only allow “Custom” calculations.

The FISHTANK.DAT file can be useful for storing aquarium configurations that you use frequently.

To add or remove data from the file, please note the following:

- All values for the tank dimensions must be in inches. Tank weight must be in pounds.
- Place a # sign at the beginning of the line to have FishTank ignore it.

Data entries to the FISHTANK.DAT file have the following format:

Geometry, Name, Length/Diameter, Width, Height, Weight

Geometry is the tank shape: 0 for rectangular, 1 for hexagonal, and 2 for circular.

Name is a name for the tank which may contain numbers, spaces, and letters, as long as no commas are included within the name.

For the next three values, refer to Tank Orientation for proper use.

Length/Diameter is the dimension in inches. Whether it is length or diameter depends on the *Geometry* value.

Width is the width dimension for rectangular aquariums in inches. For hexagonal and circular aquariums, you must put a zero (0) in this space.

Height is the height dimension of the aquarium in inches.

Weight is the empty weight, if known, of the aquarium in pounds. A value here will cause the calculation window to display an empty weight value. If you don't know the empty weight or do not want the empty weight value to display, put a zero in this space.

Here is an example line:

```
0, 20 High, 24.25, 12.5, 16.75, 25
```

This line specifies a rectangular tank named “20 High” with dimensions of 24.25” long x 12.5” wide x 16.75” high. This tank weighs 25 pounds when empty.

and another example line:

```
1, 35 Hexagon, 23.25, 0, 24.75, 43
```

This line specifies a hexagonal tank named “35 Hexagon” with dimensions 23.25” diameter x 24.75” high. This tank weighs 43 pounds when empty.

It is important that the values in the data file exactly follow the structure above. Failure to do so could cause improper tank calculations and an incorrect listing of tanks in the Tank Size list.

The current data was taken from a list provided by All-Glass-Aquariums and they consist of values measured from the *outside* of the aquarium. This will yield larger-than-expected values when calculations are made. This will be remedied as soon as better data is available.

How the Calculations are Made

This section explains how the calculations were done inside FishTank:

Constants:

Density of water: 8.321 lb./gal, 0.997 kg/liter

The approximate amount of heating capacity required for a given tank volume (taken from the *Aquaria FAQ): Heating Factor=2.5 watts/gal, 0.66 watts/liter

Unit Conversion Factors:

0.453 kg/lb.

2.54 in./centimeter

231 cubic inches/gal

1000 cubic centimeters/liter

Tank Calculations:

Please refer to the Tank Orientation to see how the variables are situated.

Rectangular Volume=Length x Width x Height

Rectangular Surface Area=Length x Width

Hexagonal Volume= $\frac{3}{8} \times \text{Square Root of } 3 \times (\text{Diameter})^2 \times \text{Height}$

Hexagonal Surface Area= $\frac{3}{8} \times \text{Square Root of } 3 \times (\text{Diameter})^2$

Circular Volume= $\frac{1}{4} \times \pi \times (\text{Diameter})^2 \times \text{Height}$

Circular Surface Area= $\frac{1}{4} \times \pi \times (\text{Diameter})^2$

Heating Required=Volume x Heating Factor

Water weight of tank=Volume x Density of Water

In "*You and Your Aquarium*", Dick Mills describes a method for calculating the approximate length of fish a tank of a certain water type can accommodate. By taking the surface area of the aquarium and dividing by a factor based on the tank water type, the length is computed.

Fish Length=Surface Area / Water Type Factor

Water Type Factors:

Tropical Freshwater: 12 square inches/ inch of fish length

Cold Freshwater: 30 square inches/ inch of fish length

Tropical Marine: 48 square inches/ inch of fish length

The FishTank To-do List

I've got several ideas for my future versions of FishTank which you can review at the FishTank home page at:

<http://robot1.poky.srv.net/~mboone/fishtank.html>

Writing clean and fully documented pieces of software consumes a good deal of my freetime. Future versions of FishTank might become shareware. I want to make it worth your registration time and money, so please send me any suggestions/ideas you have that would be useful to you as an aquarist. I'll try to include them all!

My e-mail address is: Mike-Boone@msn.com.

You may also send correspondence to:

Mike Boone Software
5078 Dalmeny Ct.
Columbus, Ohio 43220

References

I obtained the aquarium information necessary to write this program from the following sources:

- All-Glass-Aquariums, <http://www.petsforum.com/petsforum/allglass/>, for the typical tank size list.
- The *Aquaria FAQs on the Internet at <http://www.cco.caltech.edu/~aquaria/Faq/>, for typical tank heating requirements. I recommend the FAQ for anyone who has an aquarium, especially those who are just starting in the hobby.
- “*You and Your Aquarium*” by Dick Mills (ISBN 0-394-72985-4), for the fish size to surface area values.

About the Author

I'm Mike Boone. I wrote this program to learn about programming with Visual C++ 4.0 and MFC. Even for a small application such as this, it's easy to see the amount of work that goes into making a finished product.

My interests include computers, listening to Jimmy Buffett and country music, playing guitars, and anything having to do with water (sailing, snorkeling, etc.).

I keep a 38 gallon tropical freshwater aquarium that houses 2 severums and 3 giant danios. I'm particularly proud of my 5" green severum. He's one cool fish! I've been keeping fish for about 2 years, but I've been interested in the aquaria hobby as long as I can remember.

You can contact me at the Internet address: Mike-Boone@msn.com. Please feel free to send any feedback or ideas you may have. You can check out my homepage at: <http://robot1.poky.srv.net/~mboone/>

My current job and my schooling have experienced me with engineering problem solving, programming, Internet stuff (I admin our web site and design web pages), and more. I graduated in 1994 with a B.S. in aerospace engineering from Ohio State. If you've got a computer-related job to offer in the Florida Keys or anywhere along the U.S. gulf coast, I'm all ears! (:

I'd like to offer special thanks to my fiancée Jennifer for her support.

