

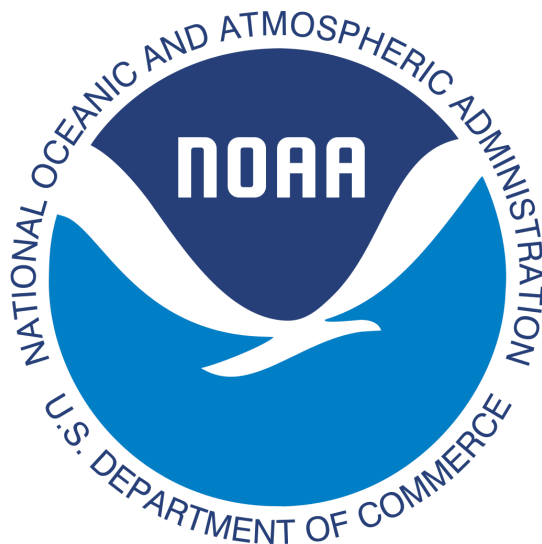
# QuickStart Guide

## **MSCAA**

MultiSpecies Statistical Catch-At-Age

v0.9.1 (beta)

NOAA – National Marine Fisheries Service



## Contributors:

Dr. Jason Link

Dr. Howard Townsend

Dr. Kiersten Curti

Mr. Ronald Klasky

Mr. Elliot Wurst

# Table of Contents

<b>1. Introduction</b>	<b>4</b>
<b>2. Setup</b>	<b>4</b>
<b>3. Program Execution</b>	<b>4</b>
<b>4. Importing the Test Database</b>	<b>5</b>
<b>5. Online Help</b>	<b>5</b>
1) Hover Help	5
2) WhatsThis? Help	5
<b>6. GUI Layout</b>	<b>6</b>
<b>7. Toolbar icons</b>	<b>6</b>
<b>8. Project Setup</b>	<b>6</b>
<b>9. SSCAA Data Input (Single-Species Catch-At-Age)</b>	<b>7</b>
<b>10. MSCAA Data Input (Multi-Species Catch-At-Age)</b>	<b>7</b>
<b>11. Output</b>	<b>7</b>
<b>12. Saving your work</b>	<b>8</b>
<b>13. Troubleshooting</b>	<b>8</b>

# 1. Introduction

The Multi-Species Statistical Catch-At-Age tool (MSCAA) allows the user to 1) run a single-species or multi-species catch-at-age model, and 2) visually inspect the resulting Abundance values interactively.

The application uses the 3rd party application ADMB with a model (i.e., .tpl and .pin files) supplied by Dr. Kiersten Curti from her 2012 PhD dissertation, Age-Structured Multispecies Model of the Georges Bank Fish Community.

## 2. Setup

In order to run MSCAA, the following must be installed on your computer:

- ADMB
- MySQL

MSCAA uses MySQL to read and store all data used in the application.

## 3. Program Execution

### Windows:

1. Create a directory for the release and copy the zip file into it.
2. Unzip the zip file containing the executable and required auxiliary files.
3. Double click the executable file and the application should start up.  
(N.B. You'll need to have MySQL installed prior to running the software.)

### Linux:

1. Create a directory for the release and copy the tar file into it.
2. Untar the tar file containing the executable and required auxiliary files with:  
`tar xvf nameOfFile.tar`
3. Double click the **MSCAA** file and the application should start up.  
(N.B. You'll need to have MySQL installed prior to running the software.)

Clicking **Help -> About** should raise a window with build information and is a good way to test that the application is functioning properly.

## 4. Importing the Test Database

The application is typically run by the user importing their data into the application's GUI forms (either manually or via copying/pasting from a spreadsheet). The user then saves their data into a MySQL database.

Alternatively, the user may import a MySQL database from an existing .sql file. A sample .sql file is provided as a test. It's named **Sample\_3\_Species\_xx.sql** (where xx is the version number) and is provided with the release in the **sample\_data** folder. To import this database, the user selects **File -> Import Database**. Also in this folder are the **.tpl** and **.pin** files necessary to run a model. The program will prompt the user to select these files during the run process.


## 5. Online Help

Online help is available in two formats:

### 1) Hover Help

Hover Help is available by holding the cursor over a GUI element. If Hover Help has been implemented for the element, a short textual tooltip will briefly appear.

### 2) WhatsThis? Help

WhatsThis? Help is typically more detailed information than what's available in Hover Help. It's available by first clicking on the arrow/question mark icon  in the application toolbar and then hovering over a GUI element. If WhatsThis? help has been implemented for a GUI element, the cursor will change from a circle with a diagonal line to a question mark with an arrow at the bottom. Clicking on the element with the changed cursor will cause more detailed information to pop up on the screen, where it will remain until the user clicks the cursor.


## 6. GUI Layout


MSCAA's user interface is set up as a collection of movable and resizable windows. From left to right they are: **Navigator**, **Data Input**, and **Output** windows. Below there is the **Progress Chart** window which shows the current state of the model run. An optional window is the **Log** window which shows the running log (by clicking Refresh) of the current application run. The Log window can be raised by right clicking on the top window border and checking the box next to Log.

## 7. Toolbar icons

The toolbar icons are shortcuts to often-used functionality.

1. Chart Capturing: 

The  icon will allow the user to capture the currently displayed image in the Output window.

2. WhatsThis? Help: 

This has been described in the Online Help section above. (You may do WhatsThis? Help on the WhatsThis? Icon itself!)

## 8. Project Setup

Prior to running a model in MSCAA the user must create a Project. In the Setup group in the Navigator, the user sets up first the Project, and then the Species. The user must be sure to click Save prior to moving to another tabbed window in the Setup group.

Please note, after the Project has been set up and a database created, the user should run **Utilities->Create Tables** to make sure all tables have been successfully created. This will have no effect on any tables that have already been created.

After the Project and Species have been set up, the user may then complete the Environmental, Survey, Fleet, and Age-Length Setup tabs.

After the Setup has been completed, the user may then move to the **SSCAA Data Input** group.

## 9. SSCAA Data Input (Single-Species Catch-At-Age)

These GUI forms contain the data necessary in order to run MSCAA in Single-Species mode (i.e., Trophic = 0). Each form represents data for the selected Species in the Species window.

The last tabbed window in this group allows the user to run the Model with a particular Debug level set.

When the user clicks **Run**, they will be prompted to enter the location and name of a .tpl and .pin file. These files must be created outside of MSCAA. They instruct ADMB how to create its executable. MSCAA is released with a .tpl and .pin file. After the .tpl and .pin files are selected, the user may elect to run the Model. When complete, the Output window will show a graphic depicting Abundance output data.

The Debug level controls what types of print statements are written to the Run Summary window as well as how far execution is to proceed. The level is set by clicking the **Debug...** button.

The **Opt Files...** button allows the user to view any of the ADMB output files as well as the .tpl and .pin input files.

## 10. MSCAA Data Input (Multi-Species Catch-At-Age)

If the user wishes to run in Multi-Species mode (i.e., Trophic=1), they must complete the forms in this section. The **Run**, **Opt Files...**, and **Debug...** buttons function the same as they did for a Single-Species run.

## 11. Output

MSCAA will produce output charts in the Output window. The appearance of these graphics may be modified by the GUI controls to the right of the drawing area in the Output window.

## 12. Saving your work

While all the data are saved in tables in the MySQL database that's selected in the user's Project file, the user may want to save their entire database as a backup, which is highly recommended. To do this, select **File->Export Database** and the current database will be saved as a .sql file.

## 13. Troubleshooting

### 1) **Can't connect to MySQL**

This will happen if the MySQL server needs to be started or if the user enters the incorrect MySQL password to start the application.

### 2) **Import/Export Database not working**

Confirm that your path variables are set up properly such that the mysql executable can be found by the application.

Ex. On Windows make sure you have something similar to the following as part of your Path environment variable:

C:\Program Files\MySQL\MySQL Server 5.7\bin

### 3) **ADMB won't run (LINUX)**

Check that the ADMB\_HOME and PATH environment variables are set properly. In addition, make sure that the user's .profile file contains the appropriate paths. As an example, user Smith's .profile file should contain:

```
export PATH=$PATH:/home/smith/admb/admb
export PATH=$PATH:/home/smith/admb/bin
```

(assuming that that is where admb has been installed).

### 4) **An application feature not working correctly**



The application has a log system where status messages are periodically saved to an output file. The contents of these log files may be viewed by the user from within the application by enabling the Log window.

To enable the Log window, right click anywhere on the toolbar and check the Log item. The Log window will appear in the application. You may click and drag it by its title to relocate it if desired. To view the most recent Log file, click the **Refresh** button in the Log window. The user may view a previous Log file by clicking the **Browse** button and selecting the desired Log file. After 50 Log files have been created, the user will be prompted to delete the current Log files.

Log files are time-stamped and color-coded. Colors are defined as follows:

- Black - Informational text
- Blue - New section of messages
- Red - Warning
- Red Bold - Error