

FISHY: A Computer Program for U.S. Farm-Raised Catfish Production Management



Preface

FISHY was first developed in 1980. It was written in Basic and ran on Radio Shack TRS-80 computers. Lee Fouché (an MSU agricultural economics and computer science graduate) and I wrote the initial version, with heavy assistance by agricultural economics professor John Waldrop. Since then, I have redesigned, rewritten, and republished FISHY many times to adapt to the needs of the U.S. farm-raised catfish industry, as well as to the significant technological advances over the years. New bulletins and supporting computer programs were developed in 1985 (IBM PC and compatibles), 1992, 1995 (written in Clipper, a FoxBase competitor), and 2002 (written in Windows Sensitive Visual FoxPro¹, the current FISHY language).

The 2002 FISHY Bulletin² is frequently referenced in this document. This 2014 bulletin was written to compile 12 years of FISHY improvements in one document. It is written in first person for greater readability.

During the early years of FISHY development, some of the pioneers in the U.S. farm-raised catfish industry helped us to get it right. They included Billy McKinney, one of the very first catfish farmers; Indianola brothers Kay and Seymour Johnson, who contributed many ideas to FISHY development; Tommy Taylor, an MSU Extension Service fish pathologist from Belzoni, who contributed many ideas and acted as a sounding board for early versions of FISHY development; and Keith King, chief financial officer for Dillard and Company in Leland, who was an “idea man” for the 2002 version of FISHY.

FISHY has greatly benefited from Jim Steeby, retired MSU Extension aquaculture specialist from Belzoni, who contributed fish data and organized many FISHY workshops over the years; Terry Hanson, currently a professor and Extension specialist in aquaculture at Auburn University, who was a great help in producing the 2002 version of FISHY; and Gregory Whitis, Alabama Cooperative Extension aquaculture specialist, who has been instrumental in introducing FISHY to Alabama fish farmers and who has contributed much data to FISHY development, especially with hybrid catfish; and Debbie Dees from Harvest Select, who has been most helpful in recent years as we have attempted to make FISHY better. Catfish feeding information, especially in the Mississippi Delta, came from Southern Regional Aquaculture Center Publication No. 181.³

Currently, around 15 fish farms are using FISHY, accounting for around 16,000 water acres. FISHY has been used to aid in managing as many as 50 fish farms and around 36,000 water acres *each year*. Over the years, FISHY usage has decreased with the farm-raised catfish industry, losing producers and acres between 2008 and 2013 at about the same rate as the industry lost them.

In the early years (1980–85), Extension verification trials did more than simply validate FISHY. The results were compared to results from catfish feeding trials

done by Tommy Taylor, Ed Robinson, Meng Li, Jim Steeby, and others. Additionally, FISHY background (growth) production data is designed to be adjusted *on the farm*, and FISHY production parameters were greatly enhanced by data contributions from operations such as Eden Fisheries (Rodney Henderson), Kay and Seymour Johnson, Dillard and Company, Tackett Fish Farms, and Harvest Select.

Whitis and I conducted ground truth work for hybrids on 3 years of production data from an outstanding small hybrid operation (around 60 acres) in west Alabama. We developed a hybrid feeding schedule that was so optimistic that we reduced the numbers a little. This producer provided extra oxygen for his fish, which could have contributed to the excellent production results from the hybrids.

Critical evaluation of this manuscript was ably accomplished by Gregory Whitis; Terry Hanson; Debbie Dees; Ken Hood of the MSU Department of Agricultural Economics; Randy Hollingsworth, fish farmer and FISHY user, Hollingsworth Farms Inc.; and April Nester, FISHY user, Tackett Fish Farms. I offer my most sincere thanks to all of you for a job well done.

In the early years, FISHY was distributed without cost by MSU. I “officially” retired in 2002. MSU, Catfish Farmers of America, and I then made an agreement to continue to enhance and distribute FISHY, for a fee. Currently, the cost of FISHY is based on producer water acres. Pricing starts at \$1 per acre per *year*. The *floor* is \$80 (if you own 80 acres or less, you pay \$80). Larger acreage fish farms pay less than \$1 per water acre (\$1/acre up to 500 acres; 50 cents per acre from 500 to 3,000 acres; and 25 cents per acre for more than 3,000 acres). The *ceiling* is \$1,360 per year.

FISHY is mainly supported by site license sales. Revenues go to me and to MSU. CFA provides oversight and FISHY bookkeeping. The MSU Department of Agricultural Economics provides office space and secretarial support, and the MSU Office of Entrepreneurship and Technology Transfer provides oversight and payroll support. I am most grateful for CFA and MSU continuing to support FISHY during the 12 years since I retired.

FISHY will only run on Windows-sensitive computers. It has been tested on Windows 7/8 and XP. It will probably run on the new Mac that is Windows-compatible. If you purchase FISHY for your operation, you will receive a CD, a bulletin, and the latest FISHY information, as part of a site license for one fish farm (installed on up to three computers) for 1 year from the date of purchase. You will also be able to talk directly to me whenever you need help *during that year* at no extra cost. To purchase FISHY or for more information, contact me at killcreas@agecon.msstate.edu or (662) 312-4299.

Dr. Wallace Killcreas

Agricultural Economics Professor Emeritus
Mississippi State University

Selected References

¹Microsoft Visual FoxPro 9.0 Professional. Copyright 2004 Microsoft Corporation.

²Killcreas, Wallace E, 2002. FISHY 2002. A Windows-Sensitive Computer Program for Pond-Raised Catfish Production Management Decisions and Reports. Mississippi Agricultural and Forestry Experiment Station Bulletin 1120. April, 2002.

³Robinson, Edwin H, Meng Li, and Marty Brunson. Feeding Catfish in Commercial Ponds. Southern Regional Aquaculture Center Publication 181. February, 1998.

FISHY Background Definitions

Fish Sizes. Fish sizes are stated in *pounds per thousand* in many FISHY tables, such as the background feeding tables and the fish feeding calendar. Sixty pounds per thousand would be .06 pound per fish; 100 pounds per thousand would be .1 pound per fish, etc. As fish get larger, say three-fourths of a pound, FISHY states the fish's weight as pounds per fish (.75, for example).

Percent Body Weight Fed. Percent body weight fed is the recommended percent of a fish's body weight to be fed in *one day*. For example, if the fish weighs 1.5 pounds, and the percent body weight fed for that fish size is 1.5 percent, the fish would be fed 1.5 times .015, or .0225 pound of feed *per day*. Smaller fish (think fingerlings) are usually fed a high-percent body weight, and larger fish (think stockers and larger) are fed lower-percent body weights. In FISHY, percent body weight fed tables for channel catfish are based on Southern Regional Aquaculture Center Publication 181 *Feeding Catfish in Commercial Ponds* by Ed Robinson, Meng Li, and Marty Brunson (1998). This publication is distributed with FISHY.

Feed Conversion Ratio. The feed conversion ratio is the number of pounds of feed needed to produce 1 pound of fish flesh. For example, if the feed conversion ratio is 2.1, that means 2.1 pounds of feed would be needed to produce 1 pound of fish. Feed conversion ratios distributed with FISHY for channel catfish are defined in *Feeding Catfish in Commercial Ponds* mentioned above. Feed conversion ratios for hybrid catfish in FISHY come from a verification trial based on an outstanding hybrid catfish farmer's records (3 years). The study was conducted by Greg Whitis and Wallace Killcreas. **Feed consumption ratios** (feed fed to a batch of fish/fish harvested) are computed and reported in FISHY Reports (the **feed consumption ratios** sub-menu).

Calendar Percent of Full Feed. The calendar percent of full feed is an adjustment for weather. During the main catfish-feeding season (May to October), we usually set the highest feeding percent. That may be 82–90 percent of full feed. In winter months (November to February), low percentages, like 5–10 percent, are set. Whatever percent is set for a particular date, the percent is multiplied by computed "full feed" to derive FISHY recommended feed to be fed on a given day. Calendar-driven feeding in FISHY is a concept based on experiences of many successful fish farmers. The FISHY calendar may be adjusted by every FISHY user and overridden (up to 100 percent) at any feeding.

Feed Limit. Feed limit is the *maximum* number of pounds of recommended feed to be fed to one water acre in one day. For example, if a pond contains 11 water acres and the feed limit is set at 130 pounds per water acre, FISHY will recommend feeding that pond no more than (11 x 130) 1,430 pounds of feed per day.

Feeding System (Feedsys). FISHY-defined diets for different sizes and species. FISHY is "shipped" with separate diets defined for **food fish**, **brood fish**, **fingerlings**, **hybrids**, and **winter** feeding. The winter diet can be substituted for winter feeding for any other diet and uses "high" feed conversion ratios (say 6 or 7) and a "low" percent body weight fed (like .9 percent). *Use of the winter diet is totally optional.*

Harvest Size. The size of fish you are growing with FISHY. If you're growing fingerlings, harvest size may be .1 pound or less per fish; stockers, .25 pound per fish; food fish, perhaps 1.5 pound per fish; and brooders, say 3–4 pounds per fish.

Monthly Mortality %. The percentage of fish numbers in a pond predicted to be lost in FISHY projections *per month*. FISHY does not "lose" the fish, except when *predicting* harvests, feed needs, etc. This percent is **not** intended as a substitute for *inventory* fish losses or adjustments, which FISHY facilitates, but expects *you* to implement.

FISHY Main Menu

FISHY is a menu-driven computer program that enables pond-raised catfish producers to more efficiently manage their catfish farms. This user's guide will explain each menu item in order in FISHY, beginning with the first **main menu** item and working through each submenu item before explaining the next main menu item. *FISHY users should **always** complete the item being processed and return control to the FISHY main menu before choosing another menu item.*

Figure 1 shows the FISHY main menu.



Figure 1. FISHY main menu items.

Background Information

The **background information** main menu item is used to set up and define information that is *unique* to a particular fish farming operation. Background submenu items should be visited when a new fish farm begins using FISHY, when evaluating an old year of using FISHY, and when planning FISHY use in a new year. FISHY background menu items are shown in Figure 2.

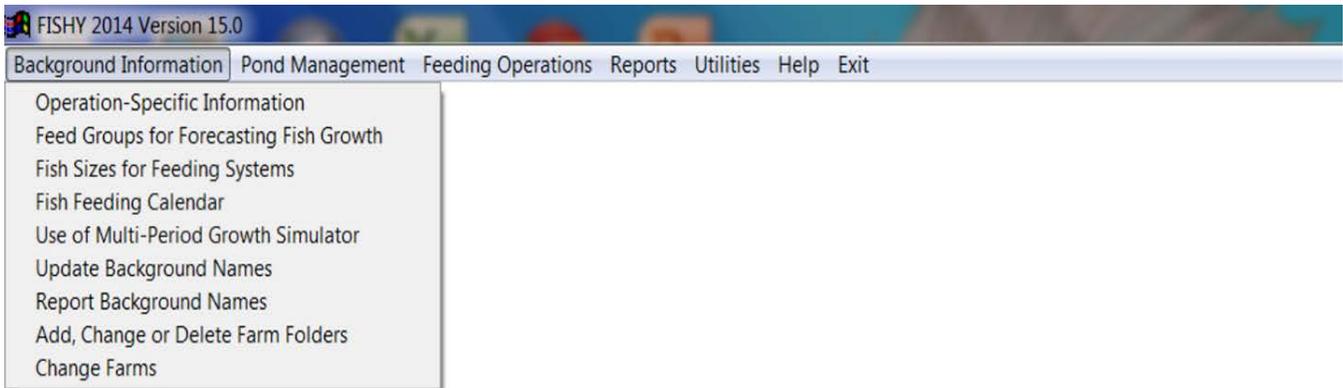


Figure 2. FISHY background information submenu.

When the **operation-specific information** item is selected, a screen similar to Figure 3 will appear. The operation name and address data should be entered when FISHY is first installed. This info is used in headings in many FISHY reports. Since FISHY report headings are set up when FISHY is initialized, after changing operation info, you should exit and restart FISHY to ensure that the new info will appear in FISHY reports.

The lower and upper percent body weight fed limits (labeled **Targetbw1** and **Targetbwu** in Figure 3) are arbitrary numbers for the lower and upper percent body weights (range) fed to fish during the peak feeding season. These numbers are used in daily reports. You may change these numbers to match your fish feeding philosophy.

The regular and medicated feed carried over (tons) is computed by FISHY when end of year (**utilities** menu; **initialize for new year** submenu) calculations are done. These numbers may be changed if carryovers are found to be in error.

Tons of regular and medicated feed available are also automatically computed by FISHY when feed is fed, but you may change them to correct any errors.

In very unusual cases, FISHY users may decide to feed fish in the number of minutes their feeding machines are operated, instead of pounds (FISHY default). The check box for **feed in minutes** and associated pounds per minute facilitate this.

Operation Specific Information

Opername: Dr. Wallace E. Killcreas Operadd1: 404 West Main Street
 Operadd2:
 City: Starkville Statecode: MS Zipcode: 39759

**Operation Name and Address Above goes into forms Headings at Fishy Initialization.
 When You Change Them, Exit and Restart Fishy so that Changes can Take Effect.**

Targetbwl: 1.500 Targetbwu: 3.000 Target Lower, Upper % Body Weights Fed
 Feedregovr: 6.20 Feedmedovr: 1.70 Tons of Feed Carried Over from last FY
 Feedregav: 10.50 Feedregpri: 425.00 Reg Feed On Hand, with Default Price/Ton
 Feedmedav: 1.70 Feedmedpri: 450.00 Med Feed On Hand, with Default Price/Ton
 Feedminlbs: Click here to Feed in Minutes. Lbspermin: Pounds per Minute

Last Date Fish Were Fed: 03/20/2014 Lbs Last Fed: 574.0 Last Fed PondId: 10
 Last Harvest: Date: 03/20/2014 Pond Weight: 5000.0 Total Feed Fed to Batch: 10122.3
 Last Death Loss Date: 03/20/2014 Pondid: 10 Reason: A Adjustment-Reg
 Last Fish Move: Source Pond: 11 Dest. Pond: PK22 Pounds: 7250 Date: 02/04/2013

Navigation icons: Home, Back, Forward, End, Filter, Print, New, Edit, Cancel, Delete, Continue

Figure 3. Example operation-specific information screen.

Remaining information on the Figure 3 screen relates to fish farming events in the operation (feeding, harvesting, losses, and fish movements). They relate to the *last time* such events were done and are automatically computed by FISHY. **For that reason, this screen is a good one to visit when beginning daily FISHY operations**, to help remind yourself what was done *last* on your fish farm, since *chronological* order is very important to smart FISHY use.

Feed groups for forecasting fish growth, when selected in the Figure 2 menu above, creates a screen similar to Figure 4. Before explaining the meaning of the Figure 4 screen, I will explain the 10 buttons/icons numbered 1–10 at the bottom of the screen. Icons 1–4 are *navigation* icons. Icon 1 goes to the first record (top) in the file to which the icon set is related. Icon 2 goes *backward* (previous) one record. Icon 3 goes forward to the *next* record. Icon 4 goes to the *last* (end-of-file) record. Sometimes the icon set will be attached to a file containing only one record. In that case, icons 1–4 will be “grayed out,” or colored gray instead of blue. Sometimes part of the navigation icons will be grayed out. For example, if you are on the first record of the file already, icons 1 and 2 will be gray because you’re already at the top, and you can’t move backward. If you’re at the end of the file, icons 3 and 4 will be gray, because you’re at the end, and you can’t move forward in the file. Icon 5, the “binoculars” icon, is used to “filter,” or select a *subset* of the file, made up of 1 to N records, where N is *less* than the number of records in the file. I will discuss filtering in greater detail later.

Icon 6 is the printer icon. It is selected to print a report. Icon 7, which looks like a blank sheet of paper, is used to create a new record. I’ll discuss it in more detail later, also. Icon 8, the editing icon, is used to edit all updateable info on each screen. When you click the edit button, it changes to a save button. You click the edit button, do your edits, and click the save button to save your updates. There is also a cancel/revert button (backward arrow) defined when you’re in edit mode, which can be used when you *don’t* want to save your updates. Icon 9, the delete button is used to delete the current record. If there is a parent-child relationship defined (and there usually is in FISHY), the parent/pond record is deleted. This icon should be used sparingly. Icon 10 is the continue icon. Use it when finished with a screen. When selected, it removes the screen and transfers *control* (where the program is at a given moment) to the next task to be done. In most cases, that’s the main menu.

Notice in this screen (Figure 4), in line two, there are general instructions on what to do in the screen. That’s true of *most* FISHY screens. The feedsys block defines this diet as a diet for food fish. The feedlimit block sets the



Figure 4. Example fish diets screen.

feeding limit for food fish at 130 pounds per acre per day. (If we wanted to allow feeding 125 pounds per acre per day, we would click the edit icon 8, change the 130 to 125, and click the save button, which would be at icon 8 where the edit button was). The harvsize block sets the size of food fish that we are producing at 1.5 pound per fish. When we're in edit mode, we can change that, too. When the wintfeed block contains the word *winter*, that means winter feeding is enabled for the current screen (food fish, in this case). *Disable* winter feeding by blanking out (backspace over "winter") this block. Blocks wintdate1 and wintdate2 set starting and ending dates for winter feeding. Use the navigation buttons to move to other diets in the Figure 4 screen. FISHY "ships" five diets: brooders (product: brood fish); fingerlings (product: fingerlings); food fish (shown here); hybrids (product: hybrid food fish); and winter ("go to" winter diet used by other diets).

Some tables in Visual FoxPro are called *grids*. The grid shown in Figure 4 contains four columns: feedsys (the diet, food fish); sizeclass (size of fish in pounds per 1,000); convratio (feed conversion ratio—pounds of feed needed to produce a pound of fish); and pctbwfed (percent of the fish's body weight assumed fed in 1 day). The grid is interpreted as sequences of ascending numbers, with the last row in the sequence being active. In this example, if we are looking at size class 1,000–1,250, it means that when growing fish fall between size 1,000 (1-pound fish) and size 1,250 (1.25-pound fish), the feed conversion ratio used would be 1.9875, and the percent body weight fed would be 1.338.

Any diet in FISHY can be adjusted by the FISHY user. Diets should be adjusted only after a determination has been made that FISHY is growing fish too slowly or too quickly. Adjusting only one variable (like feed conversion ratio) at a time is usually the best idea. If you *increase* a feed conversion ratio, you are growing fish *slower*, and vice versa. See FISHY Background Definitions above for definitions of items in this section.

The **fish sizes for feeding systems** item in Figure 2 is not used often in most FISHY operations. It allows the FISHY user to change the fish *harvest size classes defined in size analysis and size summary* reports. In addition to the size analysis file routinely used with FISHY, you may save up to three alternate size analysis files. To use this menu item, choose it, choose not to load your own sizes file, update the sizes file provided by FISHY, save it under a unique name (Sizeanal1, Sizeanal2, or Sizeanal3), and exit the item. Choose the item again, and choose the file you saved containing updated size classes. The new size classes will be used in the ranges at the end of size analysis and size summary reports until you change them (Figure 5). If you decide to create a new size class file, it is important to leave each size class in *ascending* order.

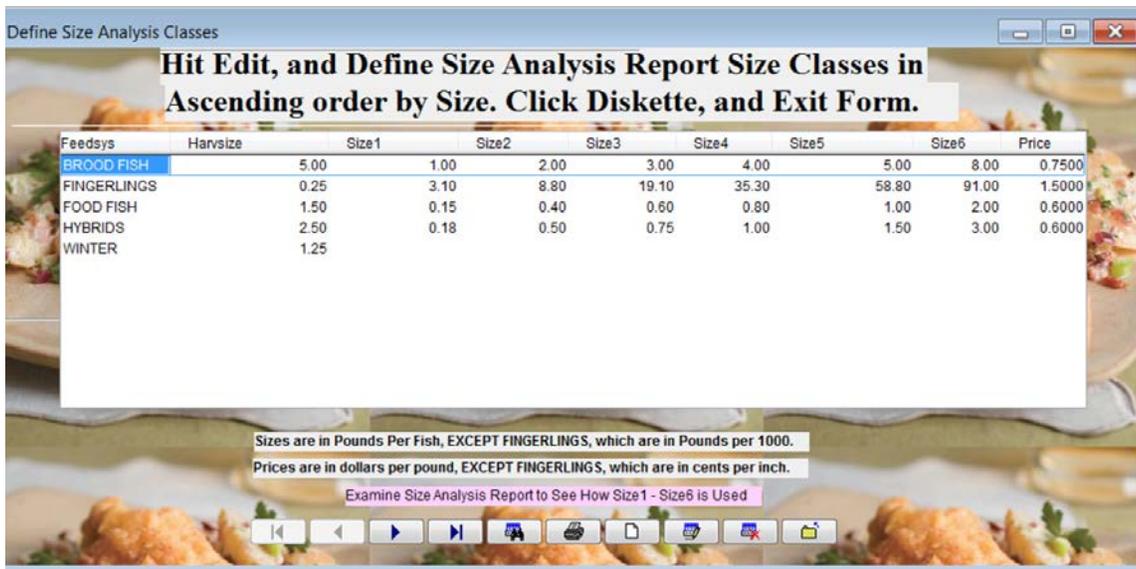


Figure 5. Harvest size (fish sizes used in size class analysis/size summary) reports.

The **fish feeding calendar** (Figure 2, fourth item) is used to adjust recommended FISHY feeding rates to different geographic production areas and different seasons. After a fiscal year definition screen (like Jan 1–Dec 31), a screen like Figure 6 appears.

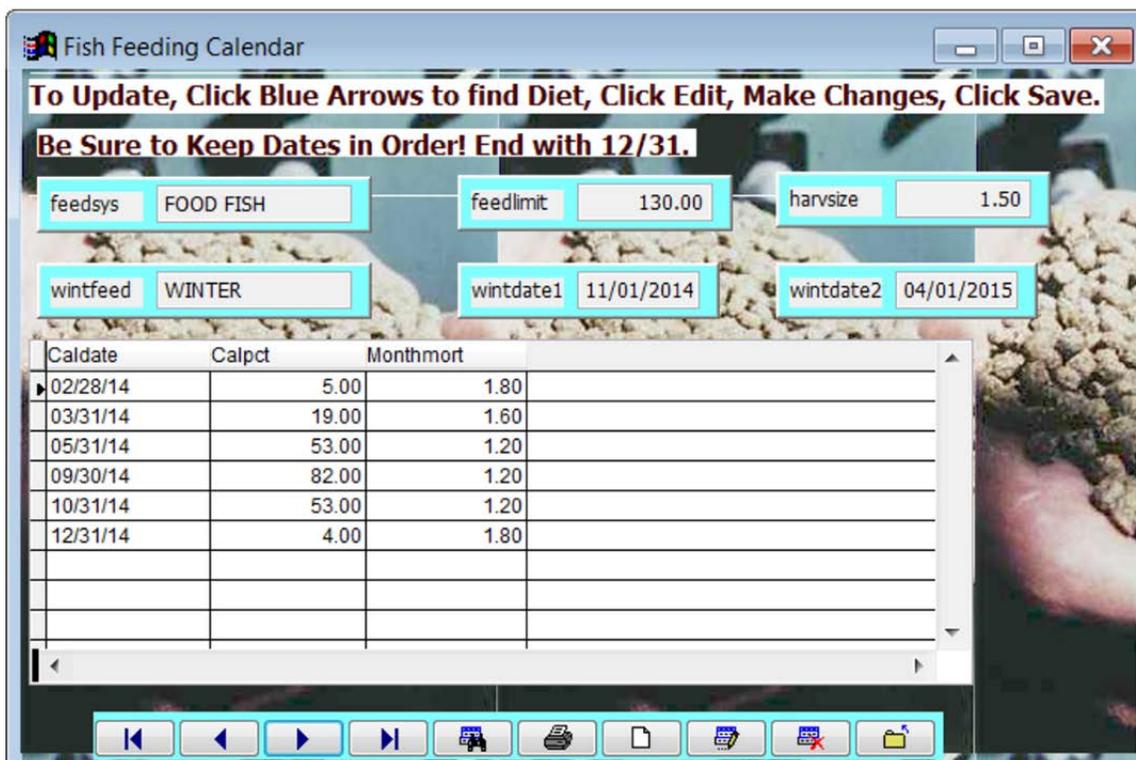


Figure 6. Example fish feeding calendar screen.

The first six items (feedsys, feedlimit, harvsize, wintfeed, wintdate1, and wintdate2) are defined exactly the same as for Figure 4 above. If these data are changed in Figure 4, changes will appear in Figure 6, and vice versa. Icons/buttons used on this screen are exactly the same as icon definitions in the Figure 4 screen. However, the Figure 6 grid items are unique to it. Caldate is the ending calendar date that the remaining grid items in that entry pertain to. The calpct item is the percentage of full feeding that is applied to the date range for the current caldate entry and the previous caldate entry. If the current caldate entry is the first entry, the defined range is from January 1 to the caldate entry. In the Figure 6 example, when caldate is 02/28, the range is 01/01–02/28; if the caldate

is 09/30, the range is 05/31–09/30 (full feed). Notice that full feed is set at less than 100 percent. That is because of possible inclement weather and/or “levees too wet to traverse.” When a very sunny week is predicted, you may wish to override the calendar and estimate feed needed for the coming week at up to 100 percent. The monthmort values in the grid are estimated percent mortality per month, used in FISHY projections *only*.

The fifth Figure 2 menu item, **use of multi-period growth simulator**, allows you to simulate fish growth up to 10 years into the future using growth data that you have defined. This item can help determine the feasibility of installing new ponds. One of the growth simulator options allows you to define cost screens for fixed costs, equipment costs, and annual operating costs. If you supply info from your operation into these cost screens, FISHY will supply harvesting value, feed cost, and fingerling cost, which can be used to create a report that details total returns to land and management for each year simulated. *I will provide you more information if you want to use it.*

The sixth Figure 2 menu item, **update background names** (Figure 7 below), provides inputs for pull-down menus to select names for *producers* from whom feed was purchased, *processors* to whom fish were sold, reasons why fish *died*, types of fingerlings *purchased*, and *farms supplying fingerlings*. Names of the above are provided in FISHY, but all entries in this screen may be user-updated. It’s important not to leave blank embedded entries in this table. It is expected, however, that you will add to these lists. You shouldn’t update a name after you have created records for it because the new names will appear on any reports that use those records.

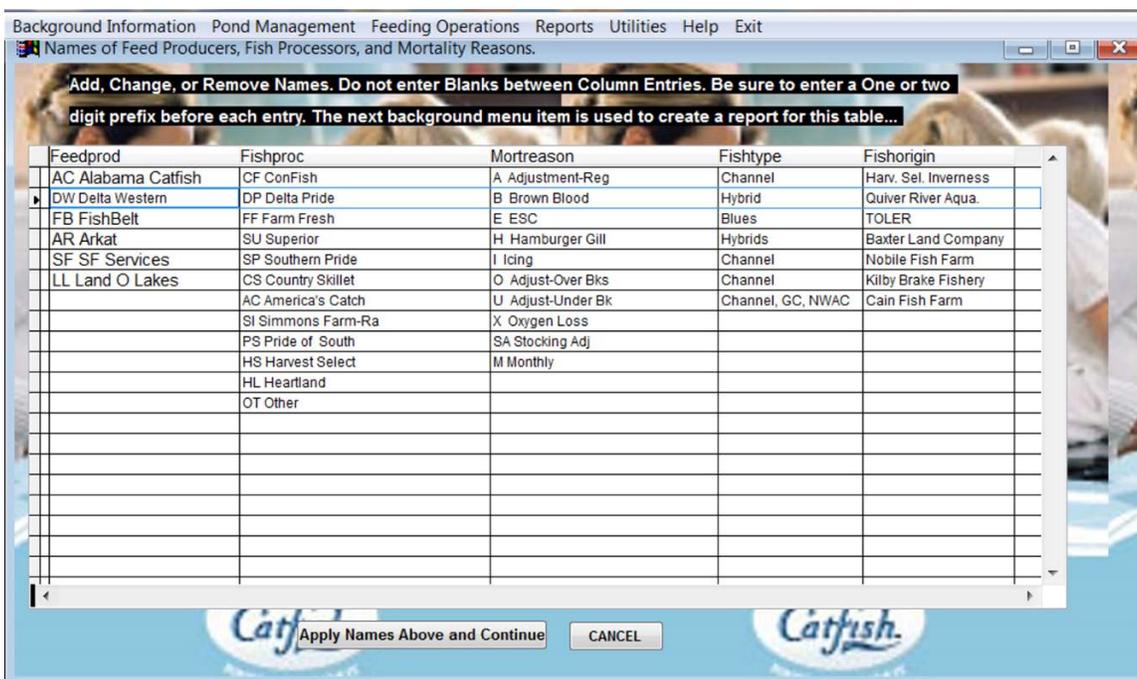


Figure 7. Example background names update screen.

The Figure 2 **report background names** item creates the Figure 7A screen below. Figure 7 info is used to create a background names report. You may view the report first, and then decide whether or not you want to print it.

06/26/2014

Mortality Reasons	Feed Producers	Fish Processors	Fish Types	Fish Origins
A Adjustment-Reg	AC Alabama Catfish	CF ConFish	Channel	Harv. Sel. Invern
B Brown Blood	DW Delta Western	DP Delta Pride	Hybrid	Quiver River Aqua
E ESC	FB FishBelt	FF Farm Fresh	Blues	TOLER
H Hamburger Gill	AR Arkat	SU Superior	Hybrids	Baxter Land Comp
I Icing	SF SF Services	SP Southern Pride	Channel	Nobile Fish Farm
O Adjust-Over Bks	LL Land O Lakes	CS Country Skillet	Channel	Kilby Brake Fish
U Adjust-Under Bk		AC America's Catch	Channel, GC, NWAC	Cain Fish Farm
X Oxygen Loss		SI Simmons Farm-Ra		
SA Stocking Adj		PS Pride of South		
M Monthly		HS Harvest Select		
		HL Heartland		
		OT Other		

Print Preview

Figure 7A. Example report background names screen.

One of the strongest features of FISHY is the ability to define and work with multiple operations seamlessly in a single version of FISHY. Each operation is stored in a folder named by the FISHY user. There are two menu items in the FISHY **background information** menu that support these activities. They are the **add, change, or delete farm folders** and the **change farms** items. The Figure 2 add, change, or delete farm folders item (Figure 8) displays a list of farm folders (or a blank grid).

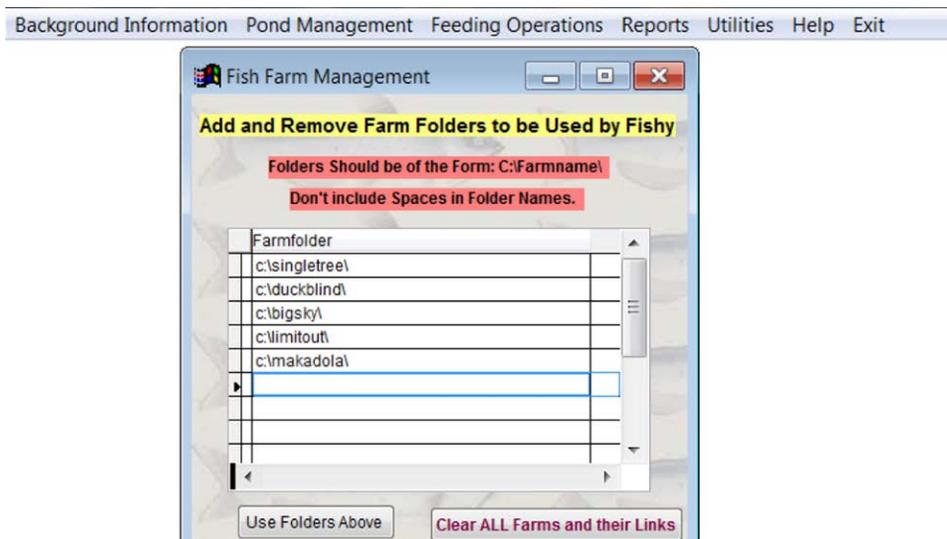


Figure 8. Example FISHY operation that manages five fish farms.

Each entry in the list is in the form C:\FARMNAME\, where C: is the desired device, and FARMNAME is the name of the folder of a particular operation. (You may use “long” names, but don’t use embedded blanks.) The files stored in each folder in the list are the same as the files stored in a FISHY backup. You can add nonexistent names to the folder list and let FISHY define the folders for you. In that case, FISHY would define supporting files like the calendar from the original setup, and expect you to enter the name and address of the operation, enter your ponds, etc., just like a new operation. If it is an existing operation and you have a backup, you could define the folder, switch to it, and use **utilities, restore FISHY tables from a backup** into it. If the existing operation backup is already on a hard drive and you want to keep it there, just enter that folder address into the farm folder list. *Each* entry in the list is regarded as a new FISHY operation! If you make a mistake in the syntax of an entry (like entering forward slashes instead of backslashes or omitting a backslash), FISHY will give an error message before you leave the screen listing the folders. At that point, you need to correct the erroneous entry.

Figure 8 above is an operation that contains five fish farms. When you select the **change farms** background information menu item, you will get a dialog box showing you the name of the current farm, followed by a pull-down menu/list of other farm folders that you defined in the Figure 2 **add, change, or delete farm folders** item above (see Figure 9).

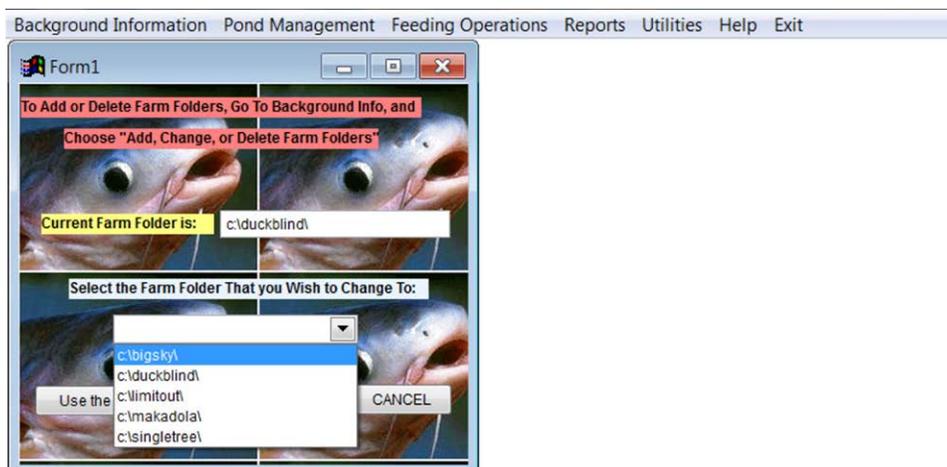


Figure 9. Example selection screen that is used to change to a new fish farm.

When you switch to a new farm folder, FISHY will first determine if the folder exists. If it does, FISHY will attempt to read it, similarly to restoring a backup. If the farm's data does not exist, FISHY will give you a notification message, define a folder for it, and place some background parameter files in it (calendar, feed-growth forecasting, etc.). You could then enter operation-specific information, such as farm name and address and pond names and batches, or restore into it from a backup.

You may even want to define extra fish farming operations, just to be able to have a test data set of ponds that you could "feed," "harvest," etc., and they would not affect your real FISHY data and reports. Farm folders defined in this manner are automatically updated during FISHY operations and are in the same form as FISHY backups. You may copy them to a thumb drive or CD for backup purposes. Folder names used for farm folders must be *unique* in the device/directory (C:\ in this example) in which they reside. FISHY starts out with an internal fish farm folder. However, when multiple fish farms are to be managed, the internal folder is no longer used, and you are expected to define folders for all fish farms to be managed.

This concludes the FISHY **main menu** (Figure 1) item **background information**. The next FISHY main menu item is called pond management.

Pond Management

The focus of **pond management** is on many essential events that happen in managing a pond. They include adding/deleting ponds, stocking ponds (adding/deleting batches), harvesting (and sales management of same), fish losses (due to obvious fish death, or for inventory adjustments), fish movements from pond to pond, and miscellaneous (combining batches, draining a pond, and viewing pond names). Missing in the list above is feeding, which is so important it has a separate main menu item that will be explained later. When pond management is selected, a submenu similar to Figure 10 will appear.

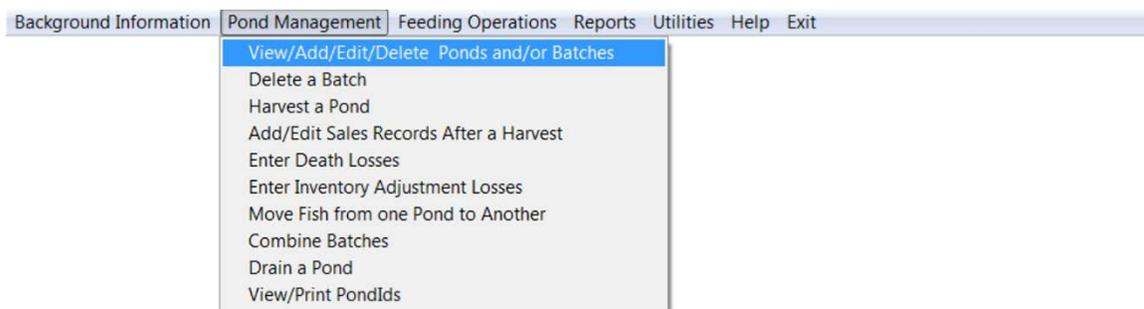
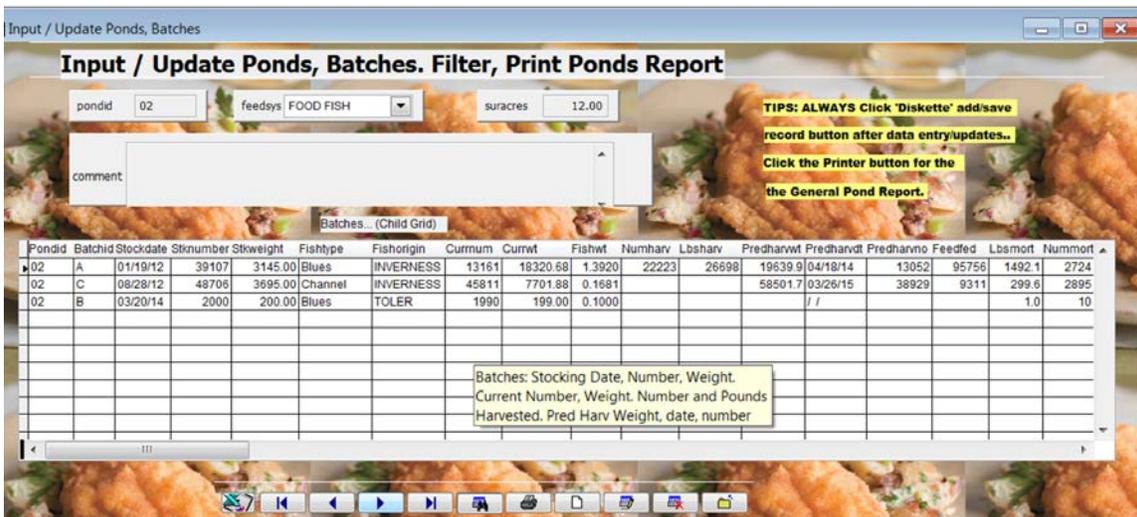


Figure 10. Example pond management submenu.

The first pond management item is called **view/add/edit/delete ponds, and/or batches**. It is used to add new ponds, remove ponds, add batches, and remove batches, and it features a general ponds report. Since the file containing ponds contains multiple records, filtering operations (removing some records that are not wanted for a particular analysis) will be explained, along with a review of icons/buttons explained with Figure 4 above. When selected, the view /add/edit/delete ponds, and/or batches item gives a screen similar to Figure 11.

This screen is controlled by the icons/buttons at the bottom. Each icon will be explained in order from left to right. The Excel icon can be used to create Excel spreadsheets from the current ponds or batches files in a folder and filename of your choice. Since these files may be edited by users who run Microsoft Office, they have much utility for data manipulation not done in FISHY. The arrow icons (1–4) are navigation icons as explained near Figure 4 above. The "binoculars" (5) are used to implement *filtering* operations, which are described in detail in this section. Filtering allows you to use pond data fields coupled with logical expressions to determine which records should be included in a FISHY report. I will state each example filtering operation as a reading problem first, and use FISHY to select the subset of ponds that fit the problem.



1 2 3 4 5 6 7 8 9 10

Figure 11. Example screen for pond and batch management and reports.

First, assume that you wish to select only ponds numbered 05 or less. Figure 12 shows how the filtering operation would look.

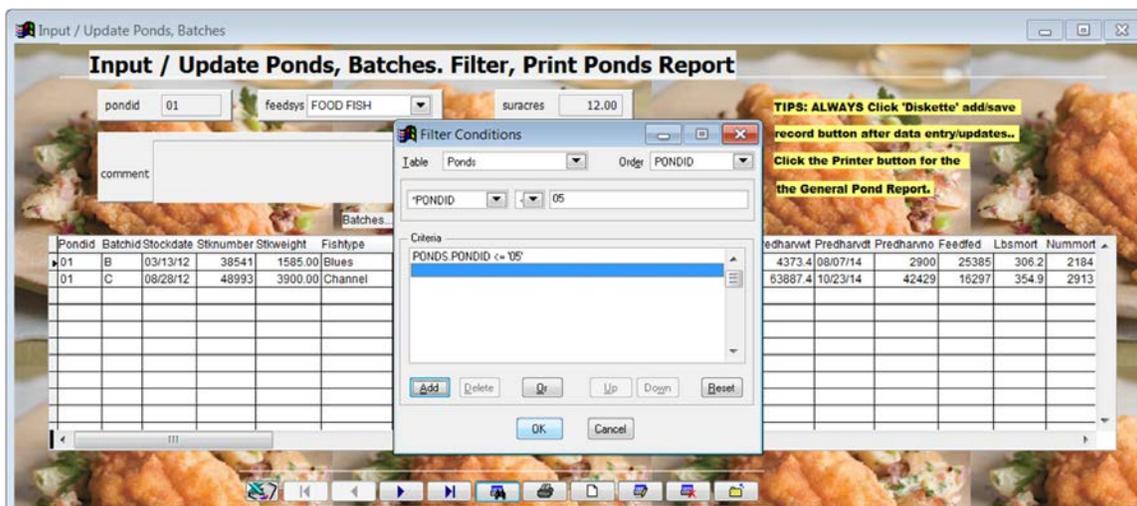


Figure 12. Example simple filtering operation to select only ponds 05 or less.

Notice that the filtering screen is placed on top of the existing screen, and the leading zero was included in the ponds argument (05). So, ponds named 05 or less (say 01, 01a, 01b, 01c, 02, 03, 04, and 05; first eight ponds *only*) were included in this filtering operation. The filtering operation is initially defined *above* criteria. Notice that the add button must be clicked to add the decision to the list *below* criteria. There is only one decision line in this filtering operation.

Advanced filtering operations are defined by adding multiple decisions to the criteria box. The next filtering operation shown uses two decision lines, which work together in a logical AND (the logical default; see Figure 13). In Figure 13, we select ponds containing more than 11 water acres, AND that are FOOD FISH ponds only.

These filtering decisions are *case sensitive*. In this example, food fish was all capital letters, and thus was stated as FOOD FISH in the decision block. The last set of decision criteria involves using the logical OR on the filtering screen. Here is the reading problem: "Select all food fish ponds that are less than 6 acres, or select all food fish ponds that are greater than PK22." The multiple filtering decision screen created is shown in Figure 14.

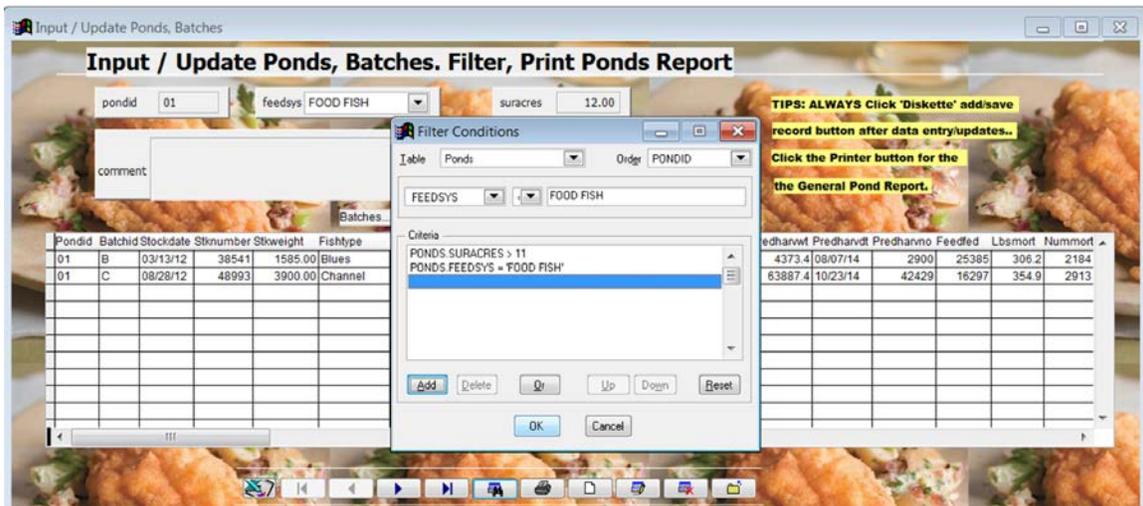


Figure 13. Example multi-decision filtering operation.

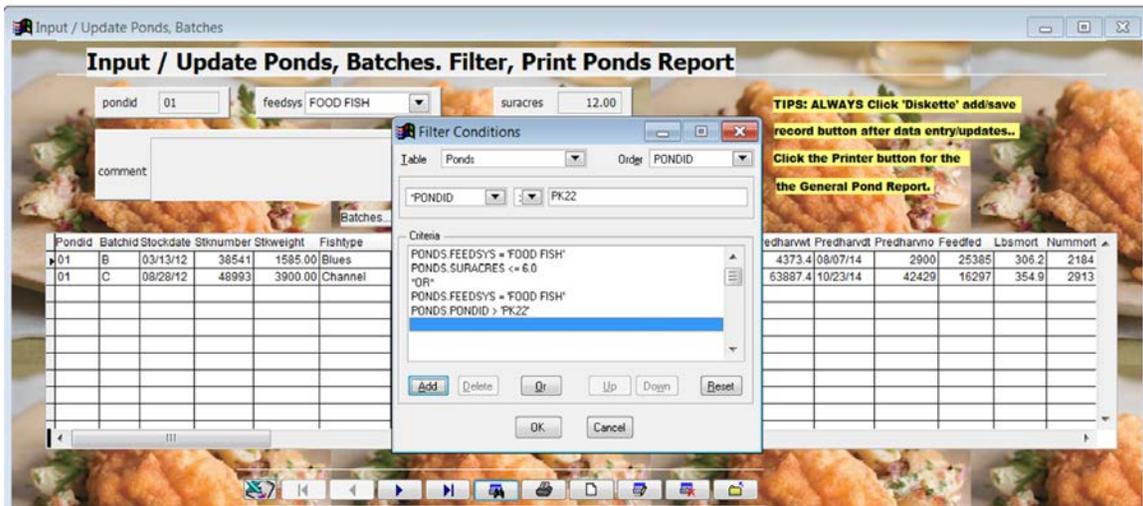


Figure 14. Multiple decision filtering operation.

Notice that it was necessary to repeat the feedsys="FOOD FISH" decision because the two sets of decision criteria were separated by an OR. After this decision was made, I clicked the printer icon (6 in Figure 14) to create the Figure 15 report excerpt shown on the next page. This icon is "live" only when a report is available. If you click it and no report is available, you won't get a report, but it doesn't cause a problem. Our filtering operation selected eight ponds, but only two were reported, in the interest of brevity. Notice that pond 20, the first pond selected, is a 4-acre food fish pond (fulfilling acreage criteria in the first decision set). The second pond reported is food fish pond PK23, which satisfies the pond ID criteria in the second decision. The six other ponds selected were PK24–PK29, also satisfying the second decision criteria. Care must be exercised that data used in filtering decisions be stated *exactly* as it exists in FISHY.

Background Information Pond Management Feeding Operations Reports Utilities Help Exit

General Pond Report

Dr. Wallace E. Killoreas
1342 Sun Valley Lane
Starkville MS 39777

04/10/14

PondId	Surface	Comment													Feeding System		
20	4.00														FOOD FISH		
Fiscal Year																	
Feed	Fed	Med	Feed	Fed	Num Stocked	Lbs Stocked	Num Harvested	Lbs Harvested									
197			0		0	0.0	0	0.0									

B	Stocked	Stocked	Stocked	Harvest	Harvest	Lost	Lost	Lbs	Feed	Current	Current	Fish	Harvest	Harvest	Harvest	OvWint	OvWint	OvWi	
Date	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Fed	Number	Weight	Size	Pred Num	Pred LBS	Pred Date	Number	Weight	Da	
A 01/20/12	12202	1025.0	0	0.0	942	717.2	40101	11260	18169.6	1.61	11260	18169.6	03/20/14	11260	18150	01/01/			
B 09/04/12	26207	2515.0	0	0.0	1335	166.2	4976	24872	4604.0	0.19	21080	31662.4	03/14/15	24872	4594	01/01/			

Print Preview

100%

PondId	Surface	Comment													Feeding System		
PK23	10.00														FOOD FISH		
Fiscal Year																	
Feed	Fed	Med	Feed	Fed	Num Stocked	Lbs Stocked	Num Harvested	Lbs Harvested									
536			0		0	0.0	0	0.0									

B	Stocked	Stocked	Stocked	Harvest	Harvest	Lost	Lost	Lbs	Feed	Current	Current	Fish	Harvest	Harvest	Harvest	OvWint	OvWint	OvWi	
Date	Number	Weight	Number	Weight	Number	Weight	Number	Weight	Fed	Number	Weight	Size	Pred Num	Pred LBS	Pred Date	Number	Weight	Da	
A 03/26/12	69913	3130.0	0	0.0	5136	1686.0	95082	64777	45419.9	0.70	60817	91229.8	08/22/14	64777	45348	01/01/			
B 09/07/12	26518	2605.0	0	0.0	1350	170.8	4167	25168	4306.5	0.17	20876	31377.5	05/17/15	25168	4297	01/01/			

Figure 15. Excerpt from a general pond report.

The next icon to be discussed looks like a blank sheet of paper (7 in Figure 14 above). It may be the most important icon in FISHY. It is used to add new ponds and/or batches to the fish farm. When you click the add icon (Figure 16), two things happen: first, you are prompted to choose “parent,” “child,” or “both.” NEVER choose “both.” (If I were real smart, I would have eliminated it years ago!) Choose “parent” to add a new pond (Figure 17), or choose “child” to add a new batch (Figure 18). You are then prompted to add (pond/batch) or cancel. If you click the add option, the second thing happens: the blank page icon changes to the add/save (diskette) icon, and the icon beside it changes to a back arrow (cancel) icon (Figure 18). If you click add/save, your new pond or batch is added and the icons change back to normal. If you click cancel, the operation is canceled, and the icons return to normal.

Input / Update Ponds, Batches

Input / Update Ponds, Batches. Filter, Print Ponds Report

pondid: 01 feedsys: FOOD FISH suracres: 12.00

comment:

Batches: (Child)

Add Record

Select option for adding records:

Add record to parent only

Add record to child (grid) only

Add record to both

Enter key value linking parent and child records:

Key field: pondid

Key value: 21

Add Cancel

Pondid	Batchid	Stockdate	Stknumber	Stkweight	Fishtype	Fishor	Predharvnt	Predharvdt	Predharvno	Feedfed	Lbsmort	Nummort
01	B	03/13/12	38541	1585.00	Blues	TOLE						
01	C	08/28/12	48993	3900.00	Channel	INVER						
849							4373.4	08/07/14	2900	25385	306.2	2184
							63887.4	10/23/14	42429	16297	354.9	2913

TIPS: ALWAYS Click 'Diskette' add/save record button after data entry/updates..
Click the Printer button for the the General Pond Report.

1 2 3 4 5 6 7 8 9 10

Figure 16. Example add parent or child decision box.

If you add a new pond (Figure 17), there is some pond data to be entered. Pondid, feedsys, and suracres data are all *required*. The comment field (maximum 100 characters) is optional. Enter a narrative at pond creation time or anytime later. The pondid entered must be *unique* in the fish farm (enter in key value field as in Figure 16 or directly in the pondid field). Feedsys for the pond comes from a pull-down menu. Suracres is the water acres in the pond. Enter *all* items to avoid future problems.

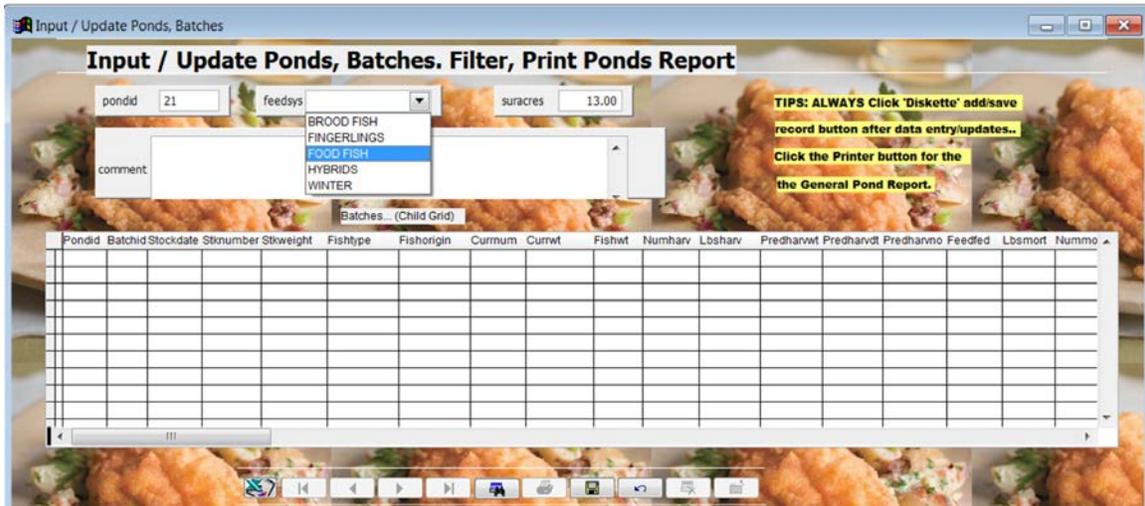


Figure 17. Example screen to add a **new pond**, before the pond is saved (diskette) or canceled (back arrow).

In the Figure 18 screen, you have chosen the child option and are entering a new batch. The pondid is filled in for you. You define the batchid (unique to the pond), the stocking date (default is current date), the batch stocking number of fish (6,000 head per acre in this example), and the stocking weight (pounds of fish in the batch, 7,800 pounds or 100 pounds per thousand). If we have previously defined the optional fish type (hybrids in this example) and origin (Quiver River in this example), you use pull-down menus to define them for the batch. When you have entered the new batch, save it (the usual case) by clicking the save icon (diskette); or “lose” it by clicking the cancel (back arrow) icon.

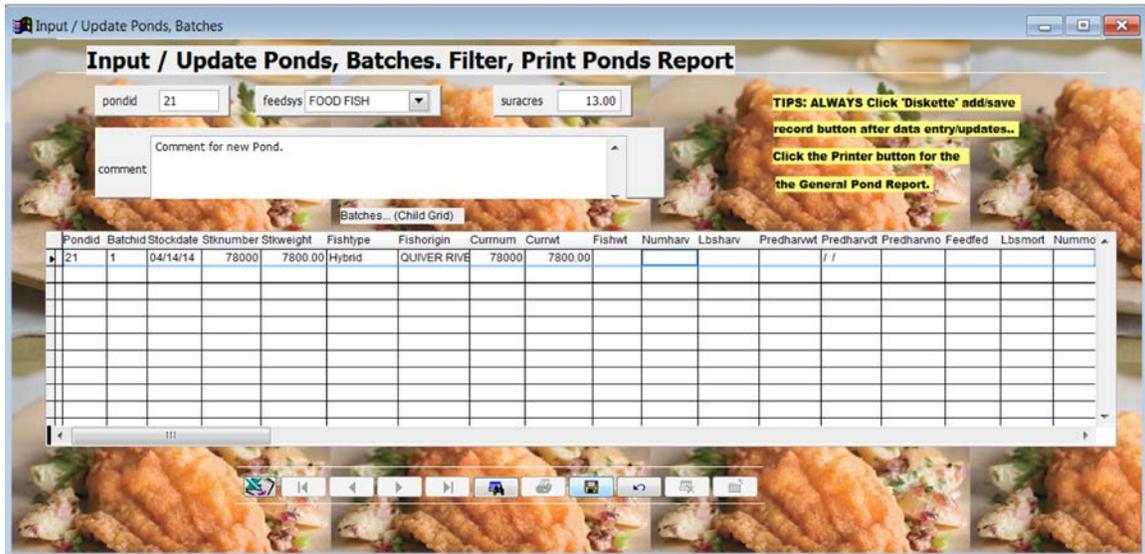


Figure 18. Example add screen after selecting child (edit mode for adding a batch) and entering new batch information.

You can use the ponds/batch update screen (Figure 16) to delete fish batches quickly. Extreme care must be exercised when deleting records in this manner. Consider the Figure 19 screen below. This screen was created by choosing the ponds/batches update screen, scrolling to the pond containing the batch to be deleted, clicking the edit icon (third icon from right), and clicking the delete block at the extreme left of the screen, adjacent to the info for the batch to be deleted. The deletion is completed by clicking the save icon (diskette) at the bottom of the screen, or canceled by clicking the back arrow icon adjacent to the save icon. After you delete batches in this manner, there is no way to get them back. The pond management “delete a batch” menu item is a little safer way to delete batches because it gives more of a narrative as you operate it.



Figure 19. Example screen for deleting a batch via the ponds/batches update screen.

The next icon to discuss is the edit icon (8 in Figure 16). On FISHY screens with sets of buttons/icons (Figures 16–20, for example), the edit icon allows you to update data items on the screen. When the edit button is clicked, screen data fields become lighter, meaning that they will accept user input data. You will also notice that the previous add button (7, Figure 16) changes to a diskette (save, 7, Figure 19), and the previous edit button (8, Figure 16) changes to a back arrow (cancel, 8, Figure 19). In both add and edit, these buttons are to be used when user data input is complete. You click the save button to save your work and the cancel button to cancel your work.

The ninth Figure 16 button is used to delete the parent/pond record. Use it *sparingly!* If you inadvertently delete a pond, don't worry! If you use the add icon to re-create the pond, FISHY will automatically pick up the batches (but you must re-enter the pondid, feedsys pull-down, and acres).

The last icon (10, Figure 16) is the continue or “yellow” icon used to continue FISHY processing, in most cases to get back to the main menu.

When you select **delete a batch** (Figure 10), a screen similar to Figure 20 will appear. Notice that the same batch selected for deletion in Figure 19 was selected. After you choose the batch to be deleted and click exit form, a screen similar to Figure 21 will appear.

Depending on how you answer the Figure 21 prompt screen, FISHY will provide an additional prompt screen, letting you know whether the selected batch was deleted or left in the file.

The next pond management menu item (Figure 10) is called **harvest a pond**. When selected, this item generates a screen similar to Figure 22.

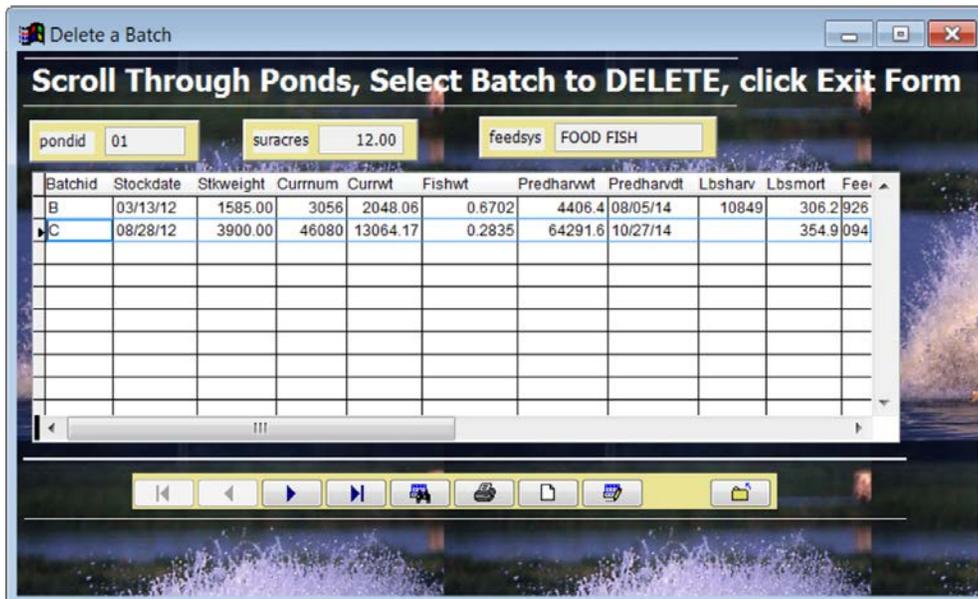


Figure 20. Example screen for deleting a batch.

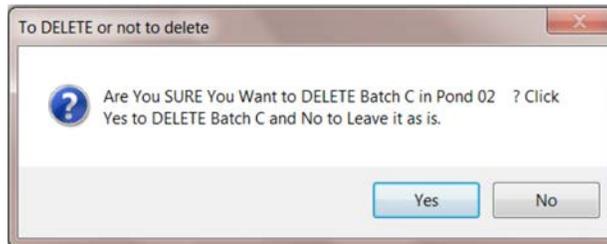


Figure 21. Example prompt screen to ensure that a batch is to be deleted.

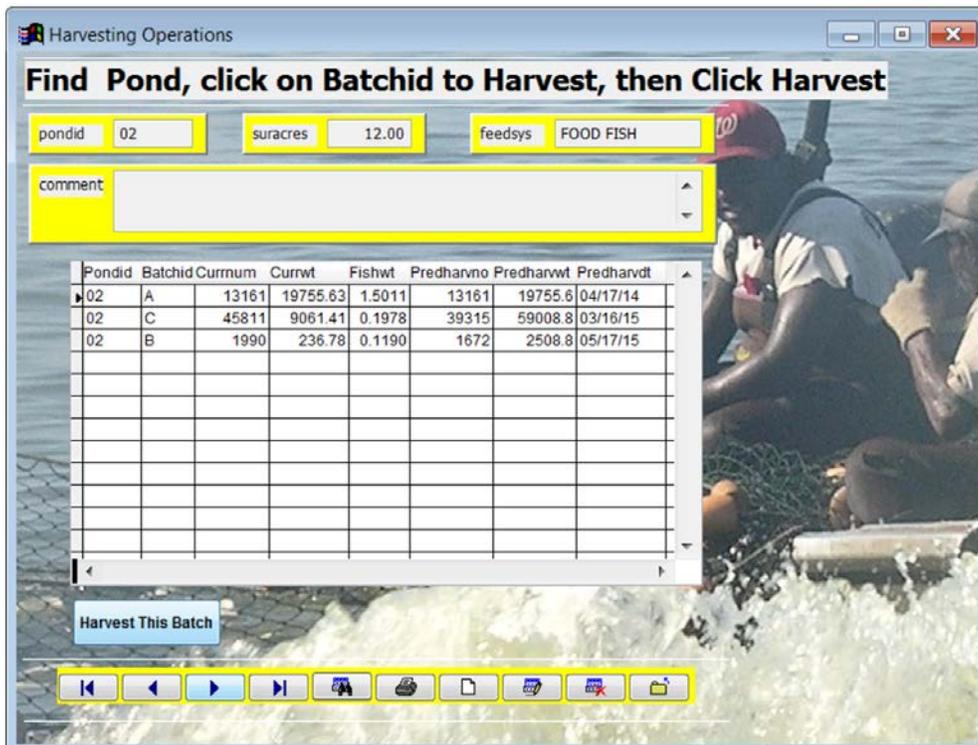


Figure 22. Initial screen for harvesting a batch of fish.

Notice that a batch of large food fish (1.5011 pound per fish) have been selected. If you click **harvest this batch**, FISHY will begin the harvesting process. A screen similar to Figure 23 will appear.

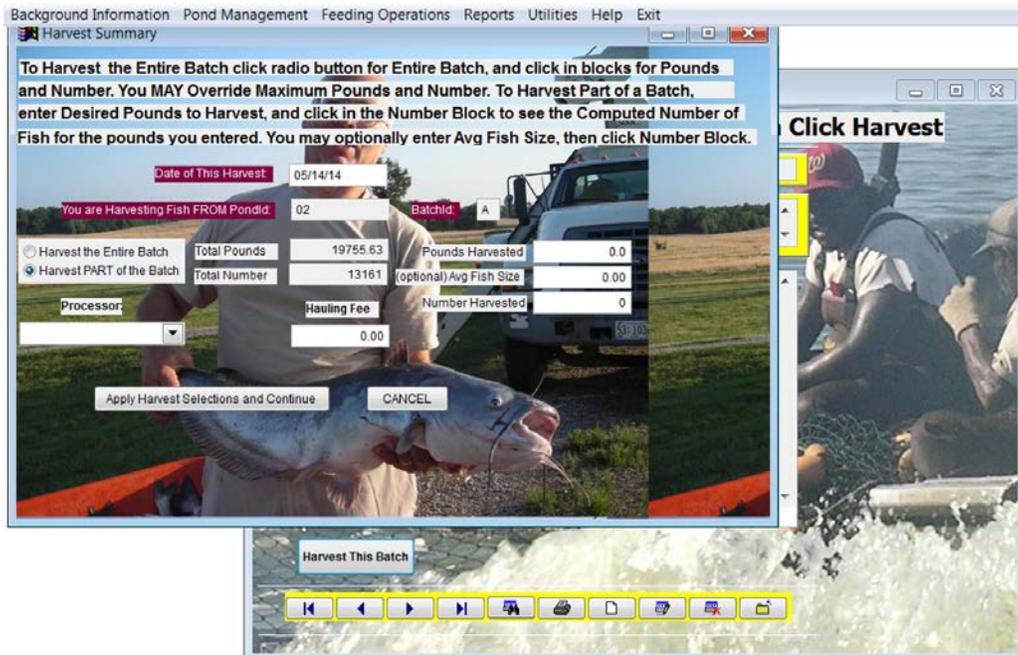


Figure 23. Example second harvest screen, to harvest part or all of a batch of fish.

Notice the four lines of detailed instructions explaining how to do the harvesting operation. You may harvest part of the batch by leaving the radio button where it is and entering the pounds to harvest. Click the number box to compute numbers, or enter a number and click pounds to automatically calculate them. There is even an option to enter the fish size. If you change the radio button to harvest *all* fish in the batch, you just click the blank boxes to harvest all numbers and all pounds. Sometimes you need to harvest all fish in the batch, yet harvest less fish than FISHY “thinks” is in the batch. You can do this. You may even want to harvest *more* fish than FISHY “thinks” are in the batch. FISHY also allows that to be done. However, if you have two batches of harvestable fish and believe that some of the fish harvested came from another batch, you will need to do another harvest operation. After entering fish to be harvested, the processor to whom the fish are sold (pull-down menu), and the hauling costs (optional), the screen will look like Figure 24.

If you click cancel, FISHY “forgets” the harvest; if you click **apply harvest selections and continue**, the prompt screen shown in Figure 25 will appear. If you click yes, FISHY will record the harvest and create a screen similar to Figure 26, which tells you what the harvested pond looks like after the harvest.

Notice that the predicted harvest weight and number (Figure 26) are *original* numbers. They will be corrected when you feed or grow fish again. There are additional screens to handle adjusting the fish inventory in a harvested pond after a harvest.

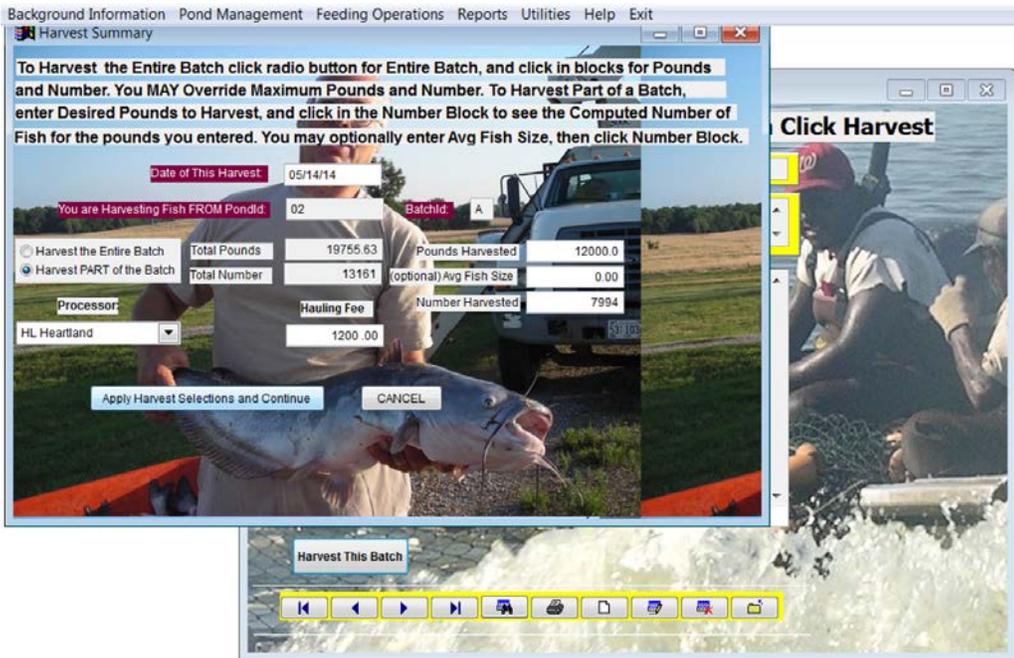


Figure 24. Example completed screen for a partial fish harvest.

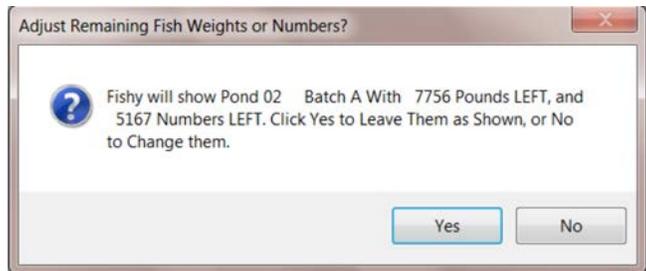


Figure 25. Example decision screen for post-harvest operations.

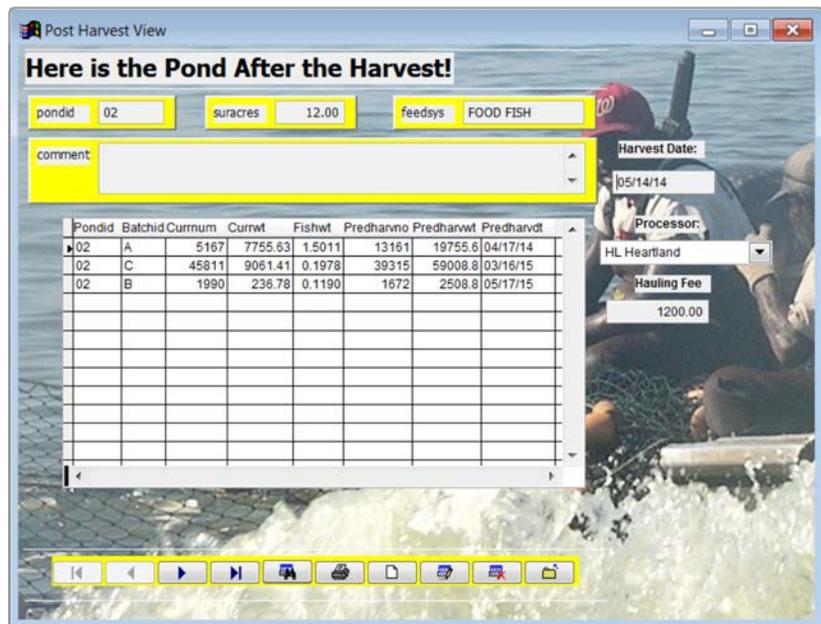


Figure 26. Example harvested pond screen after a harvest.



Figure 27. Example prompt screen to select pending sales records or all sales records.

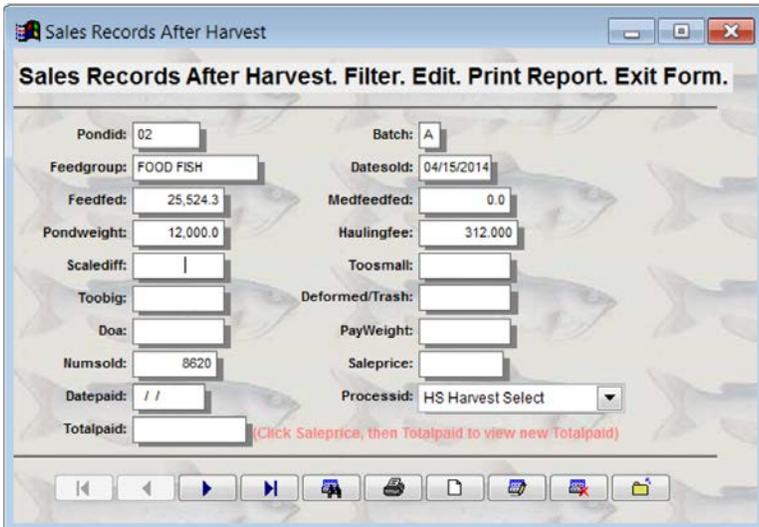


Figure 28. Example sales records screen.

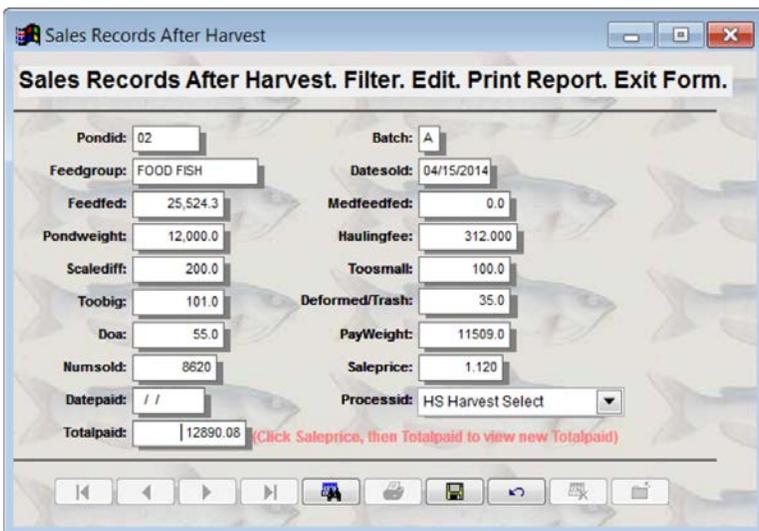


Figure 29. Sales records screen after all knockdowns have been applied.

The next Figure 10 menu item is **add/edit sales records after a harvest**. This menu item allows you to make the adjustments that processors make after your fish are trucked to them. These include knockdowns/weigh-backs for fish that are too small, too big, DOA, scale difference, etc. When you select this menu item, you will see a screen similar to Figure 27. The usual response is yes, which processes only pending harvests. If you click no, FISHY will process all harvests with outstanding sales records.

You can complete the harvesting process by filling out the weigh-backs screen similar to Figure 28. After you have entered the knockdowns, FISHY will resolve the difference between the pond weight (actual harvest weight) and the weight of fish that you actually got paid for. That info will appear in a screen similar to Figure 29.

The fifth **pond management** menu item (Figure 10), **enter death losses**, is used to record actual death losses. When you click this item, a screen similar to Figure 30 appears. In this screen, we are losing fish in batch B of Pond 04.

After clicking continue, you will see a screen similar to Figure 31. Notice the detailed instructions at the top of the screen. After recording the loss date, you will see percent loss, a way to estimate losses (not used in example), the pond and batch incurring the loss, and pounds of fish lost. After entering pounds lost, click the number lost box to have the number automatically computed (you may override if necessary). Then use the pull-down menu to record the loss reason (ESC in this example). The loss is then recorded for future reports. After you click **apply the losses above and continue**, you get a prompt screen that again defines the losses and gives you a chance to cancel them or record them and return to the main menu.

The sixth **pond management** menu item, **enter inventory adjustment losses**, has a similar effect as the death losses menu item above. However, the *reason* for recording inventory adjustment losses is different. In death losses above, you have observed the loss (dead fish came up, for example). In this case, experience has shown you that you are going to lose a certain percentage of your fish each month and not observe the loss. So, periodically (perhaps monthly) you adjust the inventory by losing some of your fish. When you choose enter inventory adjustment losses, a screen similar to Figure 32 appears.

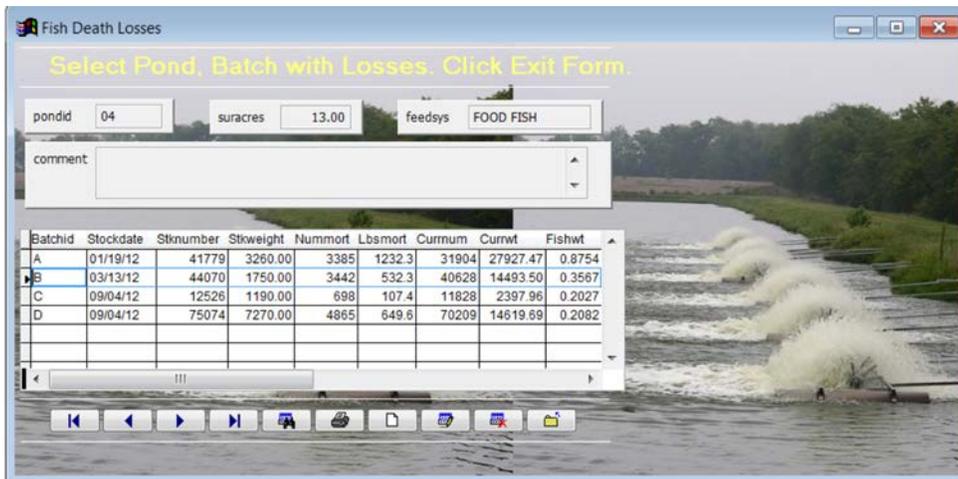


Figure 30. Example screen to select pond/batch incurring death losses.

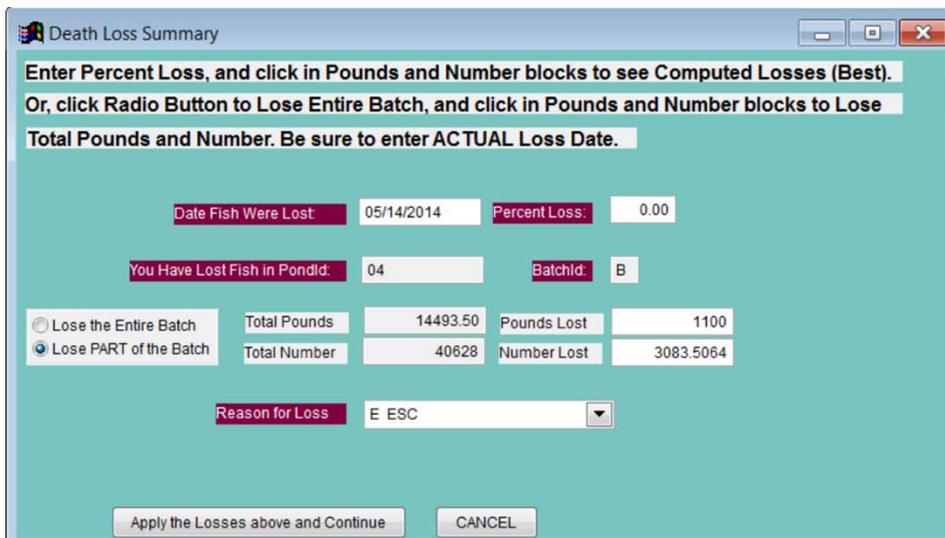


Figure 31. Example death losses screen.

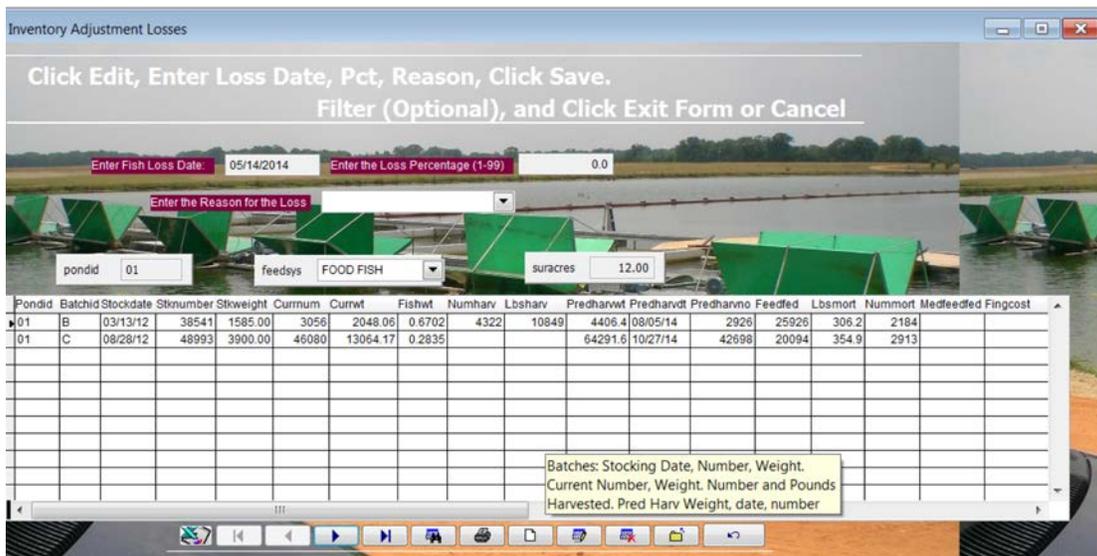


Figure 32. Example inventory adjustment losses screen.

The first line of instructions (**click edit...**) have been done, except for clicking save. Notice that loss date, percent loss, and loss reason have all been defined. If you click the save (7) icon, the 7 and 8 (cancel) icons will be replaced by the add icon and the edit icon, and you may then optionally use binoculars (5) to filter a subset of all your ponds, which will incur the 1 percent loss defined. Notice that inventory adjustment losses apply to a *range* of ponds. Click the continue (10) icon to apply all losses (Figure 32), or click the rightmost back arrow to cancel inventory adjustments. Inventory adjustment records are stored in a file (death), and are used in FISHY reports. When inventory adjustment losses are done, a prompt screen will appear, listing all ponds incurring losses. You may then apply the losses or cancel them.

The seventh **pond management** menu item, **move fish from one pond to another**, is very handy, especially near the end of the production season when you are “scrapping out” residual batches and placing them in holding ponds. The advantage of entering fish movement events in FISHY is that FISHY will give you date sequenced reports listing the source and destination ponds, complete with head and pounds moved. You may even comment on each move and include your comment in the report. When the **move fish...** item is selected, a screen similar to Figure 33 will appear.

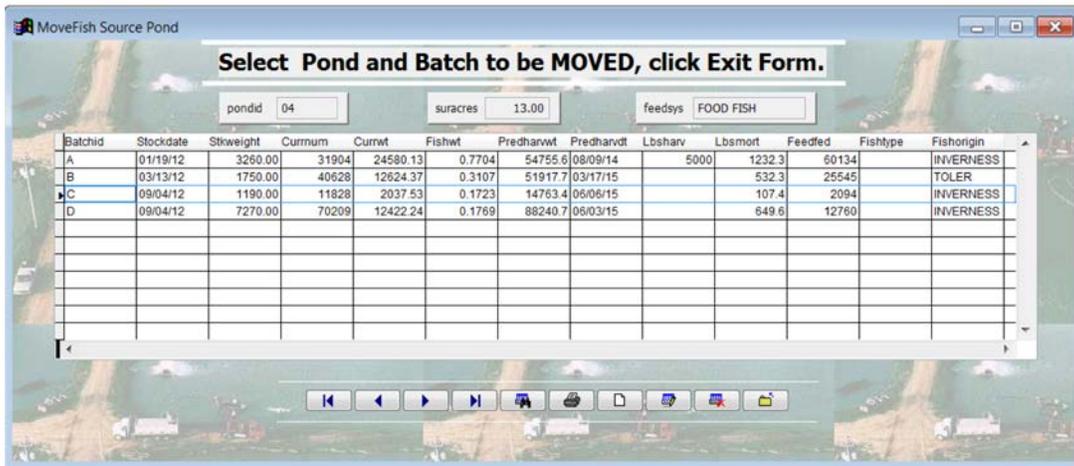


Figure 33. Example source pond and batch move fish selection screen.

After you have selected the pond and batch from which to move fish, you will see a similar screen for selecting the destination pond and batch (Figure 34). You will be able to add the batch selected in Figure 33 to an existing (hopefully similar size of fish) batch in the destination pond, or create a new batch. Pond 01c, Batch 1 were selected.

When you click exit form (yellow icon), you will see a screen similar to Figure 35.

Notice that the entire batch was moved. When you click the radio button to move the entire batch, the “moved” boxes will remain blank. You may enter the head and pounds of fish moved, or just click the boxes to enter all the fish in the batch. If you click the check box to place moved fish in a new batch, FISHY will show you the batches currently in the pond, and you are to select a unique batch number (or character). I chose the character C to match the source batch identifier. After you click on **apply pounds, numbers, and complete the move**, FISHY will show you both the source and destination ponds *after* the move. You may also cancel the move if desired. Notice the availability of a move comment.

When **combine batches**, the eighth **pond management** item is selected, a screen similar to Figure 36 appears. Although you may combine any two batches, practicality suggests that both batches chosen should be similar in size.

Notice that chosen Pond 16, Batches C and D are similar in size. After you click exit form, you will see a prompt screen, making sure you want to combine the batches. If you’re sure you want to combine them, you will see the pond after the batches have been combined, as in Figure 37. Notice that the batch ID and stocking date came from the *last* batch (D). Combined numbers and weights are *weighted* averages.



Figure 34. Example destination pond and batch for move fish operation.

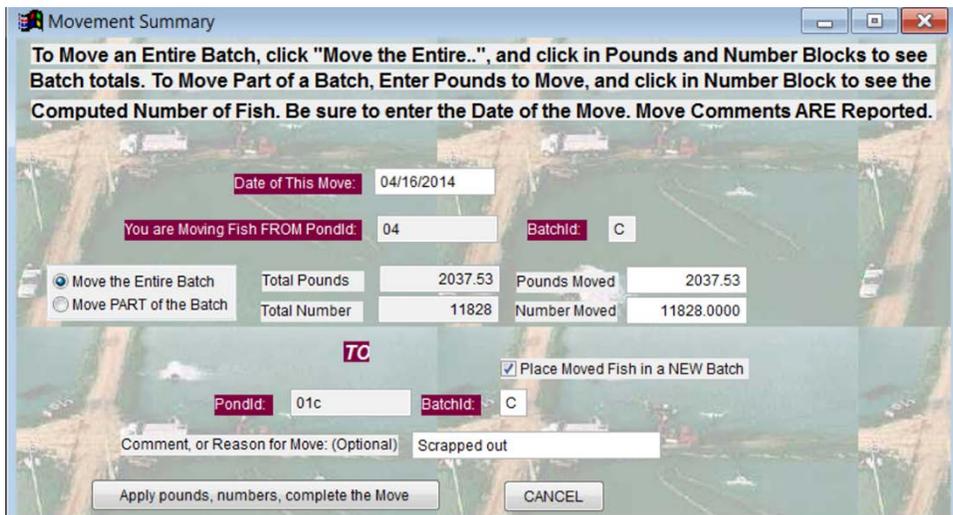


Figure 35. Example movement summary screen to move fish from pond to pond.

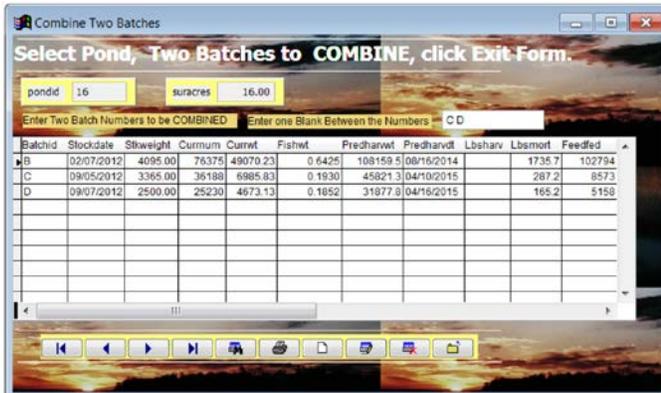


Figure 36. Example pond before combining batches.



Figure 37. Example pond after combining batches.

The ninth **pond management** item (Figure 10) is **drain a pond**. As you know, it is necessary to drain ponds for levee repairs, species “purification,” and other reasons. Extreme care should be exercised when using this item, because the fish will be “gone” when you complete it. When you choose the menu, you will see a screen similar to Figure 38. After you click exit form, you’ll be prompted for a drain date, followed by a screen similar to Figure 39. This screen gives you one more chance. If you answer yes, the pond will be drained and you will see a screen affirming the pond was drained.

The tenth and last **pond management** menu item reports current pond IDs. It creates a report similar to Figure 40. This is a handy and compact report that may be viewed or printed. It wasn’t in the original version of FISHY and was suggested by Jim Steeby.

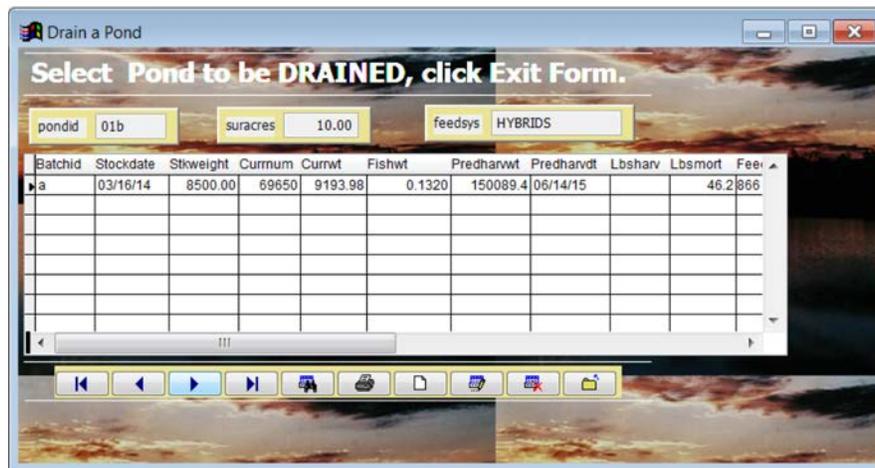


Figure 38. Example screen for draining a pond.

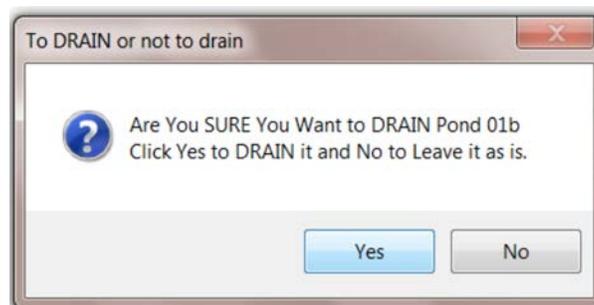


Figure 39. Example “Are you sure?” prompt screen for draining a pond.

PondId Listing														
04/16/2014														
Lists All Ponds in your Operation														
01	01a	01b	01c	02	03	04	05	06	07	08	09	10	11	12
13	14	15	16	17	18	19	20	PK21	PK22	PK23	PK24	PK25	PK26	PK27
PK28	PK29													

Figure 40. Example pond listing report.

Feeding Operations

Now you have made it to the main menu item called **feeding operations**. When you select this item, you will see a screen similar to Figure 41.



Figure 41. Example feeding operations submenu.

The first item, **create a weekly feed schedule**, prompts for a report date (default is current date) and a possible feeding calendar override option. After you complete the screen, FISHY gives you a selection screen for choosing a subset of your ponds (if you don't filter a subset, you get them all). Then a report similar to Figure 42 appears. It is a good report to do *before* you physically feed your fish. Notice that this report gives the recommended amount of feed to feed each pond per day, beginning with *the current day*. (Today is a Wednesday. FISHY will start with the day of the week on the report day.) Some fish farms print several copies of this report and give it to feeding workers to fill in the actual amounts of feed fed. The calendar value (53 percent in mid-April) came from the **background** feeding calendar.

The image shows a screenshot of a software report titled 'Estimated Feed Needs Report' for Dr. Wallace Killcreas. The report is for the week beginning on 04/16/2014, with a calendar value of 53.00. The report is displayed in a table with columns for Pond ID, Acres, Lbs/Day, and days of the week (Wednesday, Thursday, Friday, Saturday, Sunday, Monday, Tuesday), plus a Totals column. A 'Print Preview' window is visible in the top right corner.

Pond ID	Acres	Lbs/Day	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Totals
01	12	238								
01a	12	10								
01b	10	0								
01c	11	40								
02	12	341								
03	14	642								
04	13	877								
05	11	572								
06	7	195								
07	9	471								
08	11	197								
09	12	596								
10	14	799								

Figure 42. Excerpt from a daily feed needs report.

When the second **feeding operations** menu item (Figure 41), **feed one, all, or a range of ponds**, is chosen, a screen similar to Figure 43 appears. FISHY defaults are shown in the Figure 43 screen.

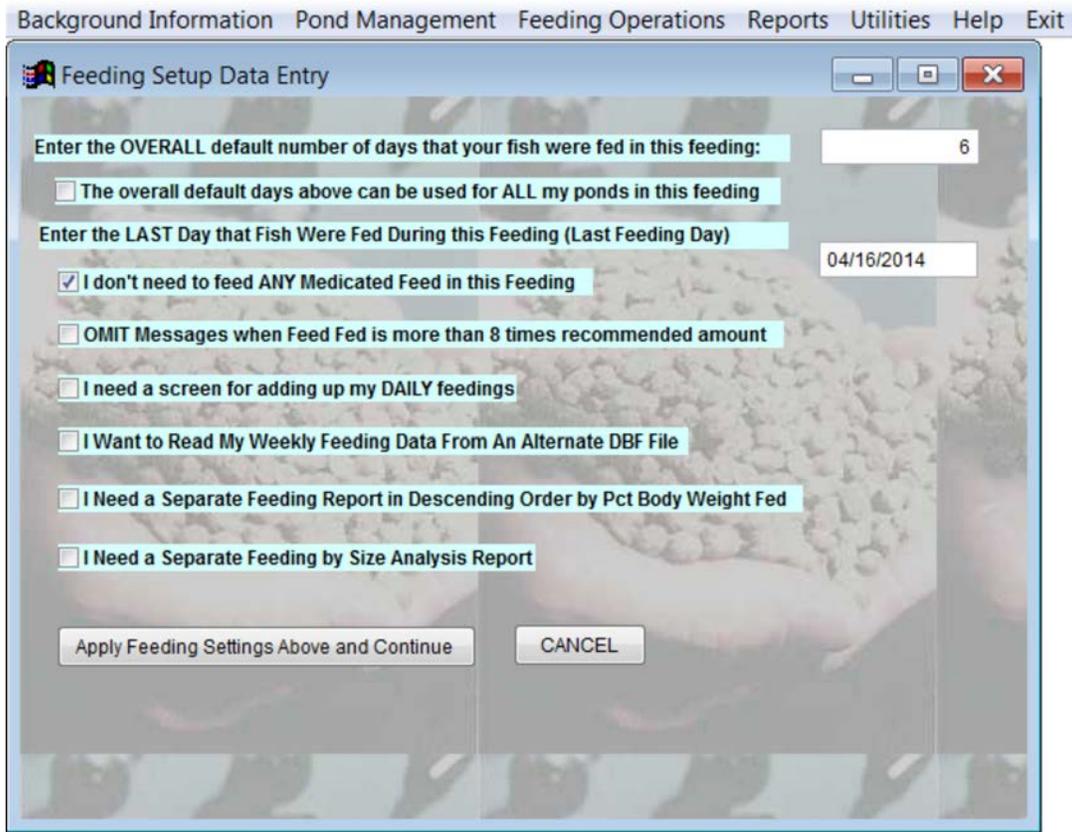


Figure 43. Example feeding decisions setup screen.

However, you can change *any* line in Figure 43 by checking or unchecking the default decisions. Default feeding days are 6, medicated feed is not being fed, we will enter data weekly (instead of daily), we won't do extra feeding reports, etc. When you get the screen defined the way you want it, click **apply feeding settings above and continue** to see a selection screen to filter out just the ponds to be fed now. If you don't filter out any, you will get them all. At any rate, you will see a screen similar to Figure 44.

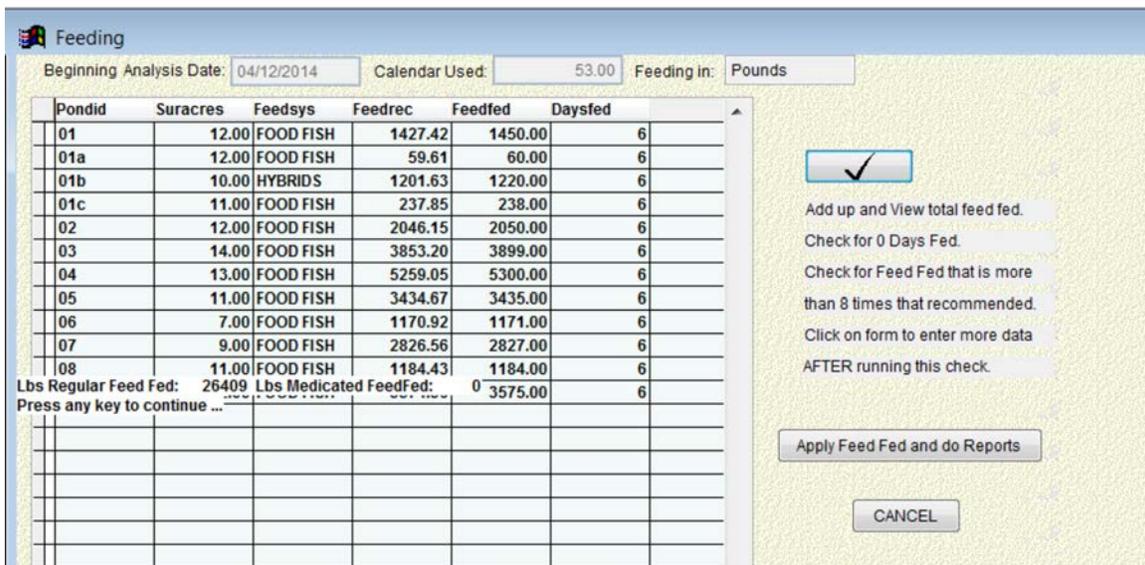


Figure 44. Excerpt from a feeding screen.

The Figure 44 feeding screen gives FISHY recommended pounds to feed (Feedrec), followed by Feedfed, where you enter the feed actually fed to each pond during the week following the analysis date at the top of the form. As you would guess, the Feedfed info that you enter is the most important part of the feeding process. The Daysfed field may also be changed, but it only affects the daily report created by FISHY after the feeding. Notice in the Figure 44 screen that I have fed each pond. You can obtain a running total of all feed fed by clicking the check box on the top right. I clicked it after entering feed for all ponds. After all feed has been entered, click **apply feed fed and do reports**. At that point, you will see a report similar to Figure 45 below. Part of this report comes from ponds and batches files (Pondid, # batches, acres, number and pounds of fish), from background info (calendar percent from feeding calendar, feeding target from general background screen), and feeding data entered (pounds fed, days fed). Some of the report is computed (average pounds fed per day, average pounds fed per acre per day, and percent of fish body weight fed per day. You may remember that the target range of percent body weights in the general background screen (Figure 3) was set between 1.5 and 3.0. Note that 5 of the 11 ponds fed were below target feed fed, even though all were fed 100 percent or more of FISHY recommended feed. Also note that the average percent body weight fed was 1.57, near the minimum of the target range. These seemingly inconsistent results all happened because the seasonal feed recommended in mid-April (53 percent) is still “low” because there are many days when the water is too cool in Mississippi, Arkansas, and Alabama for catfish to eat as much as they do in the summer months when the water is warm. I recommend that you print each daily report similar to Figure 45, and save them in case you want or need to know what happened in previous feedings. The FISHY Feedfed file is updated whenever fish are fed. You may create reports from it (see **reports** menu and **feed fed reports**).

Pond ID	No. of Batches	Number Acres	Number Fish	Pounds Fish	Pounds Feed Fed	Days Fed	Avg Lbs /Day	Avg Lbs /Acre/Day	% BW Fed/Day	Feeding Target	% Full Feed
01	2	12.0	49136	13082	1450	6	241.7	20.1	1.85	Within	102
01a	1	12.0	14925	500	60	6	10.0	0.8	2.00	Within	101
01b	1	10.0	69650	9194	1220	6	203.3	20.3	2.21	Within	283
01c	1	11.0	19900	1995	238	6	39.7	3.6	1.99	Within	100
02	3	12.0	60962	26222	2050	6	341.7	28.5	1.30	Under	100
03	2	14.0	93896	38341	3899	6	649.8	46.4	1.69	Within	101
04	4	13.0	154569	51664	5300	6	883.3	67.9	1.71	Within	101
05	3	11.0	112775	41258	3435	6	572.5	52.0	1.39	Under	100
06	2	7.0	30992	14126	1171	6	195.2	27.9	1.38	Under	100
07	3	9.0	72916	33578	2827	6	471.2	52.4	1.40	Under	100
08	2	11.0	47116	10977	1184	6	197.3	17.9	1.80	Within	100
09	4	12.0	152383	40257	3575	6	595.8	49.7	1.48	Under	100
Totals		134.00	879220	281195	26409	72					
Avg		11.17	73268	23433	2201	6	366.8	32.8	1.57	Within	104
Per Acre			6561	2098	197						

Figure 45. Example feeding report.

If feed inventory is to be reported with FISHY, the third **feeding operations** menu item (Figure 41, called **buy loads of feed**) should be used *before* feeding operations mentioned in **feeding** menu item two above. That’s because FISHY feed inventory reports work best when feed is “purchased” in FISHY before feeding it. This allows FISHY to “know” how much feed is available and where it came from before feeding. When this item is chosen, a screen similar to Figure 46 appears.

Click the add icon (blank sheet) to “buy” a new load of feed. You will

Date Purch	Tons Purch	Price/Ton	Feed Producer	Feed Type	Tons Fed	Last Fed Date
01/01/2020	-7731	9320		Z	0.0000	05/25/2013
04/17/2014	33	0000	425.00 FB FishBelt	R		//
04/10/2014	32	0000	423.00 AR Arkat	R		//
03/28/2014	33	0000	400.00 AR Arkat	R		//
03/21/2014	35	0000	401.00 SF SF Services	R		//
03/21/2014	30	0000	390.00 DW Delta Western	R	22.9243	04/12/2014
04/17/2014	35	0000	426.00 DW Delta Western	R		//

Figure 46. Example buying feed screen.

get a strange message indicating that parent/child fields are not the same data type. Respond with yes to add a new load, and enter purchase date, tons purchased, and feed price, select the feed producer who sold the feed (pull-down menu), enter type of feed (R is regular, M is medicated), and click add/save (diskette icon). Repeat this process to buy additional loads of feed. Notice in this example that two loads were purchased on April 17, one from ARCAT and one from Delta Western (the Delta Western entry has not been saved or sorted into the queue). Feed entries are sorted in descending order (it's a *first in-first out* queue). So, the oldest feed always gets "fed" first. If you will enter feed into this menu item each time you purchase it, and *before* feeding it, you will enjoy your feed inventory reports much more!

The fourth **feeding operations** submenu item (Figure 41) is called **print extra copies of the last feeding reports**. It reprints reports similar to Figure 45, as well as **descending order by percent body weight fed** (good for determining which ponds are "off feed" and possibly sick) and **batches and fish sizes reports**. (However, you must have chosen the reports beforehand in the last two check boxes in Figure 43.) An excerpt from a batches and fish sizes feeding report is shown in Figure 47.

Pond ID	Batch ID	Number Acres	Number Fish	Pounds Fish	Pounds /Acre	SI (LBS)	Feed Fed	Days Fed	Avg Lbs /Day	Avg Lbs /Acre/Day	% BW Fed/Day	Feeding Target	% Full Feed
FOOD FISH													
01	*	12.0	49136	14441	1203	0.2939	1477	6	246.2	20.5	1.70	Within	100
01	B		3056	1963	164	0.6423	187						
01	C		46080	12478	1040	0.2708	1290						
01a	1	12.0	14925	561	47	0.0376	67	6	11.2	0.9	1.99	Within	100
01c	1	11.0	19900	2240	204	0.1125	267	6	44.5	4.0	1.99	Within	100
02	*	12.0	60962	28073	2339	0.4605	2207	6	367.8	30.7	1.31	Under	100
02	A		13161	19266	1605	1.4638	1225						
02	B		1990	223	19	0.1123	27						
02	C		45811	8584	715	0.1874	955						
03	*	14.0	93896	42078	3006	0.4481	4123	6	687.2	49.1	1.63	Within	100
03	A		40398	28371	2026	0.7023	2706						
03	B		53498	13707	979	0.2562	1417						
04	*	13.0	154569	56731	4364	0.3670	5778	6	963.0	74.1	1.70	Within	100
04	A		31904	26767	2059	0.8390	2553						
04	B		40628	13843	1065	0.3407	1431						
04	C		11828	2272	175	0.1920	253						
04	D		70209	13849	1065	0.1973	1541						
05	*	11.0	112775	44385	4035	0.3936	3720	6	620.0	56.4	1.40	Under	100

Figure 47. Excerpt from optional batches and fish sizes feeding report.

Notice that this report shows you how the feed you fed was allocated to each batch of fish. This is very helpful when learning how FISHY allocates feed.

The last **feeding operations** menu item is **make a fill-in-the-feed Excel feeding sheet**. When chosen, this item gives a message similar to Figure 48. If you enjoy entering data in Excel, you may enjoy using it to enter feed for FISHY.

The weeklyfeedxx.xls file created is similar to Figure 49.

After entering a week of feed into the above Excel spreadsheet, you may save it as a DBF file and later read it directly into FISHY. It MUST be saved as DBF! If you already have a weekly feed total for each pond, just enter it into day 7.

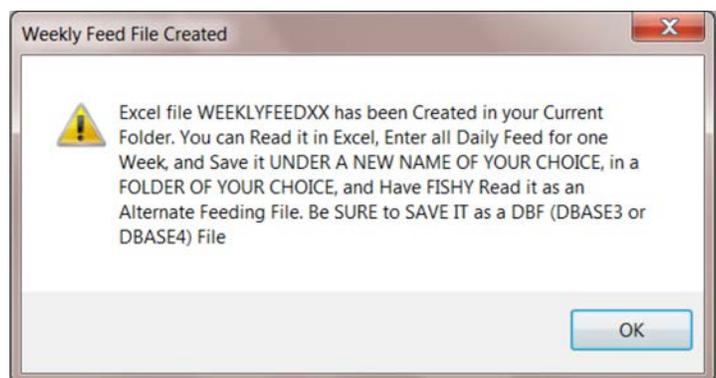


Figure 48. Example information screen for creating an Excel fish feeding file.

	A	B	C	D	E	F	G	H	I	J	K
1	pondid	day01	day02	day03	day04	day05	day06	day07			
2	01	0	0	0	0	0	0	0			
3	01a	0	0	0	0	0	0	0			
4	01b	0	0	0	0	0	0	0			
5	01c	0	0	0	0	0	0	0			
6	02	0	0	0	0	0	0	0			
7	03	0	0	0	0	0	0	0			
8	04	0	0	0	0	0	0	0			
9	05	0	0	0	0	0	0	0			
10	06	0	0	0	0	0	0	0			
11	07	0	0	0	0	0	0	0			
12	08	0	0	0	0	0	0	0			
13	09	0	0	0	0	0	0	0			

Figure 49. Excerpt from example Excel feeding screen.

Reports

FISHY contains around 30 useful reports. You likely will not use them all. However, *every* report was developed because a FISHY user, manager, Extension worker, or researcher saw a need for it. You have already seen some of the FISHY reports. There are **report background names** in **background info**; a **general pond report** (Figure 15) in **pond management**; a **pondid listing** (Figure 40) report in **pond management**; a weekly **estimated feed needs report** (Figure 42); and up to three feeding reports (see Figures 45 and 47) in **feeding operations**. The above reports were placed in their respective FISHY menus because they were needed to aid in explaining concepts and operations there. However, *most* FISHY reports are created and explained in the next FISHY main menu item, **reports**. When it's chosen, you will see a submenu similar to Figure 50.



Figure 50. Example Reports submenu.

The first **reports** submenu item, **grow all current fish to harvest size**, is not a report at all. However, clicking on it is always a good idea when you are about to do some reports. Yes, you probably know that when fish are *fed*, they are automatically “grown” in FISHY. However, not feeding your fish for a few days can cause a difference in predicted harvest dates and other forecasting tools in FISHY. No need to choose this item before every FISHY report; just do it once on the day before creating reports.

The **reports** submenu item (Figure 50) called **size analysis by ponds** (Figure 51) is important for really understanding what is going on at your fish farm.

The **size analysis** report is such an important report that example screens and supporting explanations are given for the beginning of the report (Figure 51) and the end/summary of the report (Figure 52). I will explain Figure 51 first. First, you see operation information. Next, fish are listed by types of fish products (feeding systems, with feed limits and harvest sizes), such as brood fish (none in example), fingerlings (none), and food fish. Note the five food fish ponds are listed by batches and totals (*). Stocking and current head and pounds are shown, followed by pond acres and per acre current head and pounds. Next, you see pounds lost and total feed fed to the batch/pond. Pounds of feed fed in the last 10 days can give you an idea of fish health. The last page of a **size analysis** report defines how the report got its name (Figure 52).

First, you see the last part of pond and batch listings by size classes. Note food fish totals, hybrid totals, and grand totals. Then you see the size analysis matrix (how the report got its name). Note the ranges (less than .18 pound, .18 to .5, .5 to .75, .75 to 1.0, 1.0 to 1.5, 1.5 to 3.0, and more than 3.0 pounds per fish) listed. You may use the background info menu item **fish sizes for feeding systems** to *change* the ranges reported. Feeding systems reports are given by *numbers* and *pounds*.

The next report (Figure 50) is called **size summary by pond**. It is similar to the size analysis report, except it is more compact because it doesn't list fish batches. It does give the summary shown in Figure 52. Figure 53 is an excerpt from a size summary report.

This report lists each pond on only one line, ranging *number of fish only* by fish sizes. For this report, I filtered out eight ponds, the same as the two-page size analysis report shown in Figures 51 and 52. Looking at the print preview icon (navigation buttons are all gray), you can see that the size summary report is only one page long. Size summary does both current numbers and current pounds summaries at the end of the report, very similar to the size analysis report. Both reports offer Excel spreadsheet options, good for doing ad hoc summaries, and ASCII report files, good for sending reports via email.

Pond Id	Batch Id	Date	Stocking Head	Stocking Pounds	Current Head	Current Pounds	Surface Lbs/Fish	Surface Acres	Per Acre Head	Per Acre Pounds	Pounds Lost	Tot Feed	Feed Fed Last 10 Day
<<< Feeding System: BROOD FISH Feed Limit: 100.00 Harvest Size: 5.00 Pounds Per Fish >>> BROOD FISH Totals 0 0 0 0 0.000 0 0 0 0 0 0 0													
<<< Feeding System: FINGERLINGS Feed Limit: 100.00 Harvest Size: 250.00 Pounds Per 1000 >>> FINGERLINGS Totals 0 0 0 0 0.000 0 0 0 0 0 0 0													
<<< Feeding System: FOOD FISH Feed Limit: 100.00 Harvest Size: 1.50 Pounds Per Fish >>>													
01	B	03/13/12	38541	1585	3056	1881	0.616	12.0	255	157	306	25560	
01	C	08/28/12	48993	3900	46080	11918	0.259	12.0	3840	993	355	17572	
01	*		87534	5485	49136	13800	0.281	12.0	4095	1150	661	43132	1450
01a	1	03/13/14	15000	500	14925	530	0.036	12.0	1244	44	3	72	60
01c	1	03/20/14	20000	2000	19900	2114	0.106	11.0	1809	192	10	261	238
02	A	01/19/12	39107	3145	13161	18788	1.428	12.0	1097	1566	1492	96923	
02	C	08/28/12	48706	3695	45811	8131	0.177	12.0	3818	678	300	10170	
02	B	03/20/14	2000	200	1990	211	0.106	12.0	166	18	1	24	
02	*		89813	7040	60962	27130	0.445	12.0	5080	2261	1793	107117	2050
03	A	03/08/12	94935	4760	40398	27192	0.673	14.0	2886	1942	1499	98166	
03	B	09/05/12	56652	4845	53498	12985	0.243	14.0	3821	927	412	18260	

Figure 51. Example size analysis report, on the first page of a report.

The fourth **reports** menu item (Figure 50) is the **future harvest** report. It lists ponds by predicted harvest dates, in descending order. So, you will see the first batch that FISHY predicts to be harvested next, the batch to be harvested after that, etc. Figure 54 is an excerpt from a **future harvest** report. Notice that the first eight ponds (same as size analysis and size summary above) of fish are listed by harvestable batches in feed groups (none in brooders or fingerlings). All food fish reported in Figure 54 had a harvest size defined of 1.5 pounds. Notice that FISHY estimates the day that the defined harvest size (or higher) can be reached. The first batch that can be harvested is pond 02, batch A, estimated to be harvestable on April 29; next is pond 05, batch A, harvestable on June 11, then pond 03, batch A, harvestable on August 9, etc. Pond IDs, batch IDs, water acres, and stocking, current, and predicted dates and weights are all a part of this report.

Predicted Harvest by Feed Groups												
04/18/14				Dr. Wallace Killreass		Box 5187		MS State		MS 39762		
Pond ID	Batch ID	Pond Acres	Stocking Date	Stocking Number	Stocking Weight	Current Number	Current Weight	Current Fish Size	Predicted Harv No.	Predicted Harv Wt.	Predicted Harv Date	Predicted Fish Size
Fish Type: BROOD FISH			Harvest Weight: 5.00									
Fish Type: FINGERLINGS			Harvest Weight: 0.25									
Fish Type: FOOD FISH			Harvest Weight: 1.50									
02	A	12.0	01/19/12	39107	3145.0	13161	18787.6	1.428	13099	19738.0	04/29/14	1.507
05	A	11.0	01/19/12	37860	3125.0	20193	23392.3	1.158	19759	29674.4	06/11/14	1.502
03	A	14.0	03/08/12	94935	4760.0	40398	27191.7	0.673	38619	58174.5	08/09/14	1.506
04	A	13.0	01/19/12	41779	3260.0	31904	25654.3	0.804	30487	45748.5	08/10/14	1.501
01	B	12.0	03/13/12	38541	1585.0	3056	1881.4	0.616	2917	4393.2	08/13/14	1.506
05	B	11.0	03/13/12	21625	865.0	19937	9109.1	0.457	18775	28217.0	09/16/14	1.503
01	C	12.0	08/28/12	48993	3900.0	46080	11918.1	0.259	42353	63623.1	11/13/14	1.502
03	B	14.0	09/05/12	56652	4845.0	53498	12984.6	0.243	47481	71221.7	01/11/15	1.500
04	B	13.0	03/13/12	44070	1750.0	40628	13222.1	0.325	34784	52209.1	03/28/15	1.501
02	C	12.0	08/28/12	48706	3695.0	45811	8131.3	0.178	39091	58871.4	04/08/15	1.506
05	C	11.0	08/27/12	77237	6195.0	72645	10287.7	0.142	61016	91569.7	05/18/15	1.501
01c	1	11.0	03/20/14	20000	2000.0	19900	2113.6	0.106	16609	24990.9	06/03/15	1.505

Figure 54. Excerpt from a Future Harvest report.

The fifth report in the **reports** menu (Figure 50) is titled **feed needs**. This report is designed to predict long-range feed needs for your fish farm. It allows you to report feed needs to harvest by week, by pond, or (lengthy) by pond by week. Figure 55 is a setup screen for feed needs.

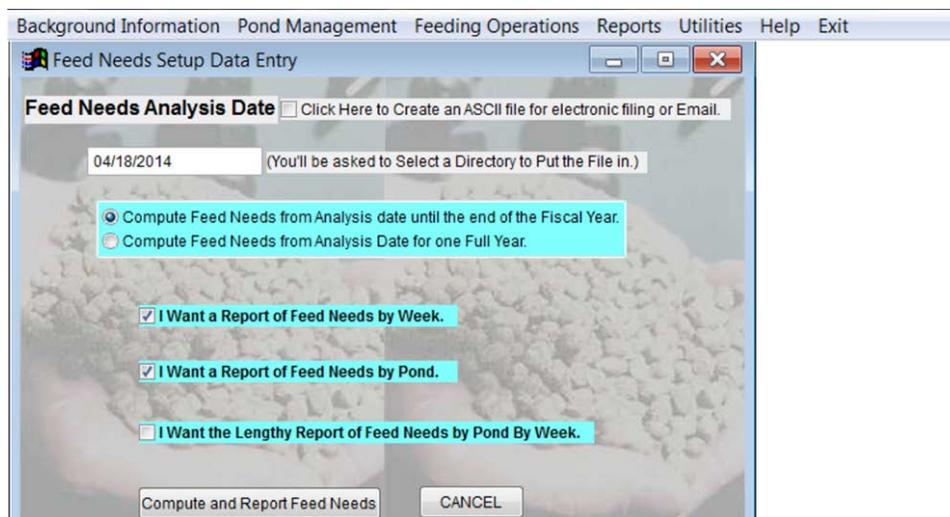


Figure 55. Example Feed Needs setup screen.

After you select the reports you want (I took defaults), click **compute and report feed needs**. You will be prompted to filter ponds desired (I chose the first eight ponds, as before), then click the report icon. You will first see a report similar to Figure 56.

Feed Needs By Ponds		Dr. Wallace Killcreas				
from	04/18/14	Until	01/02/15			
		Box	5187			
		MS State	MS 39762			
PondId	Water Acres	Fish Diet / Size	Starting Fish Weight (Pounds)	Starting Fish Number	Simulated Feed Needed Pounds	Simulated Feed Needed Tons
01	12.0	FOOD FISH	13800	49136	129068	64.53
01a	12.0	FOOD FISH	530	14925	10680	5.34
01b	10.0	HYBRIDS	10237	69650	148517	74.26
01c	11.0	FOOD FISH	2114	19900	32875	16.44
02	12.0	FOOD FISH	27130	60962	148121	74.06
03	14.0	FOOD FISH	40176	93896	223711	111.86
04	13.0	FOOD FISH	54147	154569	251477	125.74
05	11.0	FOOD FISH	42789	112775	198938	99.47
Totals	95.0		190922	575813	1143385	571.69

Figure 56. Example Feed Needs report by ponds.

This report estimates the pounds and tons of feed needed to feed these ponds FISHY recommended feed from today until next year (8.5 months; you can optionally choose 1 full year). The second report, called **weekly feed needs**, will appear after the Figure 56 report. An excerpt from such a report is shown in Figure 57.

Feed Needs by Fish Diets (Tons)		Dr. Wallace Killcreas			
04/18/14		Box	5187		
		MS State	MS 39762		
End Date	BROOD FISH	FINGERLINGS	FOOD FISH	HYBRIDS	Totals
04/24/14	0.000	0.000	9.904	0.280	10.184
05/01/14	0.000	0.000	10.364	0.817	11.181
05/08/14	0.000	0.000	10.338	0.923	11.261
05/15/14	0.000	0.000	10.883	1.044	11.927
05/22/14	0.000	0.000	11.471	1.091	12.562
05/29/14	0.000	0.000	11.386	1.051	12.437
06/05/14	0.000	0.000	16.961	1.846	18.807
06/12/14	0.000	0.000	17.361	2.128	19.488
06/19/14	0.000	0.000	16.554	2.452	19.006
06/26/14	0.000	0.000	17.401	2.524	19.925
07/03/14	0.000	0.000	18.162	2.853	21.015
07/10/14	0.000	0.000	18.607	2.443	21.049
07/17/14	0.000	0.000	19.049	2.655	21.704
07/24/14	0.000	0.000	19.529	2.886	22.414
07/31/14	0.000	0.000	19.873	3.136	23.010
08/07/14	0.000	0.000	20.338	2.718	23.056

Figure 57. Excerpt from a Weekly Feed Needs report.

This report gives feed needed for each week by feeding group until the end of the period defined. In this example, that is the first of the next year, as in the Figure 56 report.

The next (sixth) **reports** menu (Figure 50) item is called **feed inventory**. For this report to be meaningful, you need to have “purchased” and “fed” some feed before creating the report. Figure 58 is an example **feed inventory** report.

Since feed is a very expensive cost of catfish production, the Figure 58 report is an important tool for keeping up with feed purchased versus feed fed.

The seventh **reports** menu (Figure 50) item is called **fish production**. Its purpose is to compute the pounds per acre of fish that each pond is producing. Figure 59 is an example fish production report. The production report is defined for a given time period. Each batch of fish is considered separately. Fish produced is sometimes dif-

Feed Inventory		04/18/2014		Dr. Wallace Killcrease				
(Tons)	Regular	Medicated	Box 5187					
Caryover, Last FY	0.00	0.00	MS State					
			MS 39762					
Week that Ends on	Tons Regular Feed Bought	Reg. Feed Avg. Price	Tons Reg. Feed Fed	Reg. Feed Running Tot.	Tons Med. Feed Bought	Med. Feed Avg. Price	Tons Med. Feed Fed	Med. Feed Running Total
03/11/2014	0.000	0.00	5.546	-5.546	0.000	0.00	0.000	0.000
03/18/2014	0.000	0.00	2.151	-7.697	0.000	0.00	0.000	0.000
03/25/2014	65.000	395.92	2.023	55.280	0.000	0.00	0.000	0.000
04/01/2014	33.000	400.00	0.000	88.280	0.000	0.00	0.000	0.000
04/15/2014	32.000	423.00	0.000	120.280	0.000	0.00	0.000	0.000
04/22/2014	33.000	425.00	13.205	140.076	15.000	445.00	0.000	15.000
Totals	163.000	407.95	22.924	140.076	15.000	445.00	0.000	15.000

Figure 58. Example feed inventory report.

Background Information Pond Management Feeding Operations Reports Utilities Help Exit												
Pond Id	Batch Id	Pounds Stocked	Pounds Overwintered	Pounds Harvested	Pounds Moved Out	Pounds Moved In	Pounds Lost	Pounds On Hand	Pounds Produced	Water Acres	Production Per Acre	Fish Si Lbs/Fis
01	B	1585	1803	0	0	0	9	1881	79	12.0	6.56	0.616
01	C	3900	11261	0	0	0	57	11918	658	12.0	54.80	0.259
	*	5485	13063	0	0	0	66	13800	736	12.0	61.37	
01a	1	500	0	0	0	0	3	530	30	12.0	2.49	0.036
01b	a	8500	0	0	0	0	46	10237	1737	10.0	173.67	0.147
01c	1	2000	0	0	0	0	10	2114	114	11.0	10.33	0.106
02	A	3145	18346	0	0	0	92	18788	442	12.0	36.84	1.428
02	C	3695	7688	0	0	0	39	8131	443	12.0	36.94	0.177
02	B	200	0	0	0	0	1	211	11	12.0	0.91	0.106
	*	7040	26034	0	0	0	132	27130	896	12.0	74.69	

03	A	4760	26057	0	0	0	131	27192	1135	14.0	81.07	0.673
03	B	4845	12271	0	0	0	62	12985	714	14.0	51.00	0.243
	*	9605	38327	0	0	0	193	40176	1849	14.0	132.08	
04	A	3260	29581	5000	0	0	124	25654	1074	13.0	82.58	0.804
04	B	1750	12623	0	0	0	63	13222	599	13.0	46.07	0.325
04	C	1190	2054	0	0	0	31	2152	97	13.0	7.49	0.182
04	D	7270	12521	0	0	0	184	13119	598	13.0	45.99	0.187
	*	13470	56779	5000	0	0	402	54147	2368	13.0	182.14	

05	A	3125	22837	0	0	0	115	23392	555	11.0	50.48	1.158
05	B	865	8699	0	0	0	44	9109	410	11.0	37.25	0.457
05	C	6195	9728	0	0	0	49	10288	560	11.0	50.93	0.142
	*	10185	41264	0	0	0	207	42789	1525	11.0	138.67	

Figure 59. Excerpt from a fish production report.

difficult to compute because you must consider fish stocked, overwintered, harvested, moved (in and out), lost, and on-hand to get production for each batch. The sum of batch production (*) entries gives pond production. Pond production divided by water acres gives production per acre. The ponds in the Figure 59 report have not been fed much during the spring feeding season that we are currently in, and have therefore not produced very many pounds per acre so far. In my opinion, the production report is a most useful tool for learning which ponds are productive and which are not. Try it in your operation!

The eighth **reports** submenu item (Figure 50) is called **feed consumption ratios**. Its purpose is to look at batches of fish that have been harvested and compute a feed consumption ratio from feed consumed versus fish produced. Figure 60 is an example feed consumption ratio report.

The feed consumption ratios computed (Figure 60) are done by dividing pounds of feed fed by (pounds harvested – fish moved in + fish moved out – fish stocked). The feed conversion ratios needed by FISHY for feeding diets should be adjusted for *fish losses* (as my friend Jim Steeby always said, “Fish that die eat feed before they die.”). So, for purposes of FISHY diets, ratios shown above would be recomputed to add lost fish back in. If that were done, the feed conversion ratio for pond 02 would be 2.21; for pond 05, 2.16; for pond 06, 2.22. The overall feed conversion ratio would be 2.195. The file supporting feed consumption ratios is HARVCONV. We will start saving it in FISHY backups this year. It will be added to FISHY restores next year.

Pond Id	Batch Id	Transaction Date	Lbs Feed Fed	Pounds Stocked	Pounds Harvested	Pounds Moved Out	Pounds Moved In	Pounds Lost	Feed to Harvest Ratio
02	A	04/18/14	96923	3145	45486	0	0	1492	2.29
05	A	04/18/14	81055	3125	39143	0	0	1585	2.25
06	A	04/18/14	77194	2655	36587	0	0	879	2.27
Grand Totals			255172	8925	121216	0	0	3955	2.27

Figure 60. Example feed consumption ratio report.

Some FISHY fish farming events automatically record data for future use, including feeding, harvesting, and losses. Historical files are maintained, which summarize such information as when fish are fed, harvested, and lost. Multiple reports are available for each activity (feeding, harvesting, and losses).

The first historical table submenu is called **feed fed reports** (Figure 61).

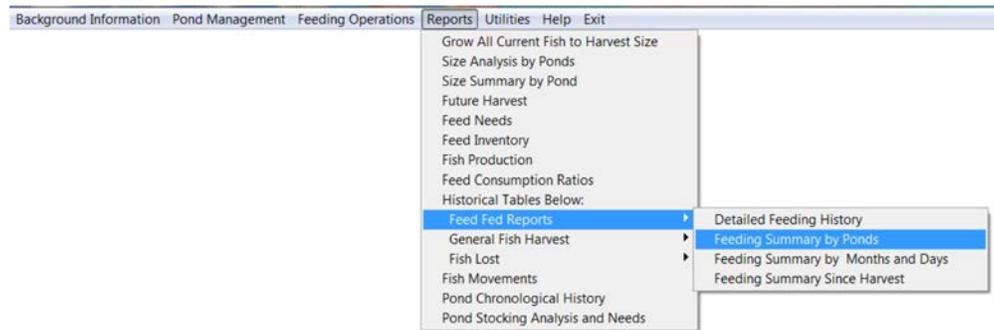


Figure 61. Example historical feed fed reports submenu.

Notice the **reports** submenu displays another submenu when feed fed reports is chosen. That's because there are four feed fed reports, differing by the sorting order and focus of the reports. The **detailed feeding history** report lists feed fed sorted by *date* fed, and reporting pond ID, date fed, pounds fed, feed producer, feed type, and feed price. Unlike the listing report mentioned above, the **feeding summary by ponds** (Figure 62) displays just one feed fed total for each pond fed during the period reported (all of 2014 to date, sorted by *pond*).

PondId	Pounds Fed	PondId	Pounds Fed	PondId	Pounds Fed	PondId	Pounds Fed
01	3300	01a	135	01b	3424	01c	513
02	5609	03	9155	04	12561	05	8238
06	2798	07	6772	08	2800	09	8508
10	6513	11	2510	12	4212	13	2328
14	2445	15	9068	16	6614	17	3781
18	3212	19	7058	20	1576	PK21	3634
PK22	4567	PK23	5576	PK24	3011	PK25	6578
PK26	4846	PK27	2456	PK28	2075	PK29	2709
***Total Pounds of Feed Fed Reported:				148582			

Figure 62. Example historical feed summary, sorted by ponds.

The next **historical feeding report** is **feeding summary by months and days**. It produces a report very similar to Figure 62, except that it is summarized and sorted by feeding months and days. It gives one pond-wide total for each day that each pond selected was fed. Figure 63 is such a report.

Year	Month	Day	Lbs	Day	Lbs	Day	Lbs	Day	Lbs	Totals
2014	March	10	11092	13	4301	20	4047			19440
2014	April	17	82464							82464
*** Total Pounds of Feed Fed:					101904					

Figure 63. Example historical daily feeding report.

This report is brief because there have been only four feedings this year, and FISHY is reporting three feedings per line. This report helps keep track of previous feedings.

The last **historical feeding report** (Figure 61) is **feeding summary since harvest**. An example of this report is shown in Figure 64.

Pondid Since Fish Were Harvested Lbs of Feed Fed	Lbs Feed Fed/Acre Fish over 125 Lbs Each Lbs of Fish	Lbs of Fish / Acre
02	31909	2659.08	19266	1605.47
11	16960	2422.86	18309	2615.50
20	13451	3362.75	18516	4629.06

Figure 64. Example historical feed fed since ponds were last harvested report.

It reports only ponds with batches that have been previously harvested and have remaining fish of harvest size. It focuses on possible fish harvests and is sorted by feeding groups and ponds. Notice that ponds 02, 11, and 20 all contain batches that have been partially harvested. This report is, therefore, very useful for easily listing all previously harvested ponds for harvest planning purposes.

The next **historical data report** is **general fish harvest**. It displays a submenu pointing to three harvesting reports (Figure 65). Harvests analyzed in each report were filtered to include only 2014 harvests. There were only four harvests analyzed. Averages are provided at the end of each report. There is a pond-by-pond harvest report, a report by processors, and a general harvest report. The first historical harvesting report (Figure 66) is **harvest summarized by ponds**. It includes reasons for losses of pond weight (knockdowns), the price received for the resulting plant weight, and multiplication of plant weight by price to get pond revenues.

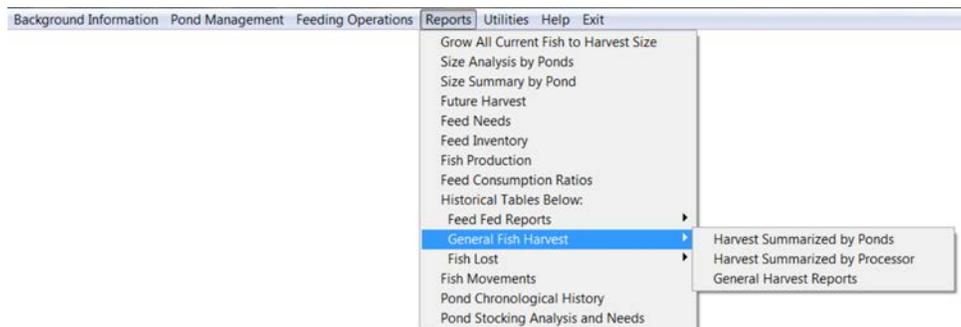


Figure 65. Example historical harvesting reports submenu.

Historical Harvest															
04/21/14															
Pondid	Batch	Datesold	Pondweight	Numsold	Plantweight	Processid	Salepri	Datepaid	Toosmall	Toobig	Scalediff	Trashfish	Doa	Feedfed	TotalPaid
02															
A	04/21/14		19265.6	11698	18539.6	HS	1.13	05/14/14	200	111	201	126	88	41126	20949.7
Subtotal for 02:			19265	11698	18539.6		1.130		200.0	111	201	126	88	41126	20949.7
04															
A	03/20/14		5000.0	4683	4426.0	HS	1.11	05/15/14	58	121	66		52	10122	4912.1
Subtotal for 04:			5000	4683	4426.0		1.110		58.0	121	66		52	10122	4912.1
11															
A	04/21/14		18308.5	10018	16633.5	CF	1.16	05/20/14	266	255	877		11	38264	19294.1
Subtotal for 11:			18308	10018	16633.5		1.160		266.0	255	877	166	111	38264	19294.1
20															
A	04/21/14		18516.3	8559	17260.3	CS	1.15	05/22/14	177	122	678	68	211	40968	19849.1
Subtotal for 20:			18516	8559	17260.3		1.150		177.0	122	678	68	211	40968	19849.1
Total:			61090.4	34958	56859.4				701.0	609.0	1822	537.0	562.0	130480	6500
Average SalePrice:			1.137												

st(c:\vishy2014\15\harvest.dbf) Record: EOF/303 Record Unlocked

Figure 66. Example pond harvest report with knockdowns, sales price, and revenue.

Figure 66 is a good report for analyzing each pond's overall harvest performance.

The next report, **harvest summarized by processor**, is shown in Figure 67. It is useful when fish are sold to more than one processor throughout the year, because it gives processor-oriented listings and summaries. The **general harvest reports** category consists of five different reports that only differ by their sorting order. Figure 68 filters out only 2014 harvests and selects date sold in descending order (most recent sales date first). The resulting report is shown in Figure 69.

Harvest by Processor														
04/22/14														
Pondid	Batch	Datesold	Pondweight	Numsold	Plantweight	Saleprice	Datepaid	Toosmall	Toobig	Scalediff	Trashfish	Doa	Feedfed	TotalPa
CF ConFish														
11	A	04/21/14	18308	10018	16633	1.16	05/20/14	266	255	877	166	111	38264.3	19294.1
Subtotal:CF ConFish:			18308	10018	16633	1.16		266	255	877	166	111	38264.3	19294.1
CS Country Skillet														
20	A	04/21/14	18516	8559	17260	1.15	05/22/14	177	122	678	68	211	40968.0	19849.1
Subtotal:CS Country Skillet:			18516	8559	17260	1.15		177	122	678	68	211	40968.0	19849.1
HS Harvest Select														
04	A	03/20/14	5000	4683	4426	1.11	05/15/14	58	121	66	177	152	10122.3	4912.1
02	A	04/21/14	19265	11698	18539	1.13	05/14/14	200	111	201	126	88	41126.0	20949.7
Subtotal:HS Harvest Select:			24265	16381	22965	1.12		258	232	267	303	240	51248.3	25862
Total:			61090	34958	56859	1.13		701	609	1822	537	562	130480	6500

Figure 67. Example harvest report ordered by processor.

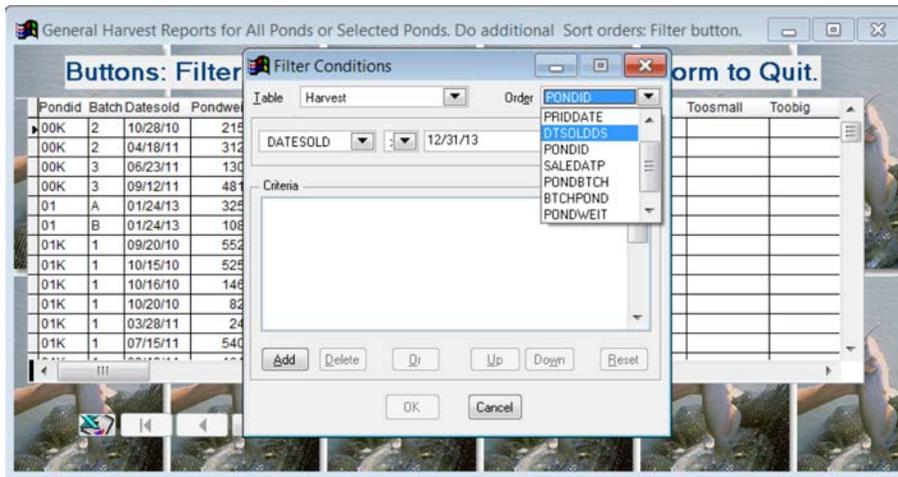


Figure 68. Example filtering operation for ordering general harvest reports.

Fish Harvested, with Sales Records														04/22/14	
Pondid	Batch	Datesold	Pondweight	Numsold	Plantweight	Processid	Price	Datepaid	Toosmall	Toobig	Scalediff	Trashfish	Doa	Feedfed	TotalPai
20	A	04/21/14	18516	8559	17260	CS	1.15	05/22/14	177	122	678	68	211	40968	1984
11	A	04/21/14	18308	10018	16633	CF	1.16	05/20/14	266	255	877	166	111	38264	1929
02	A	04/21/14	19265	11698	18539	HS	1.13	05/14/14	200	111	201	126	88	41126	2094
04	A	03/20/14	5000	4683	4426	HS	1.11	05/15/14	58	121	66	177	152	10122	491
Total:			61090	34958	56859				701	609	1822	537	562	130480	6500

Figure 69. Example general harvest report sorted in descending order by date sold.

You may do the basic filtering operation first (like choosing only 2014 harvests as we have done), then revisit the filter button for each report needed. The Figure 69 report used the DTSOLDDDS variable to order recent harvests first. Choosing the SALEDATP variable orders the report by the pond date also, but orders the oldest harvests first. Other sorting orders of interest in general harvest reports include PONDWEIT (sort by pond weight), and PONDID (sort by pondid).

The last **historical tables** report is **fish lost**. When this category is selected, a selection menu like Figure 70 appears. These reports will be sorted similarly to historical feed fed and harvesting reports above, including only 2014 losses. The first report, called **losses by death reason and pondid** is similar to Figure 71.

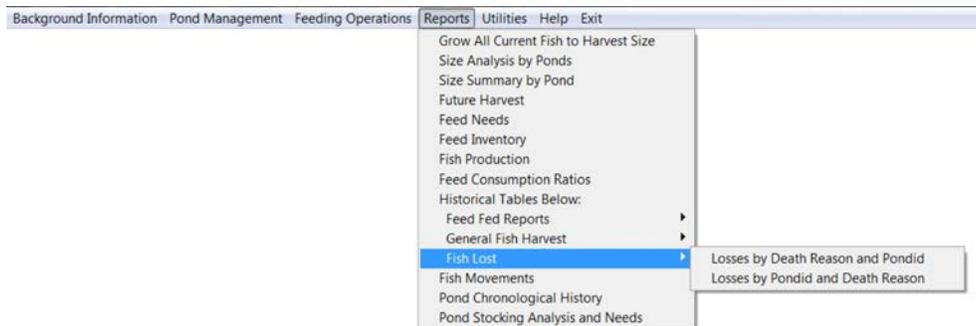


Figure 70. Submenu for historical fish lost report selection.

Death Rsn	Pondid	Batch	Stkdate	Stkwt	Datelost	Headlost	Headweight	Fingcost
	09	B	03/13/12	1,680.00	03/20/14	194	78.86	0.00
	09	C	09/07/12	2,950.00	03/20/14	225	25.47	0.00
	09	D	05/31/13	1,980.00	03/20/14	264	9.77	0.00
	10	A	01/31/12	3,355.00	03/20/14	129	132.88	0.00
	10	B	03/08/12	2,200.00	03/20/14	210	123.12	0.00
	10	C	08/28/12	4,475.00	03/20/14	261	35.00	0.00
Subtotal for A						5,018	1,704.03	
Adjustment-Reg:								
E ESC								
	04	C	09/04/12	11.90	03/20/14	0	20.68	0.00
Subtotal for E ESC:						0	20.68	
I Icing								
	04	D	09/04/12	70.35	03/20/14	690	122.00	0.00
Subtotal for I Icing:						690	122.00	
Total:						5,708	1,846.71	

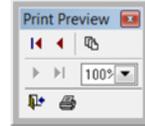


Figure 71. Example historical death losses by loss reason and pond ID.

In Figure 71, you are viewing the end of the report. There was a page of adjustment losses, followed by ESC and Icing losses, with a loss total. The second losses report is **losses by pondid and death reason**. An example report is given in Figure 72. You are viewing the first page of the Figure 72 report. After all ponds incurring losses in the selected period, totals and averages are given. This report can get a bit bulky, but page ranges may be printed to report problem ponds only.

Fish Losses Sorted by Pondid and Death Reason 04/22/14								
Pondid	Batch	Death Reason	Stkdate	Stkwt	Datelost	Headlost	Headweight	Fingcost
01								
	B	A Adjustment-Reg	03/13/12	1585	03/20/14	15	9	0
	C	A Adjustment-Reg	08/28/12	3900	03/20/14	232	56	0
						247	65	
01a								
	1	A Adjustment-Reg	03/13/14	500	03/20/14	75	2	
						75	2	
01b								
	a	A Adjustment-Reg	03/16/14	8500	03/20/14	350	46	
						350	46	
01c								
	1	A Adjustment-Reg	03/20/14	2000	03/20/14	100	10	0
						100	10	
02								
	A	A Adjustment-Reg	01/19/12	3145	03/20/14	66	92	0
	B	A Adjustment-Reg	03/20/14	200	03/20/14	10	1	0
	C	A Adjustment-Reg	08/28/12	3695	03/20/14	230	38	0
						306	131	



Figure 72. Example losses by pondid and death reason historical records report.

The next report is similar to reports described in Figures 61–72, in that it is based on historical records. This is the **movement report**. When you electronically move fish from one pond to another, FISHY accumulates the details in a data file called MOVEFISH. When the **fish movements** report (Figure 70) is selected, a report similar to Figure 73 will appear.

Movement reports are extremely useful in helping you remember when fish were scrapped out and placed in holding ponds, when you are growing stockers, and when you are moving them to grow-out ponds, etc.

The **pond chronological history** (Figure 70) report can be quite a useful report when a pond is having problems. It *chronologically* lists all historical records for the pond. Usually you filter out just one pond. However, it can be done for multiple ponds. In the Figure 74 example, only pond 01 was selected for the report.

Fish Movement Report

04/22/14

Movedate	Spondid	Sbatchid	Epondid	Ebatchid	Stknum	Stklbs	Lbsmoved	Nummoved	Movement Reason
04/22/14	04	B	01a	2	44,070	1,750	13,843	40,628	test 1
04/22/14	07	B	01b	b	25,641	1,000	15,167	23,637	test 2
04/22/14	05	C	01c	2	77,237	6,195	10,860	72,645	test 3
04/22/14	04	C	11	A	12,526	1,190	2,272	11,828	test 4
Total:					159,474	10,135	42,142	148,738	

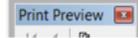


Figure 73. Example fish movements report, with only 2014 movements included.

Pond Id	Batch Id	Trans-Action	Date	Number of Fish	Pounds	Reason																																																																				
01 Acres: 12.00 Feeding System: FOOD FISH Comments:																																																																										
Feed Fed	01/04/13	125	01/11/13	100	01/18/13	100																																																																				
01	A	Harvested	01/24/13	12969	32551																																																																					
01	A	Stocking	01/19/12	39876	3300																																																																					
01	A	Total Feed Fed to Harvest		64623.9	Batch Feed Consumption Ratio Without Movements	2.2																																																																				
01	B	Harvested	01/24/13	4322	10849																																																																					
01	B	Stocking	03/13/12	38541	1585																																																																					
01	B	Total Feed Fed to Harvest		21537.5	Batch Feed Consumption Ratio Without Movements	2.3																																																																				
Feed Fed	01/25/13	25	01/31/13	75																																																																						
01	B	Mortality	01/31/13	13	4	M Monthly																																																																				
01	C	Mortality	01/31/13	189	23	M Monthly																																																																				
01	Total Feed Fed			425																																																																						
<table border="1"> <thead> <tr> <th colspan="2">Stocked</th> <th colspan="2">Harvested</th> <th colspan="2">Mortality</th> <th colspan="2">Moved Out</th> <th colspan="2">Moved In</th> <th colspan="2">Overwintered</th> <th colspan="2">Current</th> <th colspan="2">Net Production</th> </tr> <tr> <th>Total</th> <th>/Acre</th> </tr> </thead> <tbody> <tr> <td>Lbs</td> <td>0</td> <td>0</td> <td>43400</td> <td>3617</td> <td>27</td> <td>2</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>17579</td> <td>1465</td> <td>6915</td> <td>576</td> <td>32737</td> <td>2728</td> </tr> <tr> <td>Num</td> <td>0</td> <td>0</td> <td>17291</td> <td>1441</td> <td>202</td> <td>17</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>83682</td> <td>6974</td> <td>50179</td> <td>4182</td> <td>-16212</td> <td>-1351</td> </tr> </tbody> </table>							Stocked		Harvested		Mortality		Moved Out		Moved In		Overwintered		Current		Net Production		Total	/Acre	Lbs	0	0	43400	3617	27	2	0	0	0	0	0	17579	1465	6915	576	32737	2728	Num	0	0	17291	1441	202	17	0	0	0	0	0	83682	6974	50179	4182	-16212	-1351														
Stocked		Harvested		Mortality		Moved Out		Moved In		Overwintered		Current		Net Production																																																												
Total	/Acre	Total	/Acre	Total	/Acre	Total	/Acre	Total	/Acre	Total	/Acre	Total	/Acre	Total	/Acre																																																											
Lbs	0	0	43400	3617	27	2	0	0	0	0	0	17579	1465	6915	576	32737	2728																																																									
Num	0	0	17291	1441	202	17	0	0	0	0	0	83682	6974	50179	4182	-16212	-1351																																																									

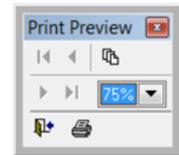


Figure 74. Example pond chronological history report for one pond.

Notice that only one month of 2013 transactions was in the date range chosen. There were three feedings, two harvests (including new feed consumption ratios), two more feedings, two mortality entries (monthly adjustments), and a nice production summary at the end. The “high” overwintered data made the 1 month of harvests look like negative production.

The last report in the **reports** menu is **pond stocking analysis and needs**. This is an important report when you are planning to stock fish for a new year. The idea is that the past is the key to the future. In the stocking report shown in Figure 75, five ponds were stocked in May of 2013. This report could help you decide how many fish you need to stock in those ponds this year. Notice that totals and averages are provided for all ponds reported. This concludes the **reports** main menu item.

Pond Stocking Transactions						Dr. Wallace Killoreas				
Report Date: 04/22/14		Starting Analysis Date: 01/01/13		Ending Analysis Date: 12/31/13		Box 5187		MS State MS 39762		
Pond Id	Pond Acres	Feeding System	Batch Id	Date Stocked	Number Stocked	Pounds Stocked	Current Number	Current Pounds	Avg Number Per Year	Pounds Per 1000 Of Avg Number
09	12.00	FOOD FISH	D	05/31/13	53806	1980	52466	2182	53954	36.80
13	10.00	FOOD FISH	C	05/31/13	45927	1860	45008	1936	46053	40.50
14	12.00	FOOD FISH	C	05/31/13	54762	2110	53667	2196	54912	38.53
PK23	10.00	FOOD FISH	C	05/31/13	48455	1940	47486	2019	48588	40.04
PK27	7.00	FOOD FISH	C	05/31/13	30811	1140	30195	1186	30896	37.00

Analysis Summary from 01/01/13 To 12/31/13 Acres Analyzed: 51					
Stocked		Current		Avg Number	Pounds Per Thousand
Total	/Acre	Total	/Acre	Per Year	Of Avg Number
Pounds	9030	177	9520	187	
Number	233761	4584	228822	4487	
				234403	38.63



Figure 75. Example pond stocking report.

Utilities

The next main menu item in FISHY is called **utilities**. Utilities are special snippets of computer code that are usually done to make FISHY operations easier. They include getting ready for a new year and changing other background info, backing up and restoring essential FISHY data files, changing the names of pond IDs, removing obsolete historical records, editing historical tables for errors, removing previously deleted records, and scanning FISHY files to detect problems. The utilities submenu is shown in Figure 76.

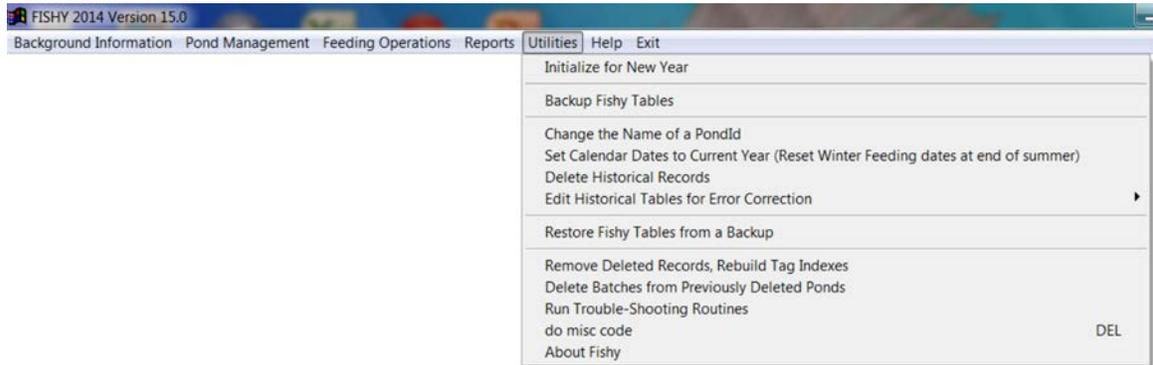


Figure 76. FISHY utilities submenu.

The first **utilities** submenu item is **initialize for new year**. It should be used after the end of *your* fiscal year. Usually this coincides with the calendar year. When selected, the item checks to see if the year portion of your system date is ahead of the year in your FISHY calendar. If so, it will automatically update your FISHY calendar to the current year. Regardless of whether your FISHY calendar is up-to-date, the Figure 77 prompt screen will appear. If you answer yes to the prompt screen, FISHY will set the **value of fiscal-year-to-date variables** to zero (FY feed fed, pounds, number stocked, pounds and number harvested only—it does not change ponds/batches).

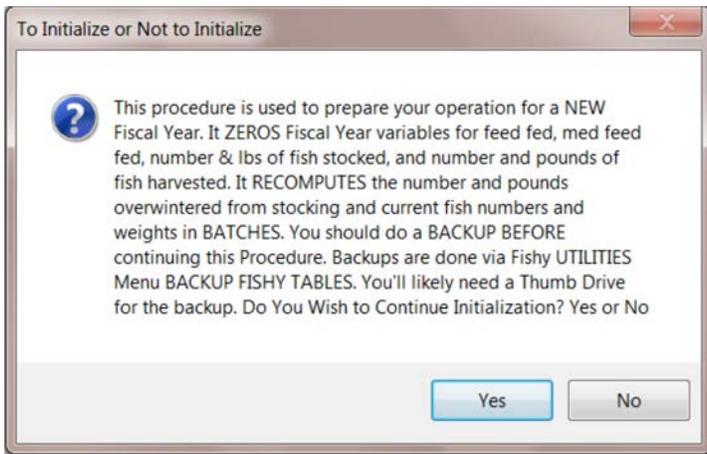


Figure 77. Example FISHY new year initialization screen.

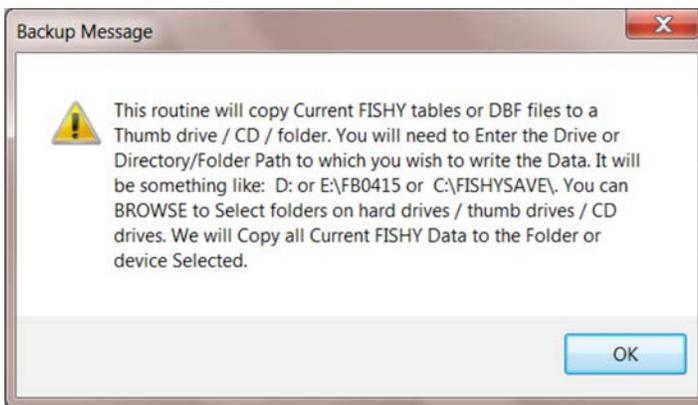


Figure 78. Example FISHY backup information screen.

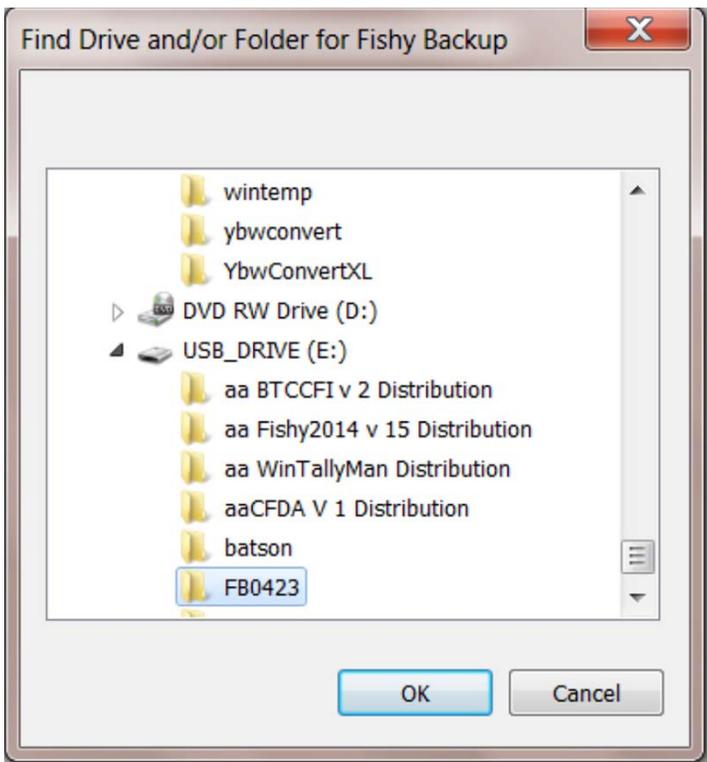


Figure 79. Example FISHY backup folder or device selection screen.

It recomputes pounds and number *overwintered* (stocking and current pounds and numbers overwintered). If you don't have a current backup, click "No," do a current backup, and again choose **initialize for new year**. You will then be ready to do FISHY operations for another year! Saving your work in case of computer system failure is an essential part of successfully operating any computer program. I recommend saving a copy of all FISHY data files every time you do a substantial amount of work. Since I recommend updating FISHY weekly during the fish production season, I believe that you should backup FISHY data at least every week. Not only will backups save you in case of system failure, they will also save you if you inadvertently get a lot of data entered incorrectly. You could restore from a backup and get your data back at a point where it was correct.

The second **utilities** menu item (Figure 76) is **backup FISHY tables**. When chosen, this item creates an information screen similar to Figure 78.

After you click OK to the info screen prompt, you will see an example selection screen similar to Figure 79. You can see folders on your hard drive, a DVD drive, and a USB drive (E:). All such devices may be used for backups. I recommend choosing a backup device *other than your hard drive*, because hard drives are usually involved when systems fail. I chose E: for this example.

The USB drive E: shown is called a thumb drive (also a flash drive, a memory drive, etc.). Thumb drives are quite inexpensive (many are less than \$10) and are very reliable. Notice that a particular folder was chosen on E: (FB0423). The advantage of using folders on thumb drives is that multiple backups may be done on the same drive. *Such folders must be defined prior to FISHY backups*. I do recommend buying more than one thumb drive (three is a good number) and rotating them for your backups. If you use a DVD or CD drive for backups, make sure to purchase CD RW disks and format them for repeated use.

After you choose the backup destination, you will see a screen similar to Figure 80. This screen allows you to double-check the backup.

If you click cancel, the backup won't be done; click **use the folder or diskette above for backup/restore work** to see a backup confirmation screen similar to Figure 81.

Use Windows Explorer to check out your FISHY backup. The saved FISHY files should be similar to Figure 82. If their names are quite different, there is a problem.



Figure 80. Example screen for double-checking a FISHY backup operation.

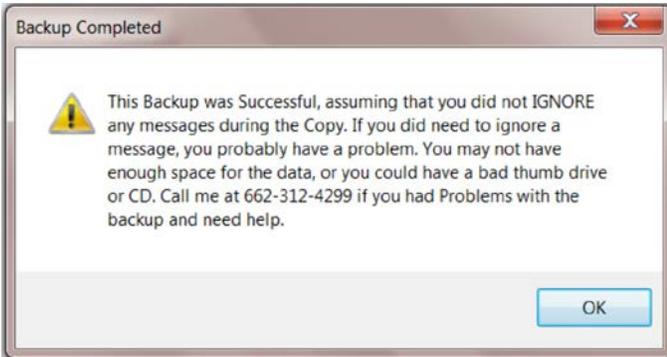


Figure 81. Confirmation screen for a successful backup.

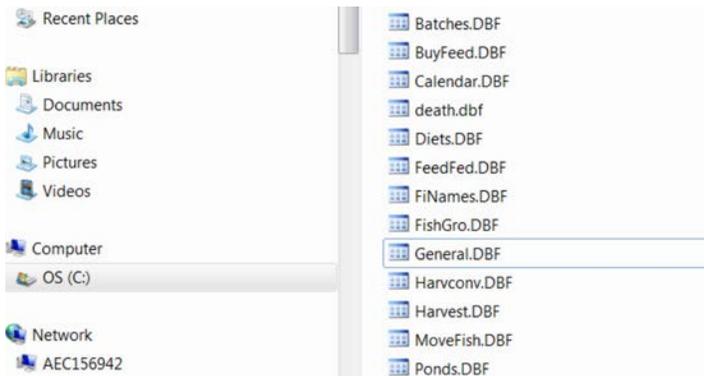


Figure 82. Example list of FISHY files saved in a backup.

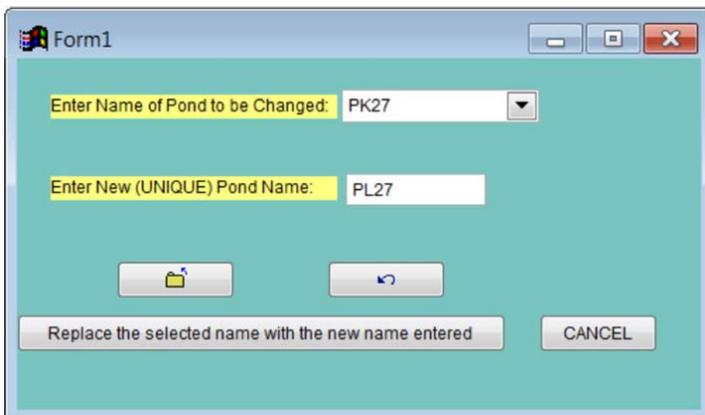


Figure 83. Example change the name of a pond ID screen.

Sometimes it may be useful to change the name of a pond ID. Since pond IDs are used in several files (death, feedfed, harvest, movefish, plus ponds and batches), if a pond ID is changed, that name must be changed in all supporting files. The third FISHY utility item (Figure 76), **change the name of a pond ID** (Figure 83), does this.

The existing pond ID to be changed (PK27) and the “new” pond ID (PL27) have already been entered. If you click **replace the selected name with the new name entered**, the new pond ID (must be a unique pond ID in the fish farm ponds file), will replace the old pond ID in all supporting files, and a confirmation screen similar to Figure 84 will appear.



Figure 84. Example confirmation screen for changing the name of a pond ID.

You can repeat the Figures 83–84 sequence for multiple ponds. The old pond ID must *exist* in your ponds file, and your new pond ID must be *unique* in it.

The fourth FISHY **utilities** item (Figure 76) is **set calendar dates to current year** (reset winter feeding dates at end of summer). When FISHY is distributed to you, the winter feeding date range is set to encompass the *current* winter months, usually 11/01 in one year to 04/01 in the following year (for example, 11/01/2014 to 04/01/2015). If you receive FISHY *before* 04/01, winter feeding dates are set a year earlier (like 11/01/2013 to 04/01/2014) because you could be in winter feeding. If so, winter feeding dates must be *later* set a year ahead. This menu item does that for you. **Tip:** As the winter feeding season (November) approaches, check **background** items **feed groups for forecasting fish growth** and **fish feeding calendar** to ensure that your winter feeding dates are set for the winter feeding season coming up. If not, run this menu item. If they don't need resetting, this item will not set them incorrectly.

There are several files in FISHY that are updated each time a fish-related event is recorded in FISHY, including feeding (Feedfed), harvesting (Harvest, Harvconv), moving (Movefish), and losses (Death). After you have operated FISHY for 4 or 5 years, these files will contain obsolete data that you no longer wish to keep in the files. The fifth FISHY **utilities** item (Figure 76) is **delete historical records**. The purpose of this menu item is to allow you to define a date and delete all records in the files mentioned above that are *older* than the date. When you select this menu you will see the following screen (Figure 85). Notice in Figure 85 that a date is preset that is 3 years older than the current date. However, you may enter a different reference date. If you enter a different date, I recommend entering an older date than the preset one. (It's better to keep more data than needed, than to need some that you didn't keep!)

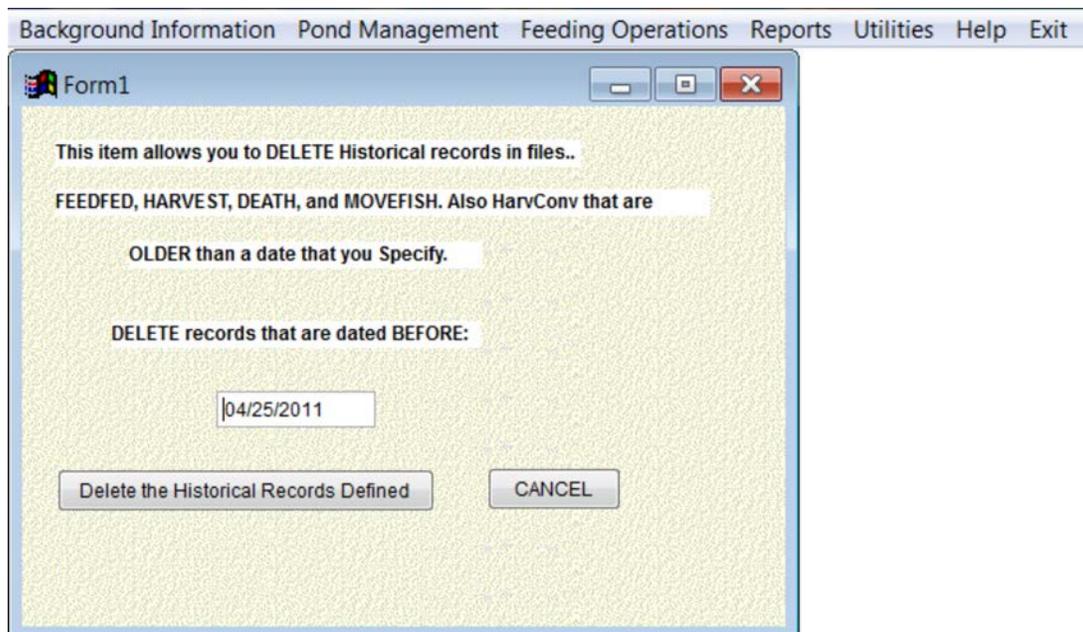


Figure 85. Example screen for deleting records that are *older* than a specified date.

When you click **delete the historical records defined**, you will see a screen similar to Figure 86, advising that the older records were successfully deleted.

Note: The Harvconv file above contains information needed for computing feed conversion ratios (stocking, harvest, and movement data). This file is now being saved in current FISHY backups, and will be included in FISHY restores next year (2015).



Figure 86. Example confirmation screen for deleting obsolete historical records.

Occasionally, you may inadvertently make mistakes in entering data and end up with errors in historical records files (Death, Feedfed, Harvest, Movefish). The sixth **utilities** menu item, **edit historical tables for error correction**, allows you to edit the above files. When you select this menu item, you will see the Figure 87 screen.

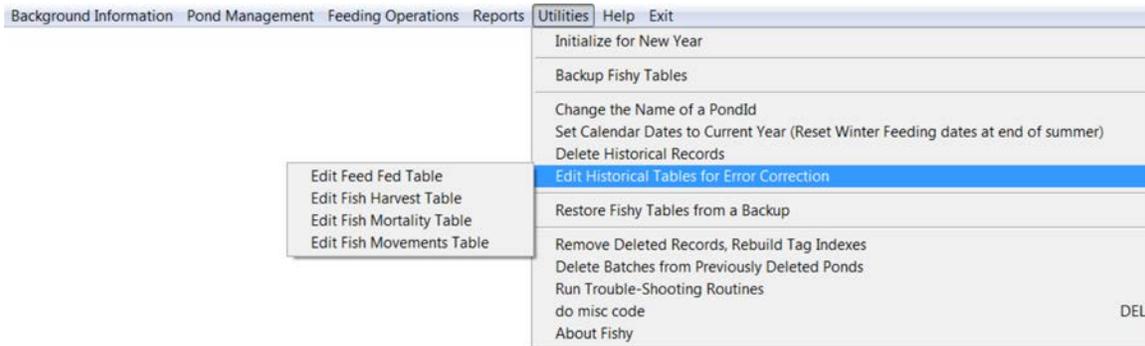


Figure 87. Example screen for editing historical records.

If you select one of the **edit** entries in the submenu created from the **edit historical tables for error correction** menu above, you will see a screen similar to Figure 88. Notice that a filtering screen to select only records entered after 12/13/2013 is shown. Some filtering operations are extremely easy to do and can save lots of time. Click the edit icon to make updates, make your updates, and click save.

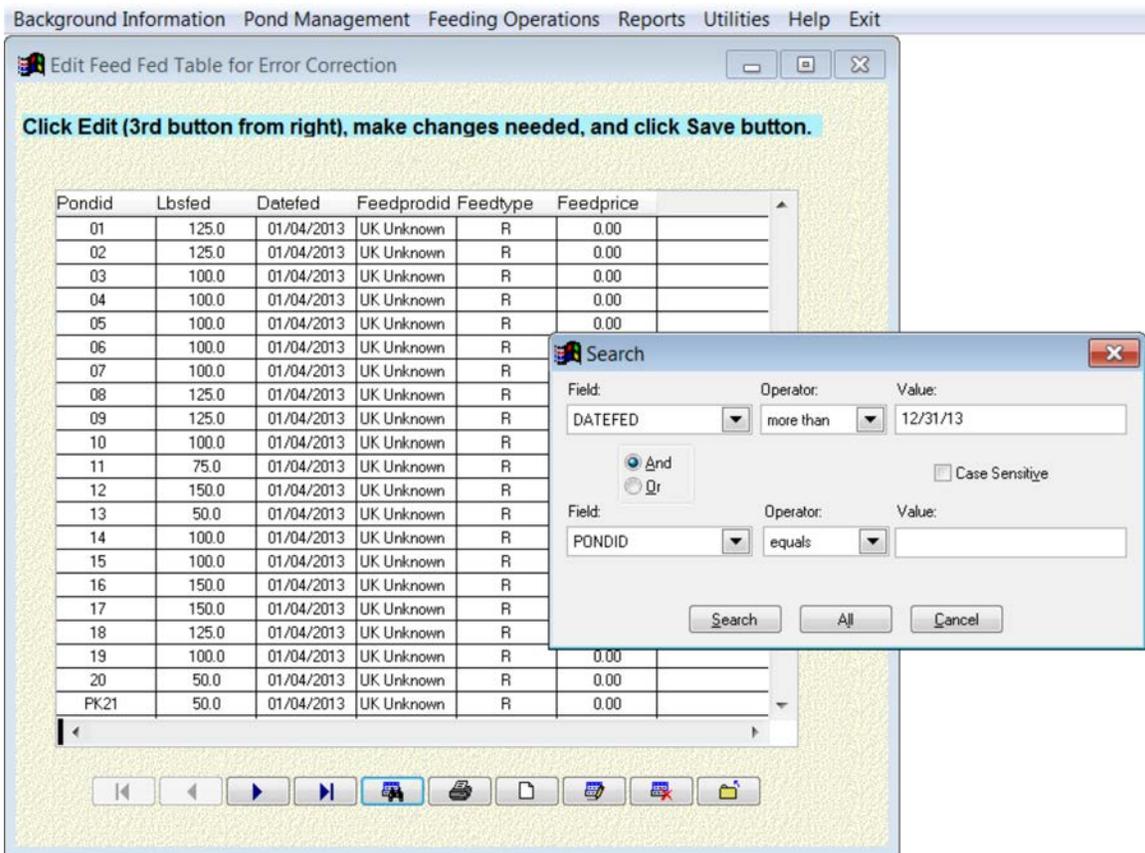


Figure 88. Example historical file editing screen, with filtering screen.

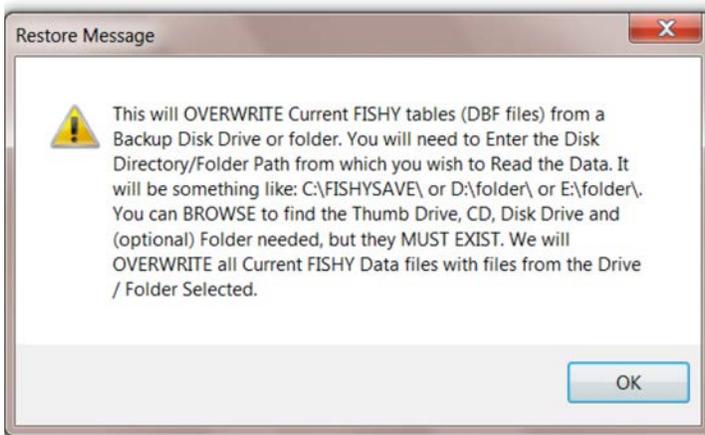


Figure 89. Information screen explaining what happens in a restore.

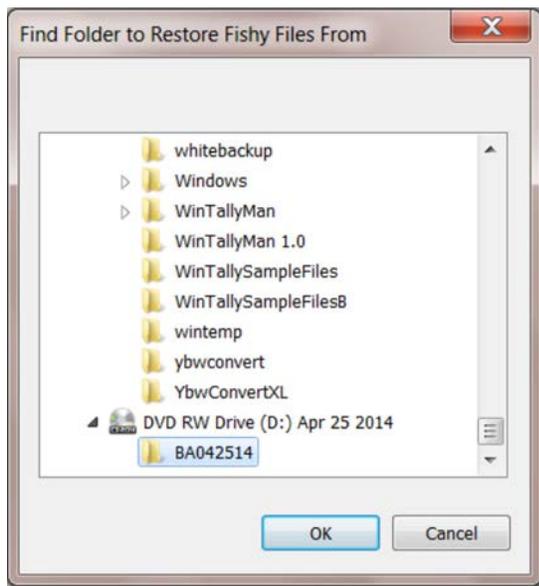


Figure 90. Example utilities restore selection screen (DVD files in example).



Figure 91. Example double-check screen for restore files origin (DVD).

Each editing menu item works the same, except that they work on different files.

The **utilities** item (Figure 87) called **restore FISHY tables from a backup** (Figure 89) will read FISHY files previously created with a FISHY backup and overwrite the current FISHY files. Files involved include not only data files that you create, like stocking, feeding,

harvests, losses, and movements, but also other files that you can control, such as feeding groups (diets) and the feeding calendar. When selected, this menu item first creates an info screen similar to Figure 89.

After reading the info screen and clicking OK, you will see a selection screen similar to Figure 90. This screen enables you to browse for the thumb drive or other storage device on which you have stored a current backup of FISHY files.

After you click OK to the Figure 90 screen, you will see a screen similar to Figure 91.

This screen gives you a chance to cancel the restore. If you click **use the folder or diskette above for backup/restore work**, you will likely see a “successful completion” screen similar to Figure 92. If you don’t see the Figure 92 screen, there is a problem with the restore.

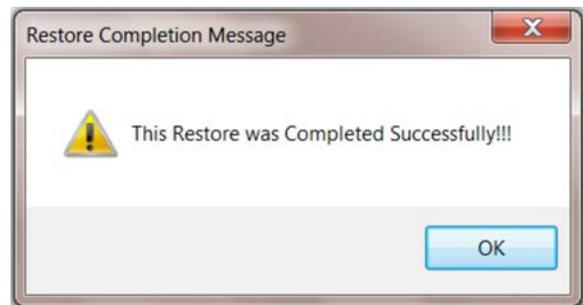


Figure 92. Successful completion screen for a FISHY restore from a backup.

The **utilities** (Figure 76) **remove deleted records, rebuild tag indexes** item will automatically remove all FISHY records in the current fish farm that have been previously “flagged” for deletion but not physically removed. It will also rebuild all FISHY index files in the current fish farm. When this operation completes successfully, you will see the Figure 93 confirmation screen. If you don’t see the Figure 93 screen, there are likely file problems in your current FISHY operation.



Figure 93. Confirmation screen for successfully removing/rebuilding operations.

Occasionally, you may choose to delete an existing pond. Icon number 9 (the red X icon in Figure 16) **deletes** the current pond. If you inadvertently choose the red X icon, you can get the batches back by clicking the add (blank paper) icon, choosing parent, and reentering the Pondid, Feedsys, and Acres. If you *intended* to delete the pond, you can select the Figure 76 **delete batches for previously deleted ponds** item to remove the “parentless” batches. Since this menu item deletes *all* parentless batches in current FISHY files, you don’t need to run it each time you delete a pond. You will receive a confirmation screen if this item executes properly.

The **utilities** (Figure 76) **run troubleshooting routines** is a little like a spare tire—if you need it, you need it badly. What it does is search for missing “parent” info in a ponds file (Pondid, Feedsys, and Acres) or inconsistent batches in the batches file. Perhaps a pond has a batch with fish numbers and no weight, or weight and no numbers of fish. *If you choose this item but you really didn’t need to, that’s ok!* When you click it, you will see a screen similar to Figure 94.

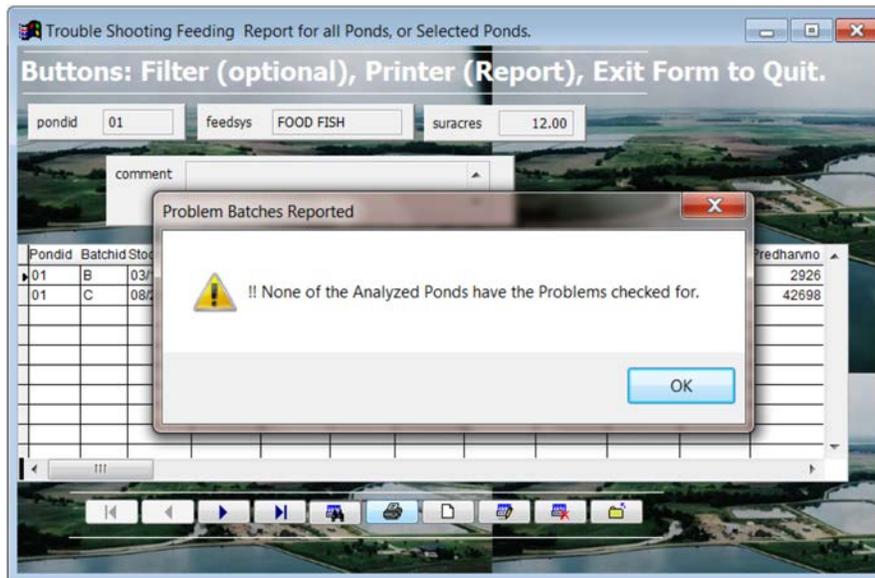


Figure 94. Example troubleshooting screen.

In this example, I had clicked the troubleshooting item and then the printer icon. I could have filtered out some of the ponds before clicking the report, but that would be an unusual case. (If we go to the bother of running troubleshooting, we usually want to look at all ponds.) If you find a problem with troubleshooting, it is *YOUR responsibility* to fix it! Click the continue icon to terminate troubleshooting.

The **utilities** item **do misc code** (Figure 76) is just a place for an old programmer to test things!

The last **utilities** item gives a bit of information about FISHY. When you select it, you will see a screen similar to Figure 95.

This screen explains the FISHY origin and version. If you click **system info**, FISHY will provide some background info about the computer on which you are running FISHY, including operating system, manufacturer, model, and memory installed. Click OK to return control to the main menu.



Figure 95. Example FISHY about screen.

Help

The last **main menu** item is called **help**. Its main advantage is that it is “on-line” when you are running FISHY and it can be a much faster source of help than this bulletin. Help items in FISHY are structured the same way as FISHY menus, except that they do not contain figures. If you have a problem in FISHY, get back to the FISHY main menu, click help, and find the help topic that corresponds to the menu item you were using. See Figure 96 for an example help topics menu.

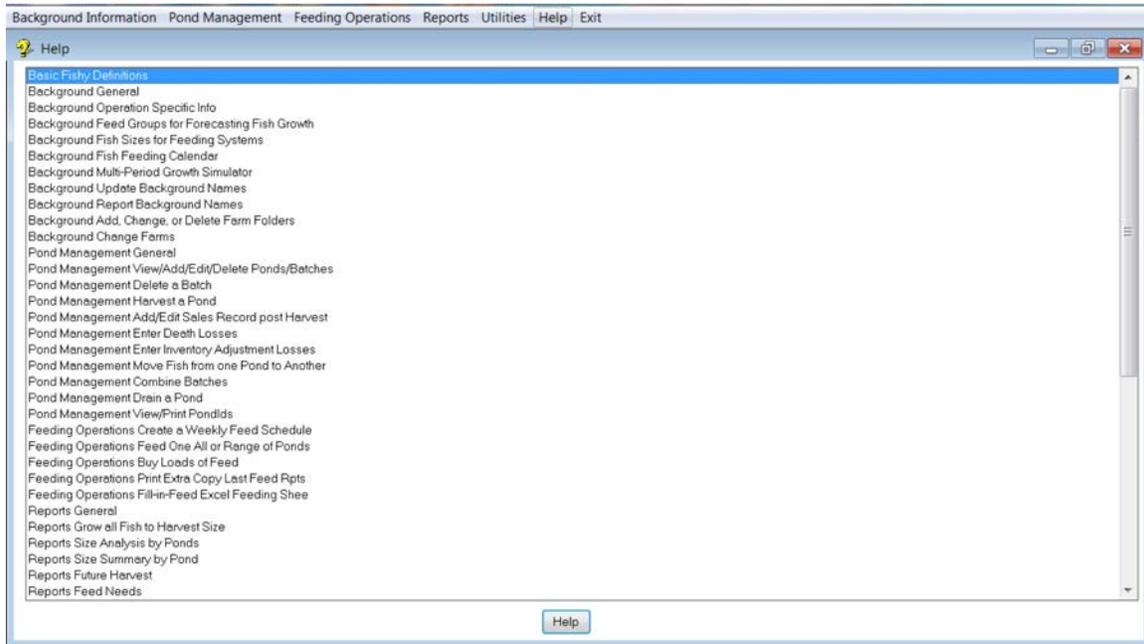


Figure 96. Example help menu topics.

Notice that help topics start with FISHY main menu names. Submenus and topics are named and ordered the same as the FISHY menu system. When you choose a help menu item, all FISHY bulletin verbiage for that item is shown. Figure 97 is an example. After reading help info, you can click **topics** to return to a topic screen like Figure 96. If you click **next** (Figure 97), you will see help verbiage for the next help topic; click **previous** to see previous help topic verbiage.

It is sometimes very helpful to *operate* FISHY when reading about FISHY menu items.

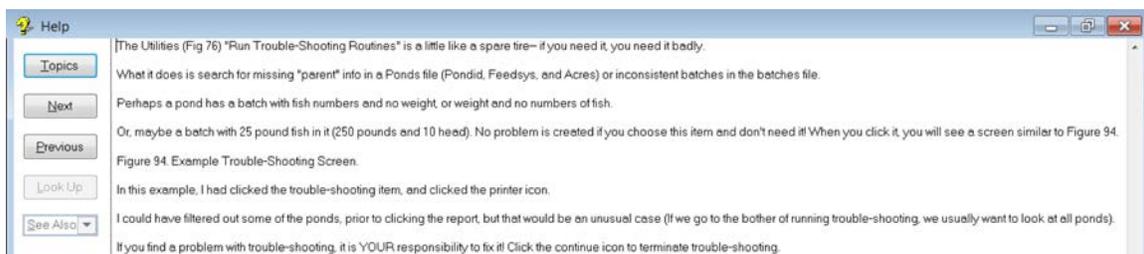


Figure 97. Example help info screen (displayed after double-clicking on troubleshooting or selecting and clicking help at the bottom of the help topics screen).

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By **Wallace E. Killcreas**, PhD, Professor Emeritus, Agricultural Economics.



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