
Pacific States Marine Fisheries Commission

APEX Reporting

QueryBuilder Application



Version History

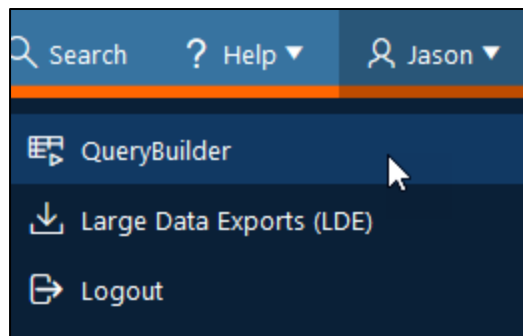
Date	Author	Change Comments	Version
9/30/2019	J. Edwards	Initial Draft	1.0

APEX Reporting - QueryBuilder

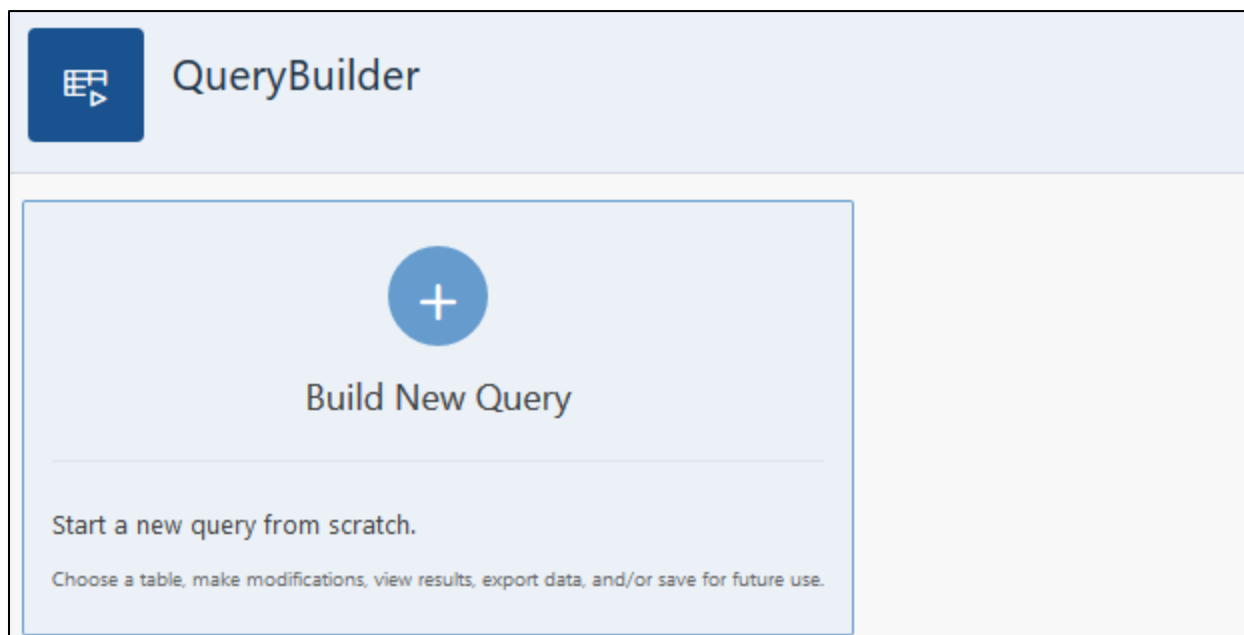
The PacFIN/RecFIN QueryBuilder tool is an online interface developed in Oracle APEX that allows users to create and save customized summary reports of data from the PacFIN and RecFIN databases with user-defined columns, filters and sorting. The QueryBuilder application provides a complement to the current PacFIN/RecFIN APEX reports, and allows more flexibility and increased functionality to data users.

Accessing the QueryBuilder Application

The QueryBuilder tool is available to PacFIN/RecFIN authorized users with an active user account login and password. After logging in to the PacFIN or RecFIN APEX Reporting System, click on your name in the top right section of the screen to activate the drop-down menu, and click on the **QueryBuilder** selection.

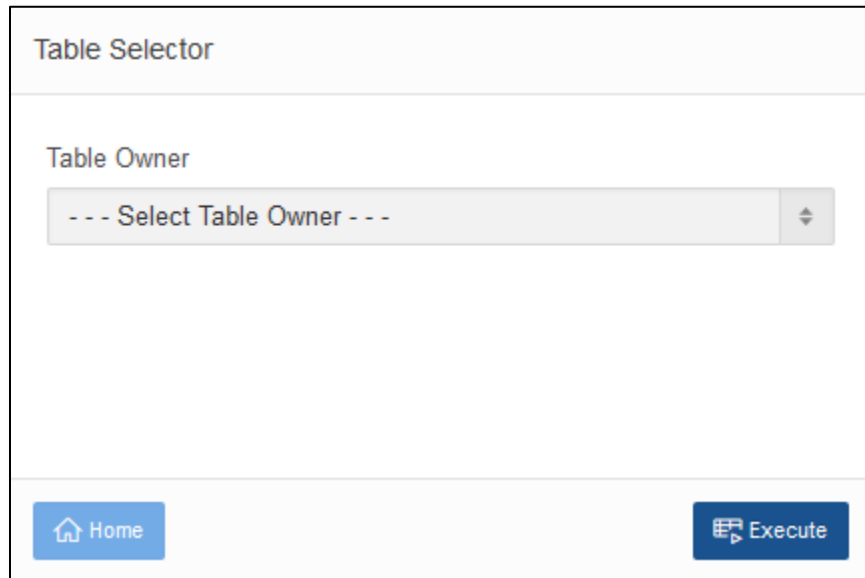


This will take you to the QueryBuilder page where you can start a new query or access/edit an existing query.



Building a New Query

To create a new query, from the QueryBuilder start page, click on the **Build New Query** box (pictured above). You will be prompted to select a table from which to query the data.



The image shows a dialog box titled "Table Selector". Inside the dialog, there is a section labeled "Table Owner" with a drop-down menu below it. The drop-down menu currently displays the text "--- Select Table Owner ---" and has a small downward-pointing arrow on its right side. At the bottom of the dialog, there are two buttons: a light blue button on the left with a house icon and the text "Home", and a dark blue button on the right with a play icon and the text "Execute".

Use the drop-down menu to select the table of interest, and click the **Execute** button. This will take you to the query design page where specific columns, filters, and other query customizations can be applied.

Columns

To begin customizing your query, from the **Columns** tab, select the columns you wish to include in your query. Note that each column is classified in the **Column Type** field as either a **Dimension** or **Measure**. Dimension columns contain qualitative, categorical data that can be filtered and sorted. Measure columns contain quantitative, numeric values to which various aggregate functions (sums, counts, averages, etc.) can be applied.

Columns	Criteria	Query	Results
Columns			
COMPREHENSIVE_REC_CATCH_EST			
	Column Name	Column Type	
<input type="checkbox"/>	STATE_NAME	Dimension	
<input type="checkbox"/>	RECFIN_YEAR	Dimension	
<input type="checkbox"/>	RECFIN_MONTH	Dimension	
<input type="checkbox"/>	RECFIN_WEEK	Dimension	
<input type="checkbox"/>	ESTIMATE_SOURCE	Dimension	
<input type="checkbox"/>	RECFIN_PORT_NAME	Dimension	

Criteria

After selecting the specific columns, you can further modify your query by applying user-defined column order, measure aggregations, filters, and sort ordering from the **Criteria** tab.



Move Columns

On the **Criteria** page, you can rearrange the order of your selected columns in the report output by clicking on the “up” and “down” arrow buttons in the **Move** column.

Selected Columns					
Move	Column Name	Column Type	Show?	Aggregate (Fx)	Decimal Places
▼ ▲	STATE_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_YEAR	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_MONTH	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_PORT_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_MODE_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	SPECIES_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RETAINED_NUM	Measure	<input checked="" type="checkbox"/>	SUM ▼	4 ▼
▼ ▲	RELEASED_NUM	Measure	<input checked="" type="checkbox"/>	SUM ▼	4 ▼

Show/Hide Columns

The **Show?** column allows you to check/uncheck boxes to show or hide specific columns in the report output. As an example, this feature would be used if a user wished to filter on a column (i.e. RECFIN_MONTH), but did not want RECFIN_MONTH displayed in the report output.

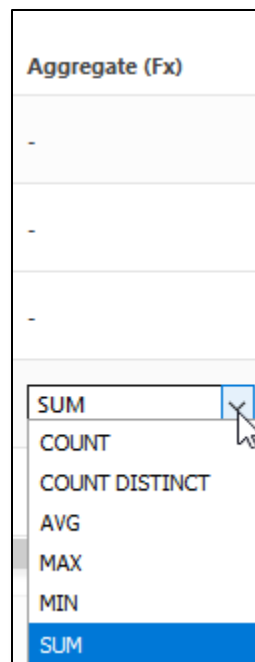
Move	Column Name	Column Type	Show?
▼ ▲	STATE_NAME	Dimension	<input checked="" type="checkbox"/>
▼ ▲	RECFIN_YEAR	Dimension	<input checked="" type="checkbox"/>
▼ ▲	RECFIN_MONTH	Dimension	<input type="checkbox"/>

Aggregate Functions

The **Aggregate (Fx)** column allows you to select the aggregate function to be applied to each Measure column in the report. The selected Aggregate function is run on each respective Measure column in the query and grouped by all selected Dimension columns.

The available Aggregate functions include:

- COUNT – returns the total count of records for the selected Measure column
- COUNT DISTINCT – returns a count of the unique values for the selected Measure column
- AVG – returns the average value of the selected Measure column
- MAX – returns the maximum value of the selected Measure column
- MIN – returns the minimum value of the selected Measure column
- SUM – returns the summed value of the selected Measure column



Decimal Places

The **Decimal Places** column allows you to select the number of digits displayed after the decimal for each Measure variable.

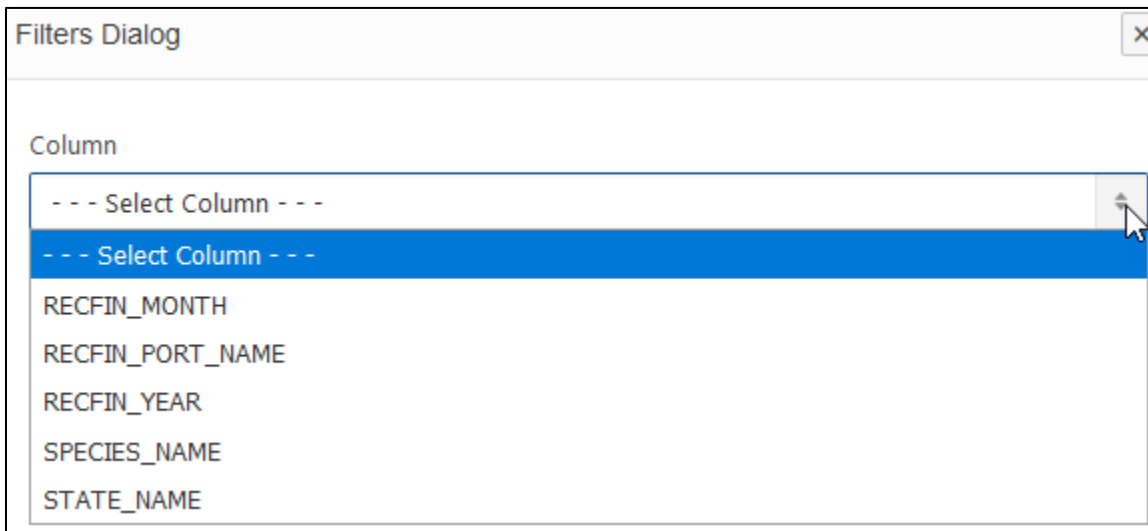
Move	Column Name	Column Type	Show?	Aggregate (Fx)	Decimal Places
▼ ▲	STATE_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_YEAR	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_MONTH	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RECFIN_PORT_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	SPECIES_NAME	Dimension	<input checked="" type="checkbox"/>	-	-
▼ ▲	RETAINED_NUM	Measure	<input checked="" type="checkbox"/>	SUM ▼	0 ▼
▼ ▲	RELEASED_NUM	Measure	<input checked="" type="checkbox"/>	SUM ▼	0 ▼
▼ ▲	RETAINED_AVERAGE_WEIGHT	Measure	<input checked="" type="checkbox"/>	AVG ▼	3 ▼
▼ ▲	RELEASED_AVERAGE_WEIGHT	Measure	<input checked="" type="checkbox"/>	AVG ▼	3 ▼

Apply Filters

The **Filters** section allows you to apply filters to the selected Dimension columns. To apply a filter to your report, click the **+ Filter** button.

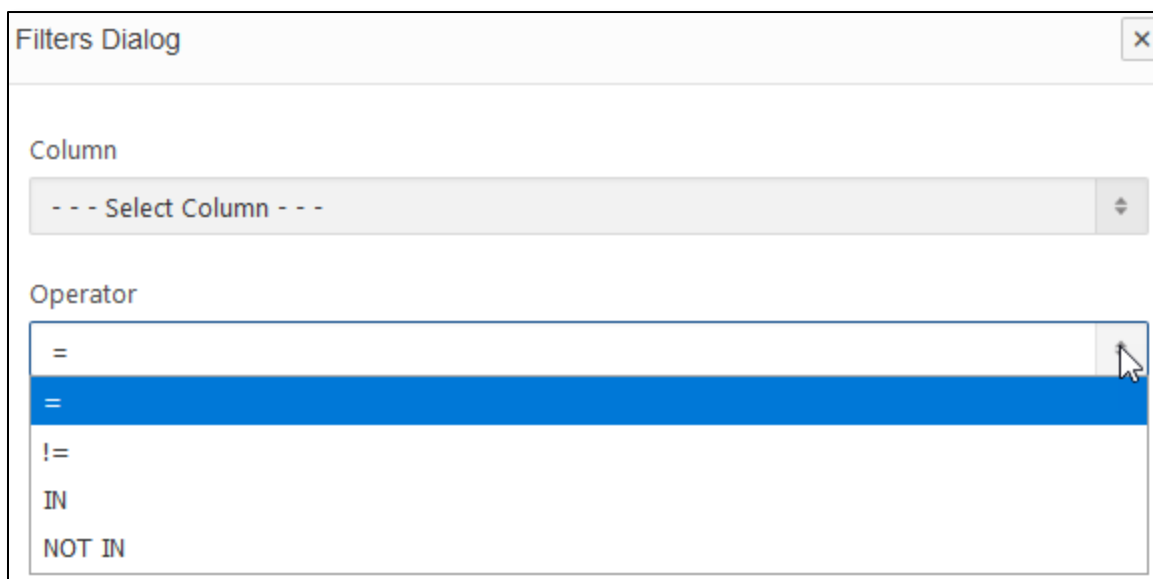


From the **Filter Dialog** box, select from the available columns to apply a filter using the **Column** dropdown.



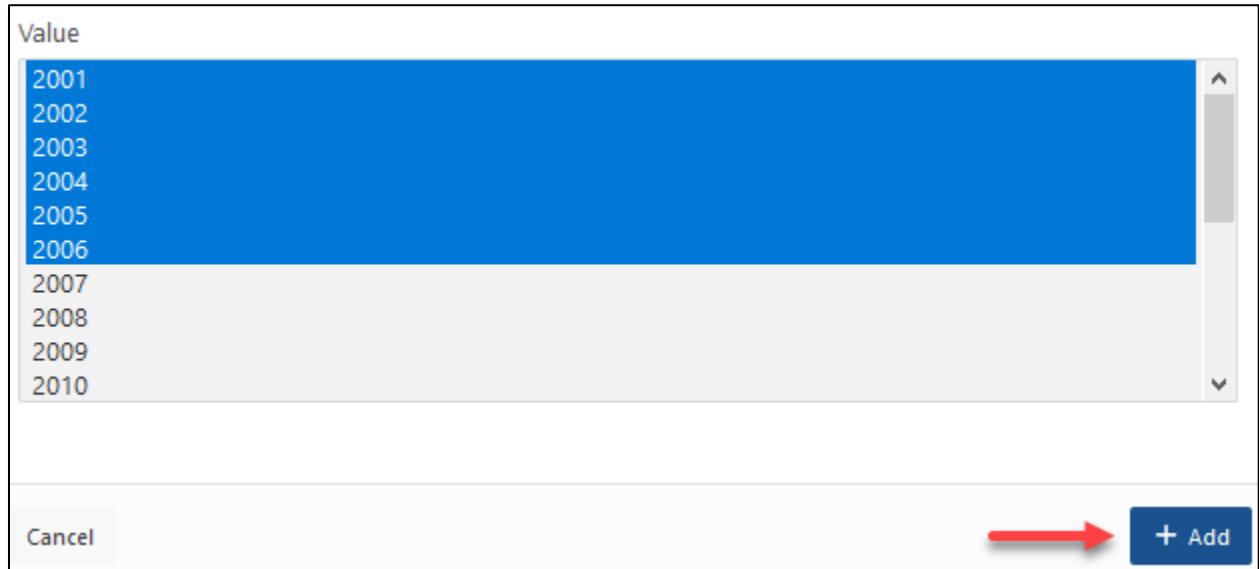
Next, using the **Operator** drop-down, choose the appropriate filter option for the selected column. The available filter options are:

- = (equal) – retains records where the selected column value **is equal** to the filter value selected.
- != (not equal) – retains records where the selected column value **is not equal** to the filter value selected.
- IN – retains records where the selected column value **is included** in the list of selected filter values.
- NOT IN – retains records where the selected column value **is not included** in the list of selected filter values.



Last, using the **Value** drop-down menu, select the value(s) for the filter to be applied. Note that for the “equal” and “not equal” operators, only one value can be selected. For the “IN” and “NOT IN” operators, multiple values can be selected by clicking and dragging over the options or holding the **Ctrl** key and selecting multiple values.

After selecting the filter value(s), click on the Add button to apply the filter.



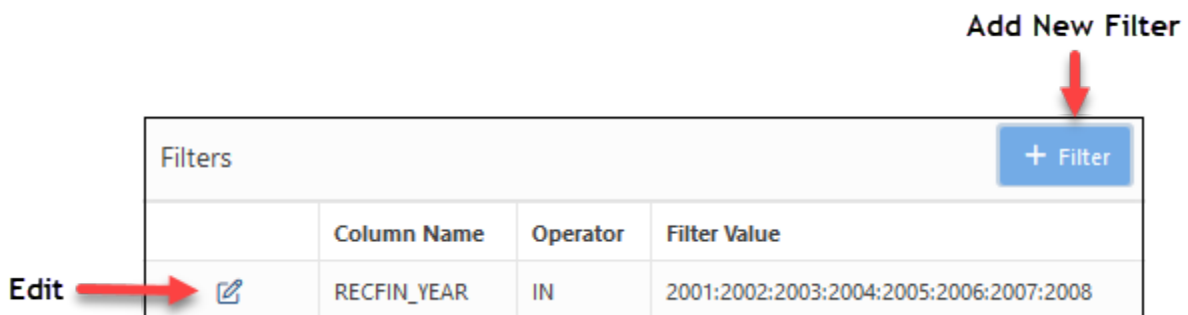
Value

2001
2002
2003
2004
2005
2006
2007
2008
2009
2010

Cancel + Add

The details of the newly added filter will be displayed in the **Filters** section of the **Criteria** page. You can edit or delete the filter by clicking on the Edit icon, or add another filter by clicking the **+ Filter** button.

Add New Filter

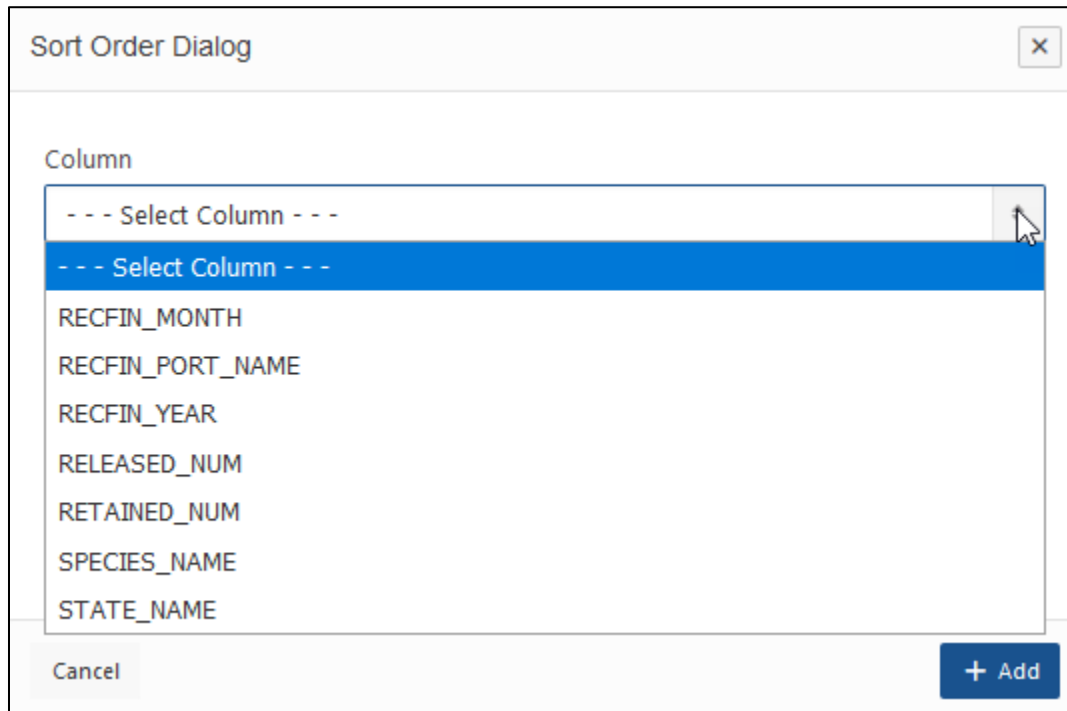


Filters			
	Column Name	Operator	Filter Value
Edit 	RECFIN_YEAR	IN	2001:2002:2003:2004:2005:2006:2007:2008

+ Filter

Sort Order

The sort order of the results of your query can be customized in the **Sort Order** section. To change the sort order, click on the **+ Sort** button to open the **Sort Order Dialog** box. Select the column you wish to sort by using the **Column** drop-down menu. Note that you can sort by both Dimension and Measure columns.


















Next, select the **Sort Type** from the drop-down menu. The available sort options are:

- ASC NULLS LAST – sorts in ascending order with NULLs last
- ASC NULLS FIRST – sorts in ascending order with NULLs first
- DESC NULLS LAST – sorts in descending order with NULLs last
- DESC NULLS FIRST – sorts in descending order with NULLs first



After clicking the **+ Add** button, your sort clause will be displayed in the **Sort Order** section. To edit or delete your sort clause, click on the Edit icon. To add another sort clause to your query, click on the **+ Sort** button.

You can apply multiple sort clauses to your query, and the order of the sorting columns in the report output can be edited by using the “up” and “down” arrows in the **Move** column.

Sort Order + Sort			
	Move	Column Name	Sort Type
	 	RECFIN_YEAR	ASC NULLS LAST
	 	RECFIN_MONTH	ASC NULLS LAST
	 	SPECIES_NAME	ASC NULLS LAST
	 	RELEASED_NUM	DESC NULLS LAST
	 	RETAINED_NUM	DESC NULLS LAST

Query

The **Query** tab will display the resulting SQL script for the query based on your selections.

Columns	Criteria	Query	Results
<pre> SELECT T.STATE_NAME, T.RECFIN_YEAR, T.RECFIN_MONTH, T.RECFIN_PORT_NAME, T.SPECIES_NAME, ROUND(SUM(T.RETAINED_NUM),4) AS RETAINED_NUM_SUM, ROUND(SUM(T.RELEASED_NUM),4) AS RELEASED_NUM_SUM FROM RECFIN_MARTS.COMPREHENSIVE_REC_CATCH_EST T WHERE T.RECFIN_YEAR IN (2001,2002,2003,2004,2005,2006,2007,2008) GROUP BY T.STATE_NAME, T.RECFIN_YEAR, T.RECFIN_MONTH, T.RECFIN_PORT_NAME, T.SPECIES_NAME ORDER BY T.RECFIN_YEAR ASC NULLS LAST, T.RECFIN_MONTH ASC NULLS LAST, T.SPECIES_NAME ASC NULLS LAST, ROUND(SUM(T.RELEASED_NUM),4) DESC NULLS LAST, ROUND(SUM(T.RETAINED_NUM),4) DESC NULLS LAST </pre>			

Results

The **Results** tab will display the report output of your query. You can toggle back and forth between the **Columns**, **Criteria**, **Query**, and **Results** tabs at any time to edit your query.

Columns	Criteria	Query	Results			
Results						
STATE_NAME	RECFIN_YEAR	RECFIN_MONTH	RECFIN_PORT_NAME	SPECIES_NAME	RETAINED_NUM_SUM	RELEASED_NUM_SUM
OREGON	2001	1	NEWPORT	BLACK ROCKFISH	670	0
OREGON	2001	1	DEPOE BAY	BLACK ROCKFISH	223	0
OREGON	2001	1	GARIBALDI	BLACK ROCKFISH	193	0
OREGON	2001	1	CHARLESTON	BLACK ROCKFISH	161	0
OREGON	2001	1	BROOKINGS	BLACK ROCKFISH	113	0
OREGON	2001	1	GOLD BEACH	BLACK ROCKFISH	91	0
OREGON	2001	1	BANDON	BLACK ROCKFISH	86	0
OREGON	2001	1	PACIFIC CITY	BLACK ROCKFISH	35	0
OREGON	2001	1	PORT ORFORD	BLACK ROCKFISH	23	0
OREGON	2001	1	GARIBALDI	BOCACCIO	1	0
OREGON	2001	1	NEWPORT	CABEZON	7	0
OREGON	2001	1	DEPOE BAY	CABEZON	7	0
OREGON	2001	1	GARIBALDI	CABEZON	5	0
OREGON	2001	1	BROOKINGS	CABEZON	3	0

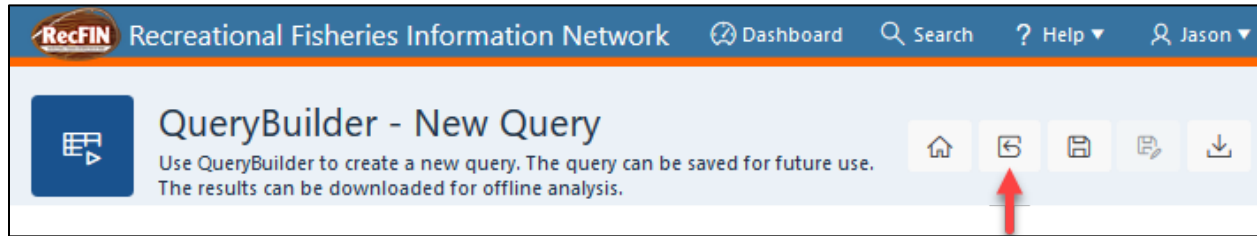
Return Home

You can return to the QueryBuilder start page at any time by clicking on the **Home** navigation button in the top right section page.

The screenshot shows the RecFIN Recreational Fisheries Information Network interface. The top navigation bar includes 'Dashboard', 'Search', 'Help', and a user profile 'Jason'. The main content area is titled 'QueryBuilder - New Query' and contains the text: 'Use QueryBuilder to create a new query. The query can be saved for future use. The results can be downloaded for offline analysis.' In the bottom right corner of this section, there is a row of five icons: a home icon (highlighted with a red arrow), a refresh icon, a save icon, a print icon, and a download icon.

Reset

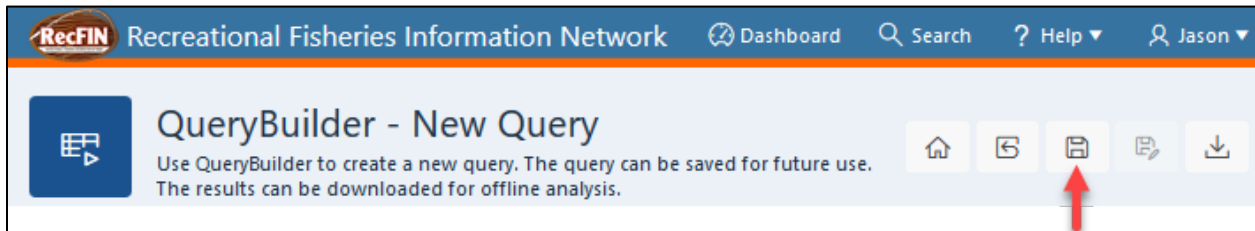
After making edits, to restore a saved query to its initial state, click on the **Reset** button.



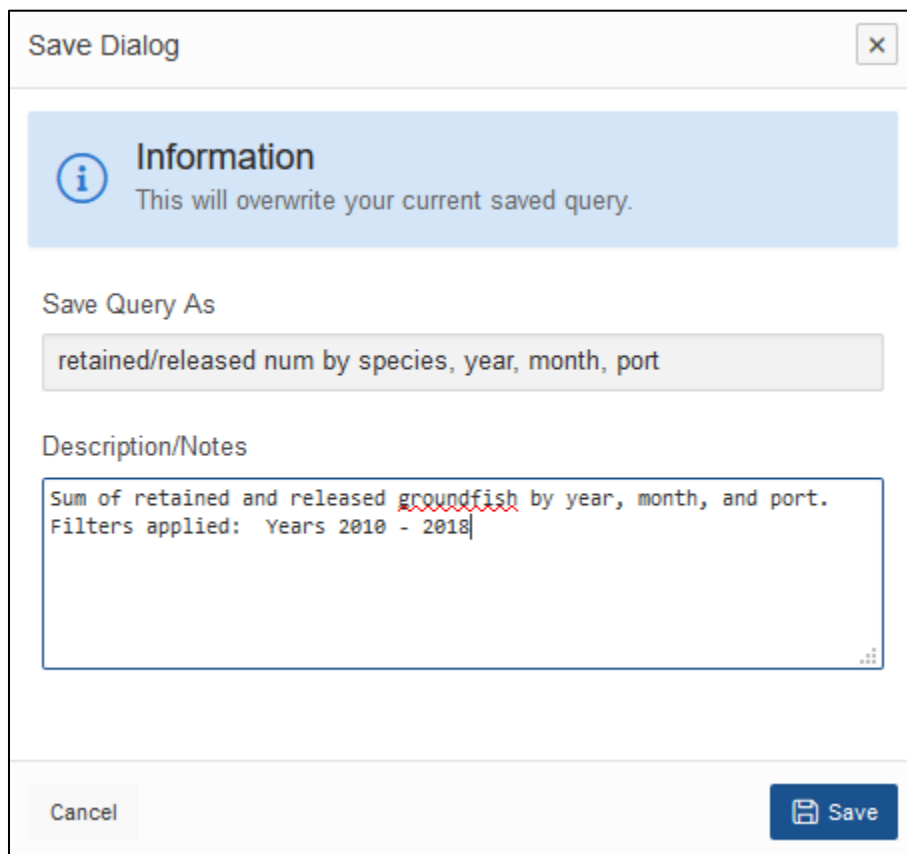
Before the reset is performed, the **Reset Confirmation Dialog** box will appear to confirm the action. Select **Reset** to confirm or **Cancel** to decline.

Save

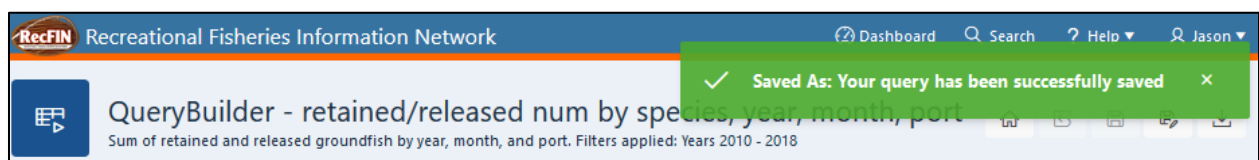
The QueryBuilder tool allows users to save queries for later use. To save a query, click on the **Save** button.



The **Save Dialog** box will appear where you can enter a name and provide a description/notes for the query. Click the **Save** button to save the query.



You will receive a message in the top right corner of the page that your query was successfully saved, and the name and description of the query will be displayed at the top of the QueryBuilder page.



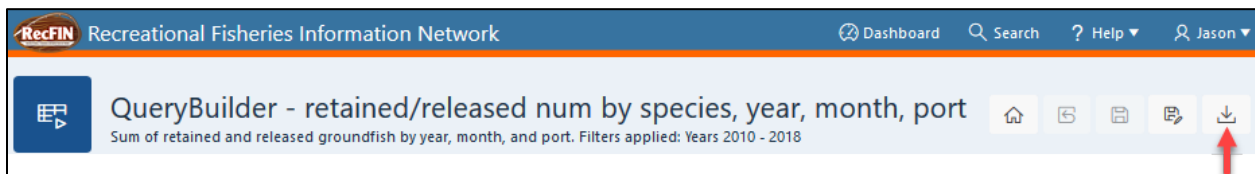
Save As

After a version of your query has been saved, you can save another version under a different name by clicking on the **Save As** button. Note that the name of the new saved version of the query must be different from the original.

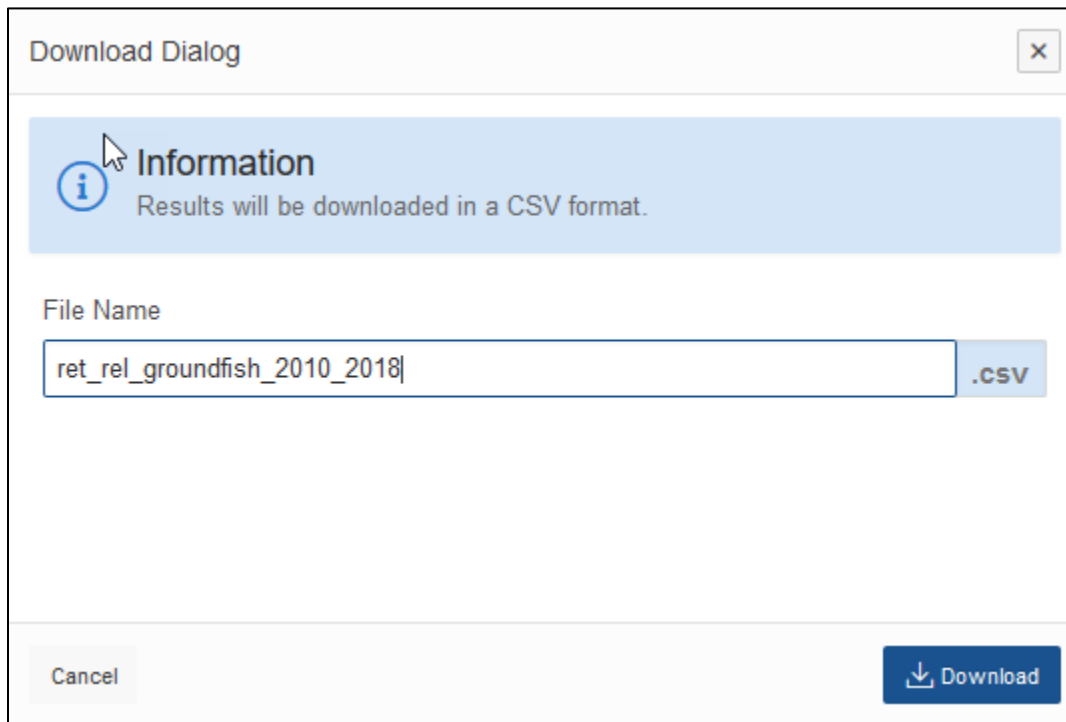


Download

The results of your query can be downloaded as a .csv file by clicking on the **Download** button.

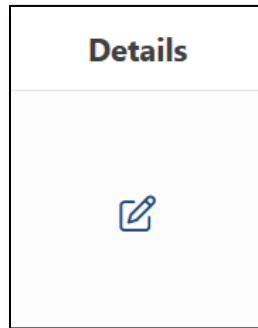


After clicking on the **Download** button, the **Download Dialog** box will appear where you can provide a custom file name for the .csv file of your query results. Click on the **Download** button to create the .csv file.



Saved Queries

Saved queries can be accessed and edited from the QueryBuilder start page. This page displays the saved query **Name**, **Description/Notes**, when the query was **Created**, and when the query was last **Modified**. The **Name** and **Description/Notes** can be edited by clicking on the Edit icon in the **Details** column.



This will open the **Saved Report Dialog** window where the **Name** and **Description/Notes** can be edited and saved. The query can also be deleted from this window.

Saved Report Dialog ✕

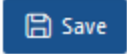
Saved Name

retained/released num by species, year, month, port

Description/Notes

Sum of retained and released groundfish by year, month, and port.
Filters applied: Years 2010 - 2018

Saved Date: **09/30/2019 04:26:40PM** Last Modified

Cancel **Delete**  Save

A saved query can also be executed from the start page by clicking on the **Execute** icon in the **Saved Queries** table. This button will open the saved query design page where you can view and edit the **Columns**, **Criteria**, **Query**, and **Results** tab of the query as described above.

