Georges Bay CatchMODS: Tutorial

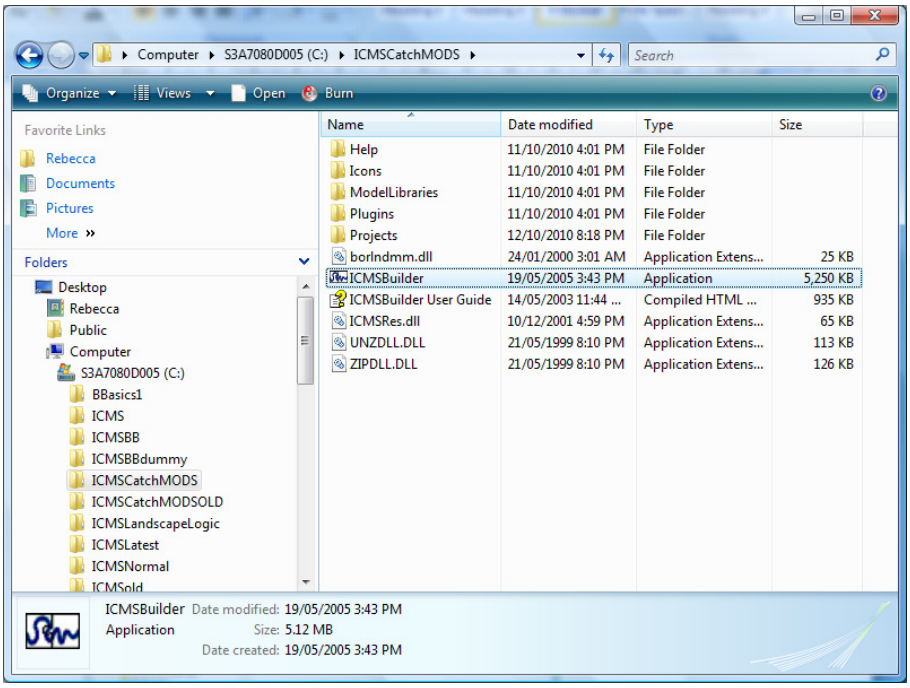
In this tutorial you will learn how to create, run and analyse a scenario using the Georges Bay CatchMODS model. The scenario you create will be a conversion of 5% of the area of each subcatchment from grazing to plantation forestry.

Getting started

Installing CatchMODS does not require Administrator Access as no files are written to your Program Files folder. To begin using CatchMODS copy the ICMSBB folder and all its contents onto you C drive (note these instructions should still work if the file is copied to D or other drives but this has not been tested). If you have copied this off a CD be sure to change the properties of the folder so that it is NOT *Read only*.

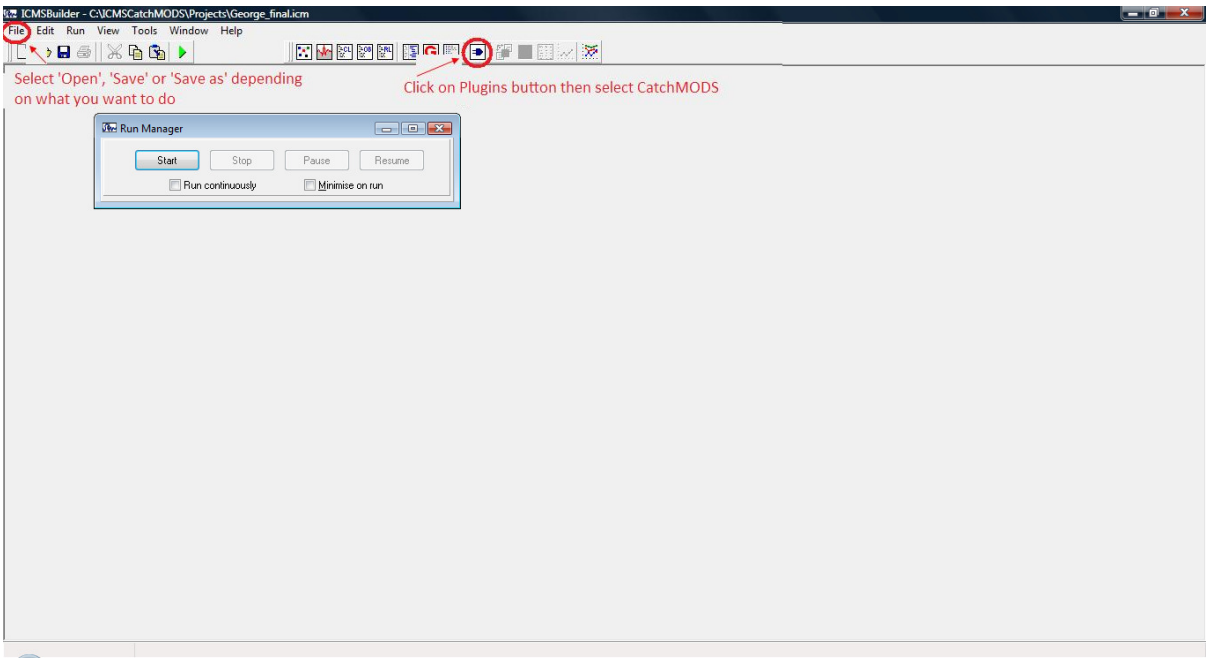
In order to open CatchMODS you need to open the ICMS software, open the project file then open the interface over this by following the steps below:

1. Go to *C:\\ICMSCatchMODS\Builder*
2. Double click *ICMSBuilder.exe*



3. Go to *File – Open*. Select *ICMSCatchMODS\Builder\Projects\Georges_final.icm*
4. Click on the *Plugins* button ( )at the top of the screen

5. Select *CatchMODS* and click *Open*



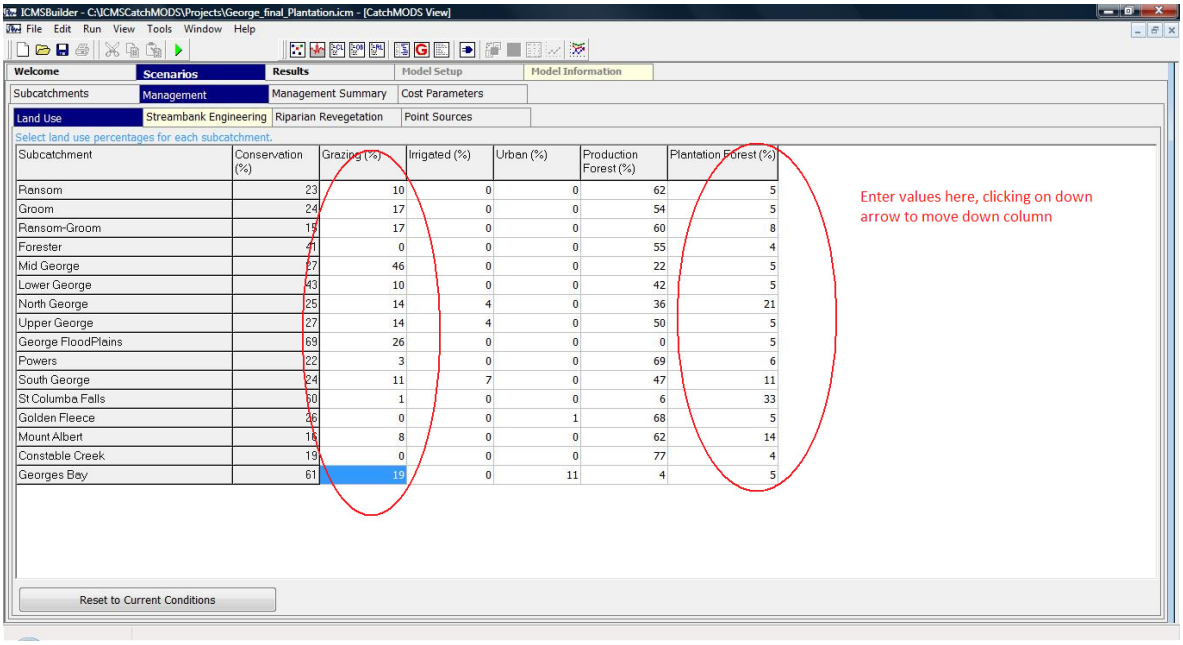
NOTE: It is a good idea to save your project by a new name before starting so you have a 'clean' version of the original to go back to each time you open the DSS. To do this go to *File – Save As* then give your project a new name. Its best top save all your project files in the default directory *ie. ICMSCatchMODS\Builder\Projects.* You should resave your project with a new name if you want to keep a new scenario run.

Input scenario data and check inputs

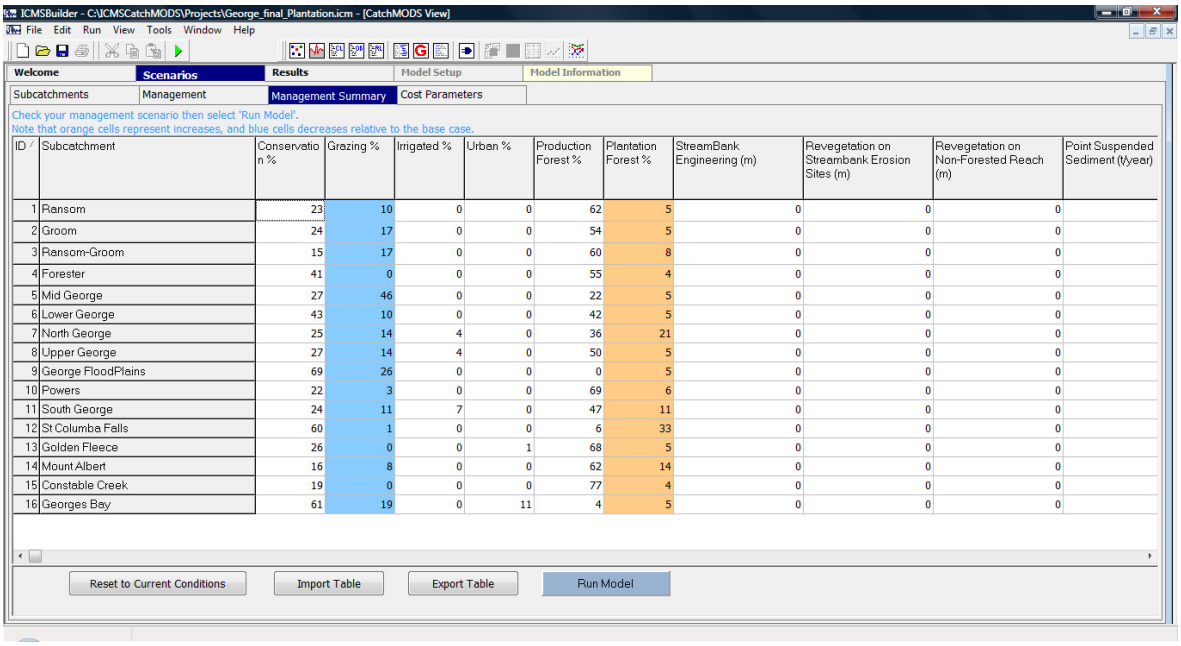
The scenario you create will be to convert 5% of each subcatchment from grazing to plantation forestry. Where the total area of grazing is less than 5% then only convert the percentage area available.

Click on the *Scenarios* tab. It will first open the *Subcatchments* page. Note that the default option in this page is to create the scenario for all subcatchments. This is the option we will use for this scenario.

Click on to the next tab – *Management*. In this page enter values into the Plantation and Grazing columns - add 5 to values in the plantation column and remove 5 from values in the grazing column (note for the Forester and Constable Creek subcatchments you will need to use the value 4 as only 4% of these catchments is under grazing). Inputs will be as shown below.



Once you have finished entering data you can clikc on the Management Summary tab. This page shows you the changes you've just made to the input data, and colours those that are greater or less than the base case values. You should check you've entered your data properly. Once you have completed checking your data you can click 'Run model'. WARNING: CatchMODS takes approximately 5 minutes per run so be sure the data is right first. A cup of coffee may be in order at this point!

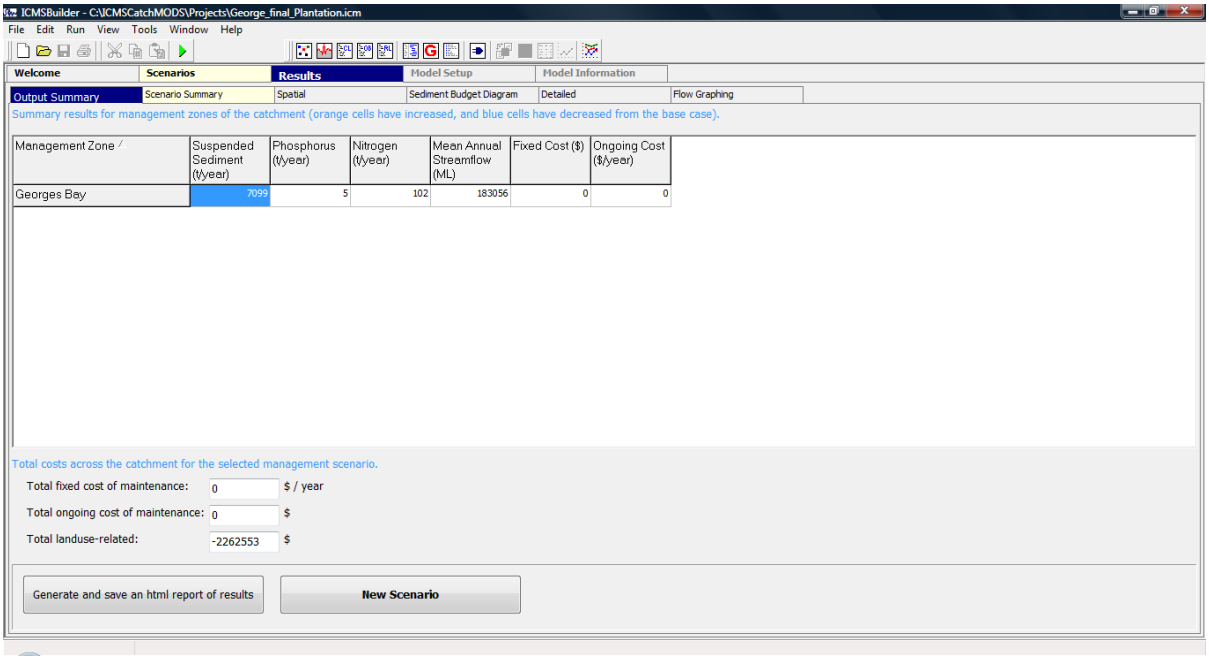


If your data is not correct or you change your mind about what changes you want to incorporate in this scenario you can reset values to the base case value by clicking on 'Reset to current conditions'. You can input data directly into this table from a csv file using 'Import table' or can export this table to a csv file by clicking on 'Export table.

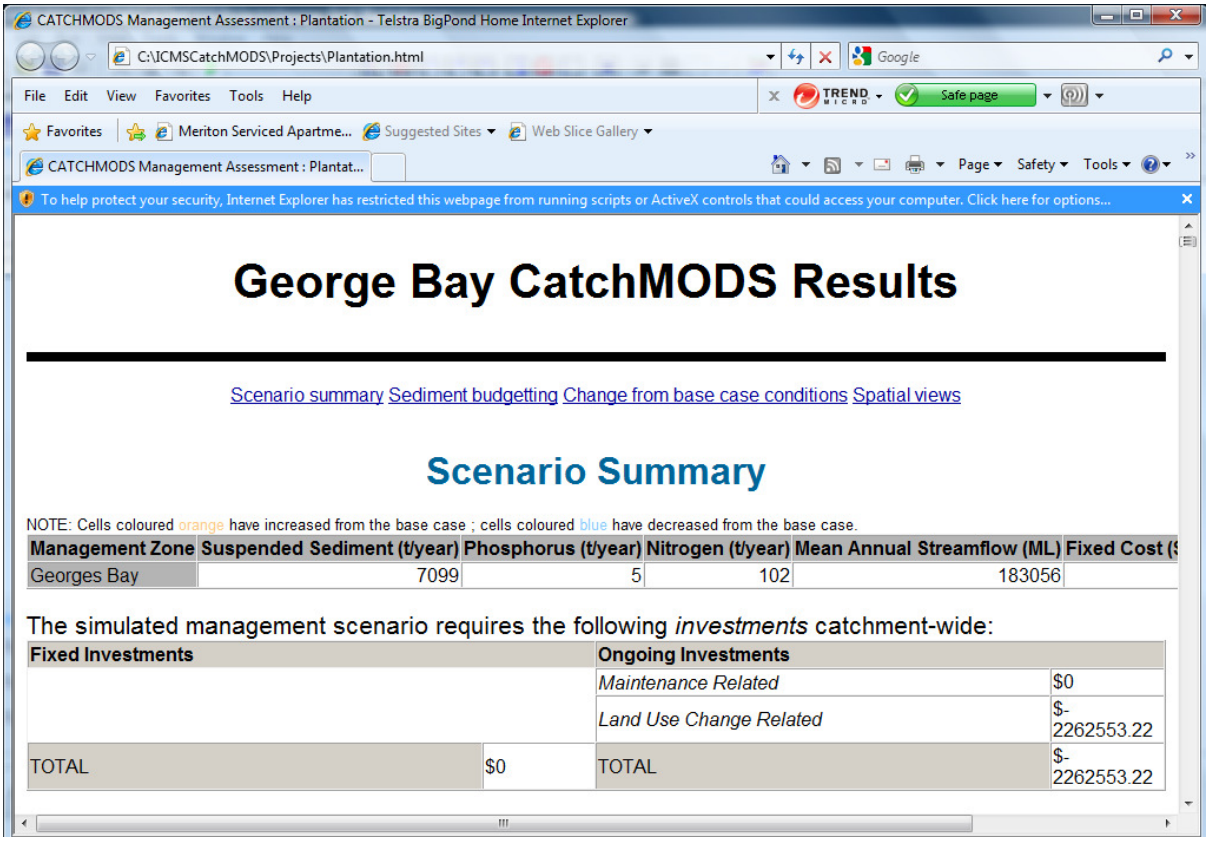
Also note that there is a 4th tab – Cost Parameters, in this page. This page can be used to view assumptions relating to the cost of various management actions. You may also find it useful in time to replace these values if you find you have better estimates of local costs of these actions.

Exploring the impacts

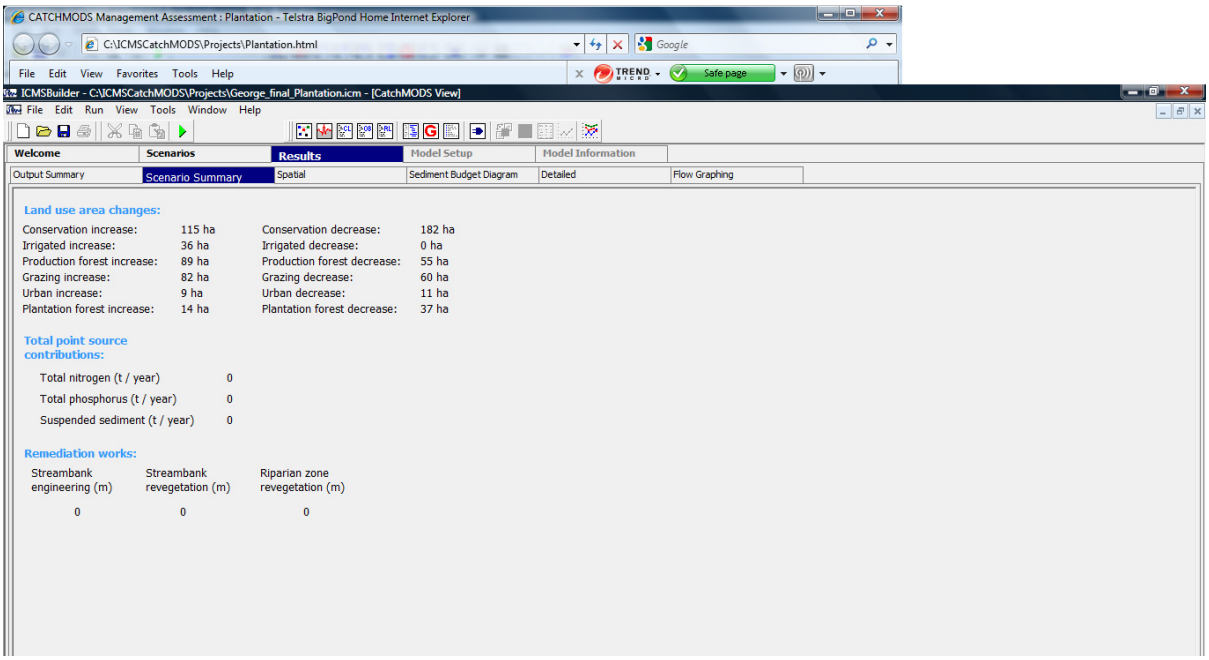
One the model stops running it will automatically take you to the first tabbed page of the Output Summary. This page shows you a summary of TSS, TP, TN, Mean annual streamflow and costs for the scenario as shown below.



From this page it's possible to export the results shown in all the tabbed Results pages to a html (or web) page. Clicking on this button will prompt you for a location and name to save this to. You can then open this file to explore results, or use them outside the CAPER interface.

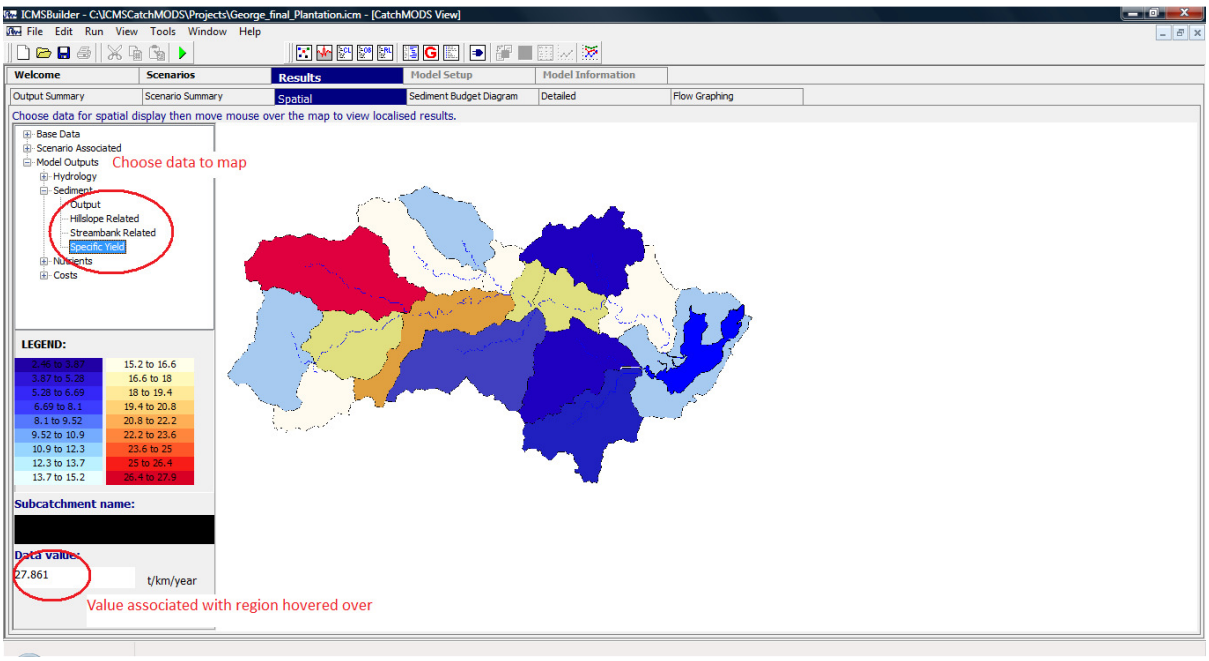


The next tabbed page is the Scenario Summary. This page shows a summary of the input changes used to create the scenario.

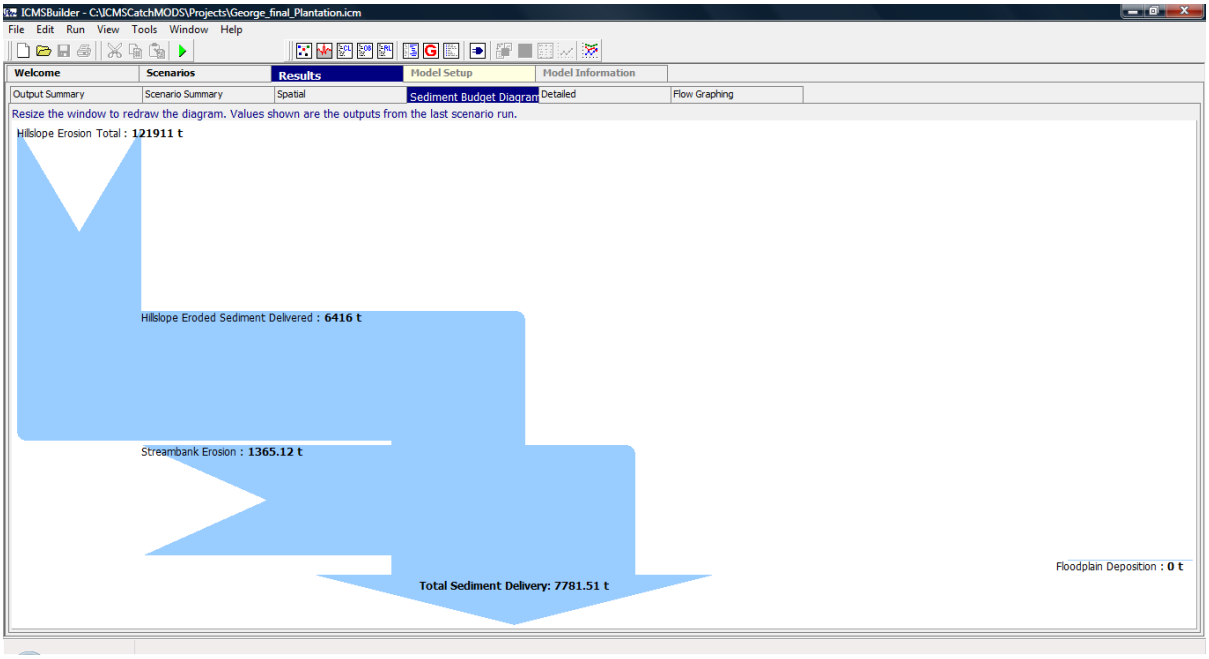


The next tabbed page gives you the chance to map both input and output data from the run. In this page you select the data you are interested in from the drop down menu on the left hand side of the window. Double clicking items with a '+' next to them will expand a drop down menu from which items can be selected. The legend associated with the colour mapping is provided. Hovering your

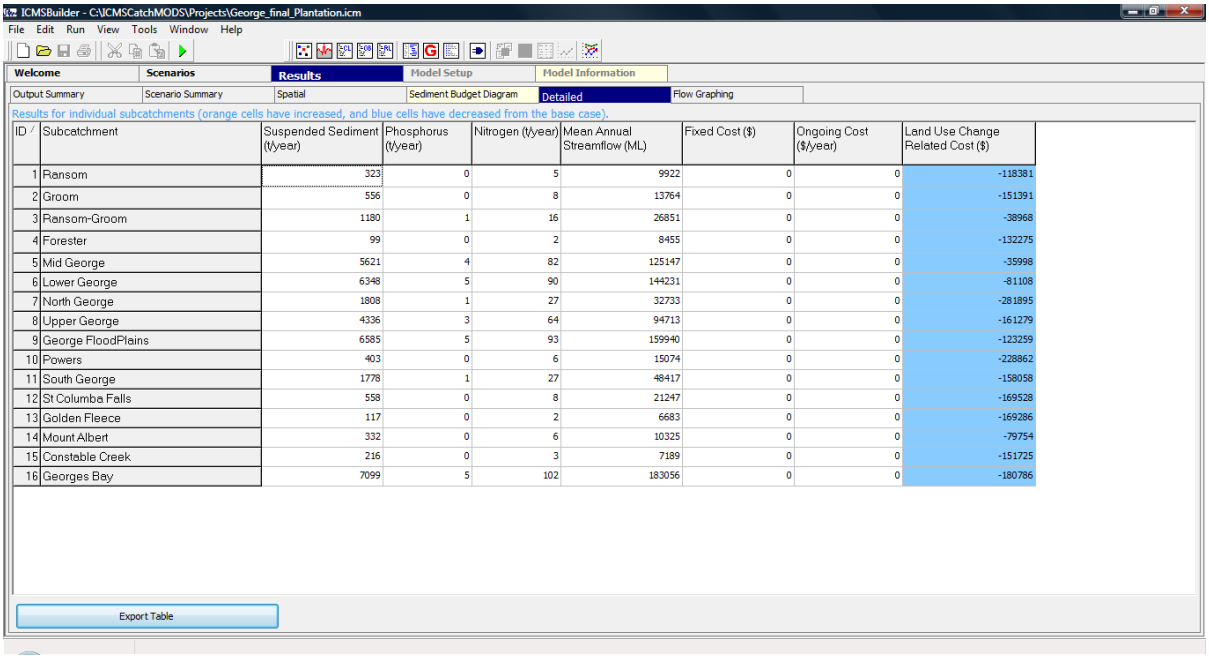
cursor over a region of the map will display the value associated with the region in the bottom part of the left panel of the window, as shown below.



The next tabbed page shows a diagrammatic representation of the sediment budget. This splits the sediment export from the scenario into the hillslope erosion generated, the hillslope erosion delivered, the stream bank erosion and the final sediment delivered. This allows you to see the pathways that are delivering sediment to the stream under your scenario option.

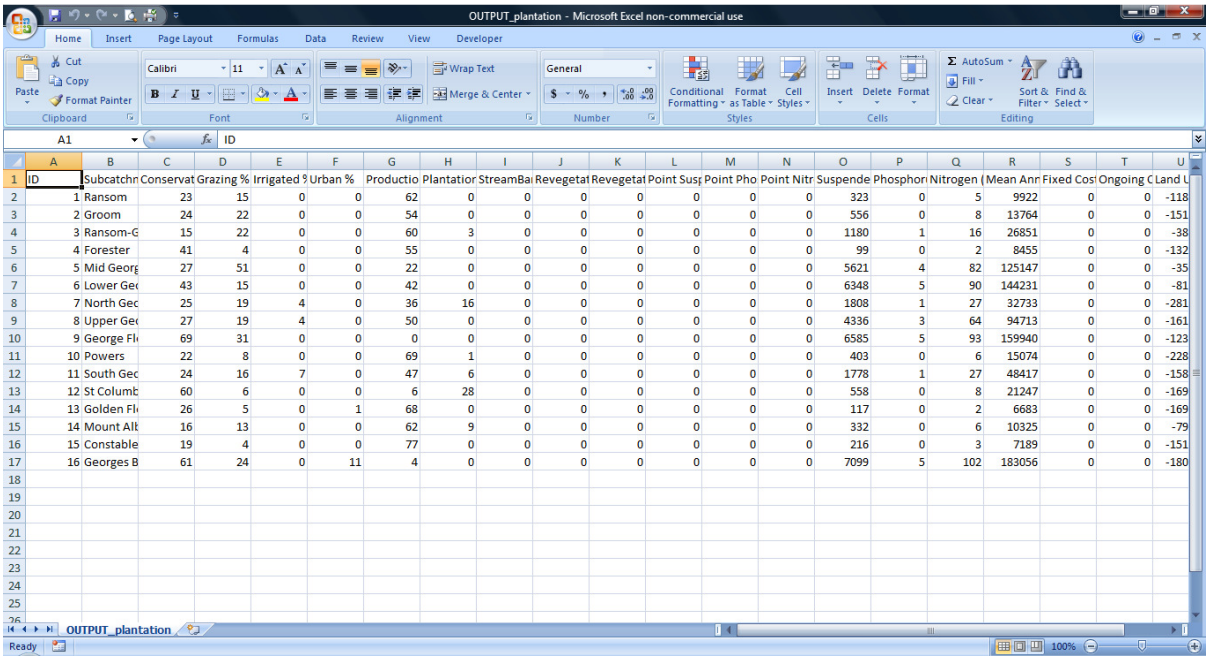


The next tabbed page of results contains detailed outputs from your scenario. This gives the sediment, nutrients, flow and costs for each subcatchment area for your scenario. You can click on the 'Export table' button in this page to export a csv file of detailed inputs and outputs for the scenario.



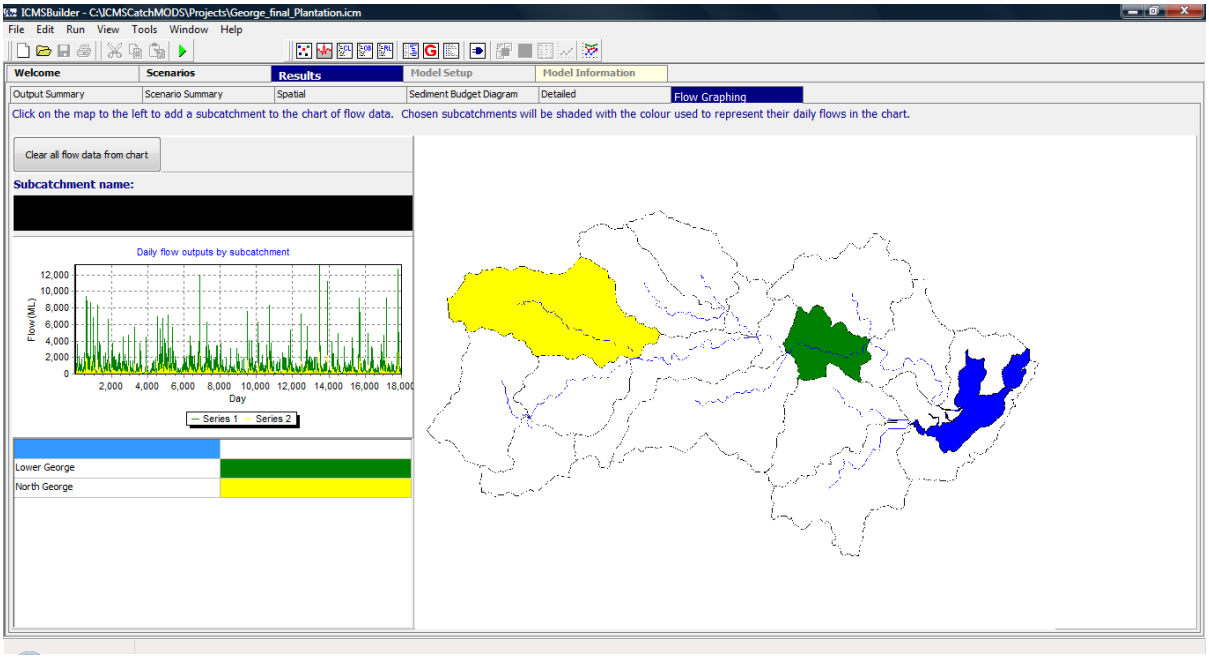
ID	Subcatchment	Suspended Sediment (t/year)	Phosphorus (t/year)	Nitrogen (t/year)	Mean Annual Streamflow (ML)	Fixed Cost ($)	Ongoing Cost ($/year)	Land Use Change Related Cost ($)
1	Ransom	323	0	5	9922	0	0	-118381
2	Groom	556	0	8	13764	0	0	-151391
3	Ransom-Groom	1180	1	16	26851	0	0	-38968
4	Forester	99	0	2	8455	0	0	-132275
5	Mid George	5621	4	82	125147	0	0	-35998
6	Lower George	6348	5	90	144231	0	0	-81108
7	North George	1808	1	27	32733	0	0	-281895
8	Upper George	4336	3	64	94713	0	0	-161279
9	George FloodPlains	6585	5	93	159940	0	0	-123259
10	Powers	403	0	6	15074	0	0	-228862
11	South George	1778	1	27	48417	0	0	-158058
12	St Columba Falls	558	0	8	21247	0	0	-169528
13	Golden Fleece	117	0	2	6683	0	0	-169286
14	Mount Albert	332	0	6	10325	0	0	-79754
15	Constable Creek	216	0	3	7189	0	0	-151725
16	Georges Bay	7099	5	102	183056	0	0	-180786

Th csv file of exported data for this scenario is shown below.



ID	Subcatchn	Conservat	Grazing %	Irrigated %	Urban %	Productio	Plantatior	StreamBai	Revegetat	Revegetat	Point Sus	Point Pho	Point Nitr	Suspende	Phosphor	Nitrogen (	Mean Ann	Fixed Cos	Ongoing C	Land U
1	Ransom	23	15	0	0	62	0	0	0	0	0	0	0	323	0	5	9922	0	0	-118
2	Groom	24	22	0	0	54	0	0	0	0	0	0	0	556	0	8	13764	0	0	-151
3	Ransom-G	15	22	0	0	60	3	0	0	0	0	0	0	1180	1	16	26851	0	0	-38
4	Forester	41	4	0	0	55	0	0	0	0	0	0	0	99	0	2	8455	0	0	-132
5	Mid Georg	27	51	0	0	22	0	0	0	0	0	0	0	5621	4	82	125147	0	0	-35
6	Lower Ge	43	15	0	0	42	0	0	0	0	0	0	0	6348	5	90	144231	0	0	-81
7	North Gec	25	19	4	0	36	16	0	0	0	0	0	0	1808	1	27	32733	0	0	-281
8	Upper Ge	27	19	4	0	50	0	0	0	0	0	0	0	4336	3	64	94713	0	0	-161
9	George Fl	69	31	0	0	0	0	0	0	0	0	0	0	6585	5	93	159940	0	0	-123
10	Powers	22	8	0	0	69	1	0	0	0	0	0	0	403	0	6	15074	0	0	-228
11	South Gec	24	16	7	0	47	6	0	0	0	0	0	0	1778	1	27	48417	0	0	-158
12	St Columb	60	6	0	0	6	28	0	0	0	0	0	0	558	0	8	21247	0	0	-169
13	Golden Fl	26	5	0	1	68	0	0	0	0	0	0	0	117	0	2	6683	0	0	-169
14	Mount Alb	16	13	0	0	62	9	0	0	0	0	0	0	332	0	6	10325	0	0	-79
15	Constable	19	4	0	0	77	0	0	0	0	0	0	0	216	0	3	7189	0	0	-151
16	Georges B	61	24	0	11	4	0	0	0	0	0	0	0	7099	5	102	183056	0	0	-180

The final tabbed page of outputs allows you to display and explore the daily flow data generated by the model for each subcatchment. You can chart data for different subcatchments by selecting them in the map. These are charted one over the other in the order you select them. You can remove data off the chart by clicking on ‘Clear all flow data from chart’. Note that the colour attributed to each subcatchment is given in the list on the left hand panel of the window.


ICMSBuilder - C:\ICMSCatchMODS\Projects\George_final_Plantation.icm
File Edit Run View Tools Window Help
Welcome
Scenarios
Results
Model Setup
Model Information
Output Summary
Scenario Summary
Spatial
Sediment Budget Diagram
Detailed
Flow Graphing
Click on the map to the left to add a subcatchment to the chart of flow data. Chosen subcatchments will be shaded with the colour used to represent their daily flows in the chart.
Clear all flow data from chart
Subcatchment name:
Daily flow outputs by subcatchment
Flow (ML)
12,000
10,000
8,000
6,000
4,000
2,000
0
2,000 4,000 6,000 8,000 10,000 12,000 14,000 16,000 18,000
Day
Series 1
Series 2
Lower George
North George