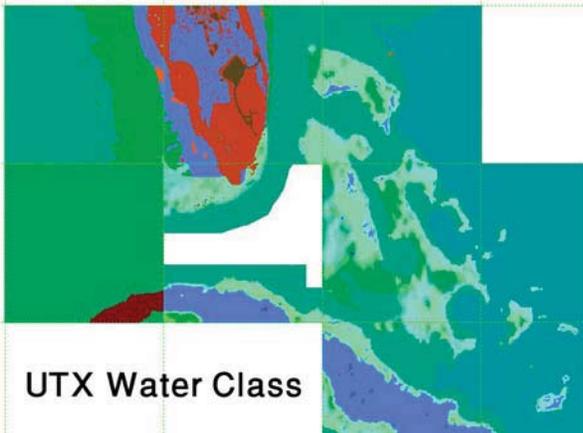
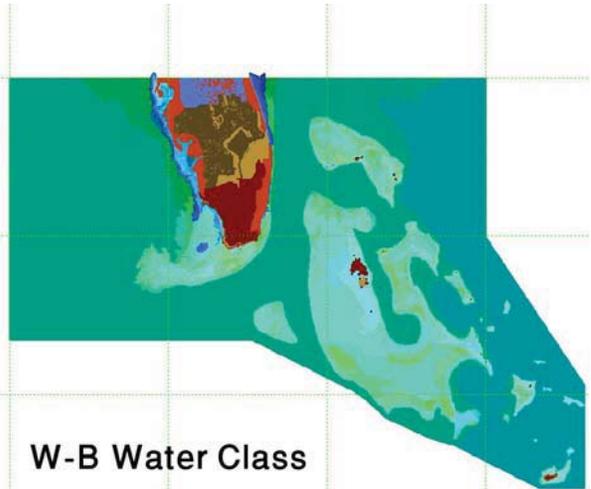
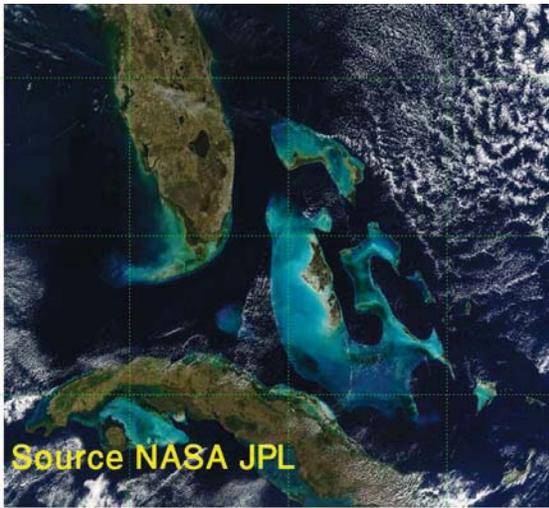


South Florida and the Bahamas Water Class for FSX



by *Wally-Bob*

Preface

Looking out of the Virtual Cockpit Window in FSX whilst flying around in the Bahamas and the Florida Keys just didn't look the same as in real life. I suspect that MS may have used sea surface temperatures in an automated method to generate the water class files used for the region. They may have utilized some artistic license for aesthetics for some of the areas of interest. UTX-TAC was released and cleaned up many of the island location errors, but the Water Class is essentially a rehash of the FSX rendition.

What was missing? The correct rendition of the Bahama Bank, Cay Sal Bank and the Tongue of the Ocean to name a few. South Florida and The Bahamas Water Class scenery now replaces the currently available water class scenery with accurately placed water class tiles representing the ocean bottom visibilities thru the clear tropical waters. Low and slow VFR and Commercial Jetliner pilots will now see the sandy banks, reefs and shoals prevalent throughout the region.

The coverage area begins in the western end of the Florida Keys at The Dry Tortugas, heads north to Tampa, over to Grand Bahama, south to the Cay Sal Bank and eastward to Great Inagua covering all of the Florida Keys and the entire Bahamas Island chain.

For those pilots with REX Essentials + Overdrive (REX3), a section of this manual is devoted to creating a custom selection of REX3 and FSX textures to accurately model the many shallow water coral, sandy bottom shoals, coral reefs and also the underwater cliffs that drop off into the deep dark blue abyss. South Florida and The Bahamas Water Class combined with the customizing of your REX3 tropical water textures is able to render the sea channel cuts as they are in real life flowing from the Florida Bay between the Keys and under the Overseas Highway bridges into the Strait of Florida. A rendering of similar cuts at Andros Island in the Bahamas is also the result. The illusion of the ocean floor rolling up to the Keys and Cays is very observable.

The scenery also corrects island position errors in the Dry Tortugas, on the Cay Sal Bank, adding the missing Cays there and also on the Bahama Bank. Lighthouse placement error corrections are also included. All of these FSX errors just mentioned were neglected by UTX-USA and UTX-TAC

Legal

South Florida and The Bahamas Water Class scenery is an add-on product for Flight Simulator X. This scenery product is freeware and may not be reproduced, distributed or used in whole, or any part for a fee. Any redistribution or inclusion into other freeware products in part or complete without the expressed written consent of the author is prohibited. *Wally_Bob@Ymail.com*

Credits

The following freeware tools and resources were used to develop the South Florida and The Bahamas Water Class scenery.

SBuilder v3.13 by Luis Sá & PTSim
Provided the tool used for the bulk of the development.
www.PTSim.com

EZ-Landclass 3.01 by Russel Dirks
Provided the easy way to fine tune the results provided by SBuilder.
russdirks@yahoo.ca

NASA Jet Propulsion Laboratory
Provided the satellite imagery of the region used as the “Map” within SBuilder.
www.jpl.nasa.gov

Screenshots

The following Addons were shown in the corresponding screenshots:

Dirk Cremer – Bahamas Airfield Package (BAP)

Drzewiecki Design – Miami X

REX Game Studios - REX Essential + Overdrive (REX3)

MegaSceneryEarth – Florida, Miami

Flight One Software - Ultimate Terrain X UTX-USA, UTX-TAC
- Ground Environment X GEX-USA, GEX-APT

Suggested Addons

South Florida and The Bahamas Water Class was developed to be completely compatible and is suggested to be used in conjunction with:

Bahamas Airfield Package v1.0
Freeware by Dirk Cremer

Ultimate Terrain X Tropical America and Caribbean (UTX-TAC)
Payware by Flight One Software

REX Essential + Overdrive (REX3)
Payware by REX Game Studios

Installation

The installation is accomplished by manual means.

1. Create a folder in your FSX Addon Scenery named South Florida and The Bahamas Water Class.
2. Next create a subfolder under that named Scenery.
3. Copy the downloaded scenery files into the scenery folder.

The path in this example is:

[Drive\Path\FSX] \Addon Scenery\South Florida and The Bahamas Water Class\Scenery\{files go here}

4. Activate the scenery - The last step needed prior to flying over your new scenery area is to register it with FSX and enable it. FSX does not know the new scenery exists until you show it where the scenery is located. You must be logged in on your computer as an administrator for scenery library modifications. The Flight Simulator Learning Center also covers this process in more depth. The Priority of the scenery must be higher (lower number) than all UTX areas and also higher than the Bahamas Airfield Package by Dirk Cremer.

File List

The scenery files included for the region are:

CVX_2523_w-b.bgl	CVX_2622_w-b.bgl	CVX_2623_w-b.bgl
OBX_2523_w-b.bgl	OBX_2622_w-b.bgl	OBX_2623_w-b.bgl
WC_2521_w-b.bgl	WC_2522_w-b.bgl	WC_2523_w-b.bgl
WC_2621_w-b.bgl	WC_2622_w-b.bgl	WC_2623_w-b.bgl
WC_2722_w-b.bgl	WC_2723_w-b.bgl	WC_2724_w-b.bgl
WC_2823_w-b.bgl	WC_2824_w-b.bgl	

The naming convention used here closely follows the FSX convention. The file extension, bgl is required for FSX to recognize the file as a scenery data file. It is an acronym for BAO Graphics Language - BAO stands for the Bruce Artwick Organization, the original creator of Flight Simulator before Microsoft purchased the rights.

Although the file name can be anything and FSX will use it as intended, the FSX naming convention is as follows:

CVX – Classification Vector FSX This type of scenery file is employed to define the lines and polygons that comprise the shorelines and water masses of the

scenery area. Exclusion rectangles are also contained to remove CVX scenery elements of lower priority scenery layers that are active.

OBX – OBject FSX This type of scenery file contains the data to place models and library objects in the scenery. Object exclusions are also contained within the file. By this method Lighthouses can be “moved” to their correct locations by being excluded and re-inserted.

WC – Water Class This type of scenery file defines the specific class of water texture to be used for the scenery tile at the unique coordinates within the FSX world.

The numbers in the file name represent the location in the QMID level 7 grid system. The FSX world is defined by a grid system starting at level 2 where the northern and southern hemispheres are divided into 3 segments, thus 6 segments for the world at QMID level 2. Each level reduces the grid size by a factor of 2 thus multiplying the number of “cells” by a factor of 4. QMID level 7 is the FSX preferred geographic grid size for performance concerns when developing CVX, OBX and WC types of scenery files. At the QMID 7 level, the world is divided into $96 \times 64 = 6144$ cells.

By now you have noticed all files contain the string “_w-b.” Most developers add their “signature” to the file name for identification purposes, a convention used with all Wally-Bob developments for FSX. This will allow for an easy location of all my files installed on your system by searching for: *_w-b.*

Customization with REX Essential + Overdrive (REX3)

I can't say enough about the dramatic eye candy improvement made by the tropical water texture customization process covered next. There is no FPS performance penalty to be paid by employing this enhancement technique.

The texture customization process combined with the water classifications used for the scenery area will render the shallow water coral, sandy bottom and coral reef areas prevalent throughout the Bahamas and the Florida Keys. The only thing that will beat this rendering is actual photo scenery. There is one custom water texture included in the South Florida and The Bahamas Water Class product, **310b2su1.bmp** which replaces a FSX or REX water class texture essentially unused by either FSX or UTX. This custom texture is used to render the fresh water flowing out of the Everglades mixing with the salt water in Florida Bay. VFR flying north over Key Largo following US Highway 1 towards the Florida mainland using this custom texture displays a rendering of Card Sound has never been seen in the simulator like this before now.

See the enclosed screen shots included in your download package.

#Card Sound.jpg and #Everglades.jpg

Process Overview

You will make copies of the various REX3 Overdrive Tropical Water Textures installed in the simulator and place them into temporary folders. A permanent folder you will create named S-FL_Bahamas is the end product and will contain the custom mix of textures to install into FSX.

Tropical Water Textures

The files responsible for the Tropical Water Textures are found in:

[Drive\Path\FSX]\Scenery\World\Scenery\Texture\

They are named 337b2su1.bmp thru 360b2su1.bmp and when viewed by alpha-numeric named order are contiguous in the listing. (meaning one after another in a continuous grouping) There are 144 files. The easy way to find them is to narrow your search, use **3*** in the search tool bar.

Here's the complete list of **"The 144"** :

337b2su1.bmp	337b2su2.bmp	337b2su3.bmp	337b2su4.bmp	337b2su5.bmp	337b2su6.bmp	337b2su7.bmp
338b2su1.bmp	338b2su2.bmp	338b2su3.bmp	338b2su4.bmp	338b2su5.bmp	338b2su6.bmp	338b2su7.bmp
339b2su1.bmp	339b2su2.bmp	339b2su3.bmp	339b2su4.bmp	339b2su5.bmp	339b2su6.bmp	339b2su7.bmp
340b2su1.bmp	340b2su2.bmp	340b2su3.bmp	340b2su4.bmp	340b2su5.bmp	340b2su6.bmp	340b2su7.bmp
341b2su1.bmp	341b2su2.bmp	341b2su3.bmp	341b2su4.bmp	341b2su5.bmp	341b2su6.bmp	341b2su7.bmp
342b2su1.bmp						
343b2su1.bmp	343b2su2.bmp	343b2su3.bmp	343b2su4.bmp	343b2su5.bmp	343b2su6.bmp	343b2su7.bmp
344b2su1.bmp	344b2su2.bmp	344b2su3.bmp	344b2su4.bmp	344b2su5.bmp	344b2su6.bmp	344b2su7.bmp
345b2su1.bmp	345b2su2.bmp	345b2su3.bmp	345b2su4.bmp	345b2su5.bmp	345b2su6.bmp	345b2su7.bmp
346b2su1.bmp	346b2su2.bmp	346b2su3.bmp	346b2su4.bmp	346b2su5.bmp	346b2su6.bmp	346b2su7.bmp
347b2su1.bmp	347b2su2.bmp	347b2su3.bmp	347b2su4.bmp	347b2su5.bmp	347b2su6.bmp	347b2su7.bmp
348b2su1.bmp						
349b2su1.bmp	349b2su2.bmp	349b2su3.bmp	349b2su4.bmp	349b2su5.bmp	349b2su6.bmp	349b2su7.bmp
350b2su1.bmp	350b2su2.bmp	350b2su3.bmp	350b2su4.bmp	350b2su5.bmp	350b2su6.bmp	350b2su7.bmp
351b2su1.bmp	351b2su2.bmp	351b2su3.bmp	351b2su4.bmp	351b2su5.bmp	351b2su6.bmp	351b2su7.bmp
352b2su1.bmp	352b2su2.bmp	352b2su3.bmp	352b2su4.bmp	352b2su5.bmp	352b2su6.bmp	352b2su7.bmp
353b2su1.bmp	353b2su2.bmp	353b2su3.bmp	353b2su4.bmp	353b2su5.bmp	353b2su6.bmp	353b2su7.bmp
354b2su1.bmp						
355b2su1.bmp	355b2su2.bmp	355b2su3.bmp	355b2su4.bmp	355b2su5.bmp	355b2su6.bmp	355b2su7.bmp
356b2su1.bmp	356b2su2.bmp	356b2su3.bmp	356b2su4.bmp	356b2su5.bmp	356b2su6.bmp	356b2su7.bmp
357b2su1.bmp	357b2su2.bmp	357b2su3.bmp	357b2su4.bmp	357b2su5.bmp	357b2su6.bmp	357b2su7.bmp
358b2su1.bmp	358b2su2.bmp	358b2su3.bmp	358b2su4.bmp	358b2su5.bmp	358b2su6.bmp	358b2su7.bmp
359b2su1.bmp	359b2su2.bmp	359b2su3.bmp	359b2su4.bmp	359b2su5.bmp	359b2su6.bmp	359b2su7.bmp
360b2su1.bmp						

Notice the sequence of the names. Each row contains the texture variations for the specific water class. There are 4 specific Green to Blue shades representing the plankton level present for the water class, correlating to the 4 groups top to bottom respectively. Within each plankton level group, shallow water is the first row containing 7 textures "maps" to reduce the repeating postage stamp appearance. Deep water is the sixth row represented by only one texture file.

The entire 144 are a specific type of Tropical Water Texture such as default FSX or REX3's Heavenly Beyond for examples.

Here's what we will do to represent the various different types of ocean bottoms found in the region, sandy bottom, reef and shallow coral. We are going to reduce the plankton variations and increase the ocean bottom variations. The ocean depth "resolution" will be "expanded" in the shallow and mid level depths and "compressed" in the deep water depths. I don't provide an explanation on how this is accomplished, but inquisitive minds can view in edit mode the **make_S-FL_Bahamas_w-b.bat** program and the method will be revealed.

Included Aides

There are two Batch Programs included in the product package to simplify the key strokes and mouse clicks needed to accomplish this process.

make_WC_Dir_w-b.bat – this batch program creates the necessary REX3 & FSX "Source" folders for this process. It is imperative that they are named exactly as the second Batch Program expects them to be.

make_S-FL_Bahamas_w-b.bat – this batch program will place the custom mix of REX3 and FSX water textures into your S-FL_Bahamas folder. Yes, a few default FSX textures are preferred over REX3.

Let's Get Started

The creation process for the custom water textures need only to be performed once, but it will take some time. This is a direct function of your processor speed and hard drive speed generating the REX3 texture changes.

Step 1

Create a folder somewhere named:

Tropical Water Textures

This folder will not be accessed when FSX is running so no performance penalties apply to your choice of placement. This folder will be approximately 675 MB in size when the process is completed.

From your download package copy **make_WC_Dir_w-b.bat** into this new folder. Double click it to run and follow the prompts. This program will delete

itself when complete for hard drive space concerns but mainly so that it will not be run accidentally for a second time.

Step 2

From your download package copy **make_S-FL_Bahamas_w-b.bat** into the new folder you made, Tropical Water Textures. Do not run it at this time.

From your download package copy the custom water texture **310b2su1.bmp** into the newly created folder S-FL_Bahamas in the Tropical Water Textures folder. Please note that all water texture files used in FSX must have the exact name the simulator is expecting. They cannot be re-named else they will be ignored by FSX.

Step 3

Save your current REX texture theme. (optional)

Restore your textures to FSX default. No whining now. You did follow the REX installation instructions, right?

Navigate to your FSX folder:

[Drive\Path\FSX]\Scenery\World\Scenery\Texture\

Copy **“The 144”** into the folder FSX_Original_Texture in the Tropical Water Textures folder.

Step 3 – alternative method, may save time

Navigate to your FSX texture files back-up created by the REX3 installation.

[Drive]\REX Essential Plus Overdrive\Themes\Backup\Initial_Backup\Scenery\World\Texture\

Copy **“The 144”** into the folder FSX_Original_Texture in the Tropical Water Textures folder.

Step 4a thru 4e - These steps are repetitive.

- a) Install the REX3 Tropical Water Texture set **Bare Floor** into FSX. For the initial installation I recommend to use the default levels (50%) for the Plankton, Saturation, Brightness and contrast for all texture sets. You can always “season to taste” at a later time if you wish.

Navigate to your folder:

[Drive\Path\FSX]\Scenery\World\Scenery\Texture\

Copy "**The 144**" into the folder Bare_Floor in the Tropical Water Textures folder.

b) Install the REX3 Tropical Water Texture set **Busy Bottom** into FSX.

Copy "**The 144**" from FSX into the folder Busy_Bottom in the Tropical Water Textures folder.

c) Follow the same process for **Color Me Beautiful** into the Color_Me_Beautiful folder.

d) **Coral Shallow Water** process.

e) **Heavenly Beyond** process.

Step 5

Restore your previous REX texture theme, this is optional. Suggested is to install your favorite tropical theme since you'll probably be checking out all of this soon.

Exit REX3.

Step 6

Navigate to the Tropical Water Textures folder.

Double click **make_S-FL_Bahamas_w-b.bat** following the prompts.

Step 7

Navigate to the **S-FL_Bahamas** folder and copy "**The 144**" plus the 1 custom water texture (145 files total) and paste them into your folder

[Drive\Path\FSX]\Scenery\World\Scenery\Texture\

You will get a message regarding existing files with the same names, select the replace option overwriting them. Realize that this is exactly what REX does, but without the cautionary message.

You are now ready to fly.

Final Words

You may now delete all but the S-FL_Bahamas folder to save approximately 575 MB of disk space. If you have the available space, you should consider keeping them. As you change from the Bahamas to another tropical area, you may change your Tropical Water Textures to one of the classes currently contained in your Tropical Water Textures folder by copying and pasting "The 144" into FSX, it will save several minutes of REX3 processing time. This is essentially what REX4 Texture direct does for texture replacement. You can also expand your Tropical Water Textures folder to include all of the REX3 textures following the method you used to create the texture folders for the South Florida and The Bahamas custom texture blend. Remember that your original FSX and all REX textures are safely backed up.

To return to the Bahamas and South Florida custom blend, copy and paste "The 144" plus 1 from your S-FL_Bahamas folder into FSX. This copy/replace process (Step 7) will need to be performed to return to the South Florida and Bahamas custom textures mix if you have used REX to modify your tropical water textures since last time.

Also remember that FSX can be running during the water texture replacement process. You need not exit and re-start FSX, but you must reload the scenery from Settings -> Scenery Library. You may just click OK if you only wish to enable your texture change and keep the same scenery selections.

Enjoy your flights and don't forget your Scuba Gear or the sunscreen!

- *Wally-Bob* -