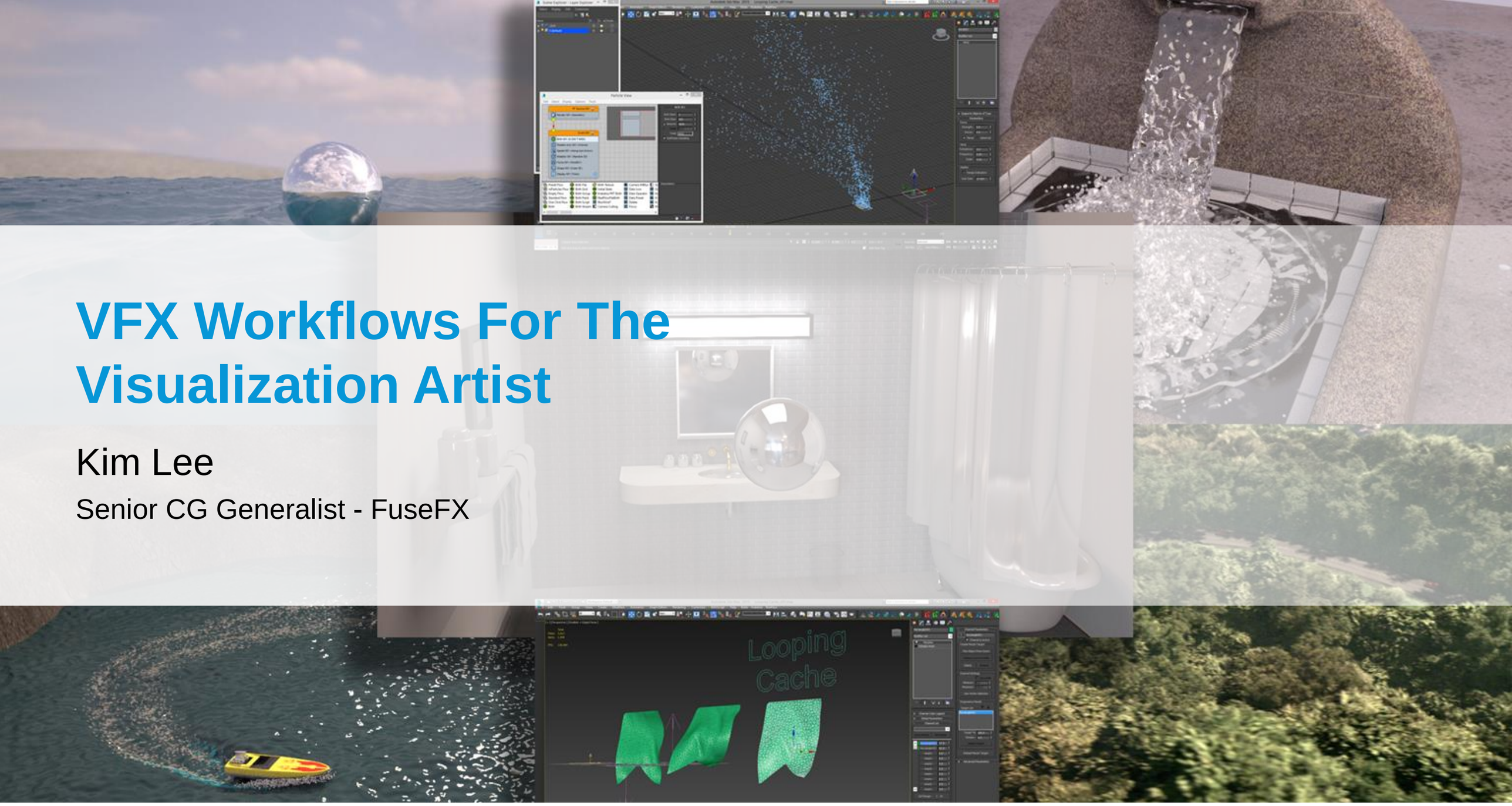

VFX Workflows For The Visualization Artist

Kim Lee

Senior CG Generalist - FuseFX

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Class summary

In this class we will examine some production-tested approaches using both old and new tools in 3ds Max software to create things like large crowds of people and animated foliage, as well as workflows used for working with large scene files.

CACHE IS KING

Key learning objectives

At the end of this class, you will be able to:

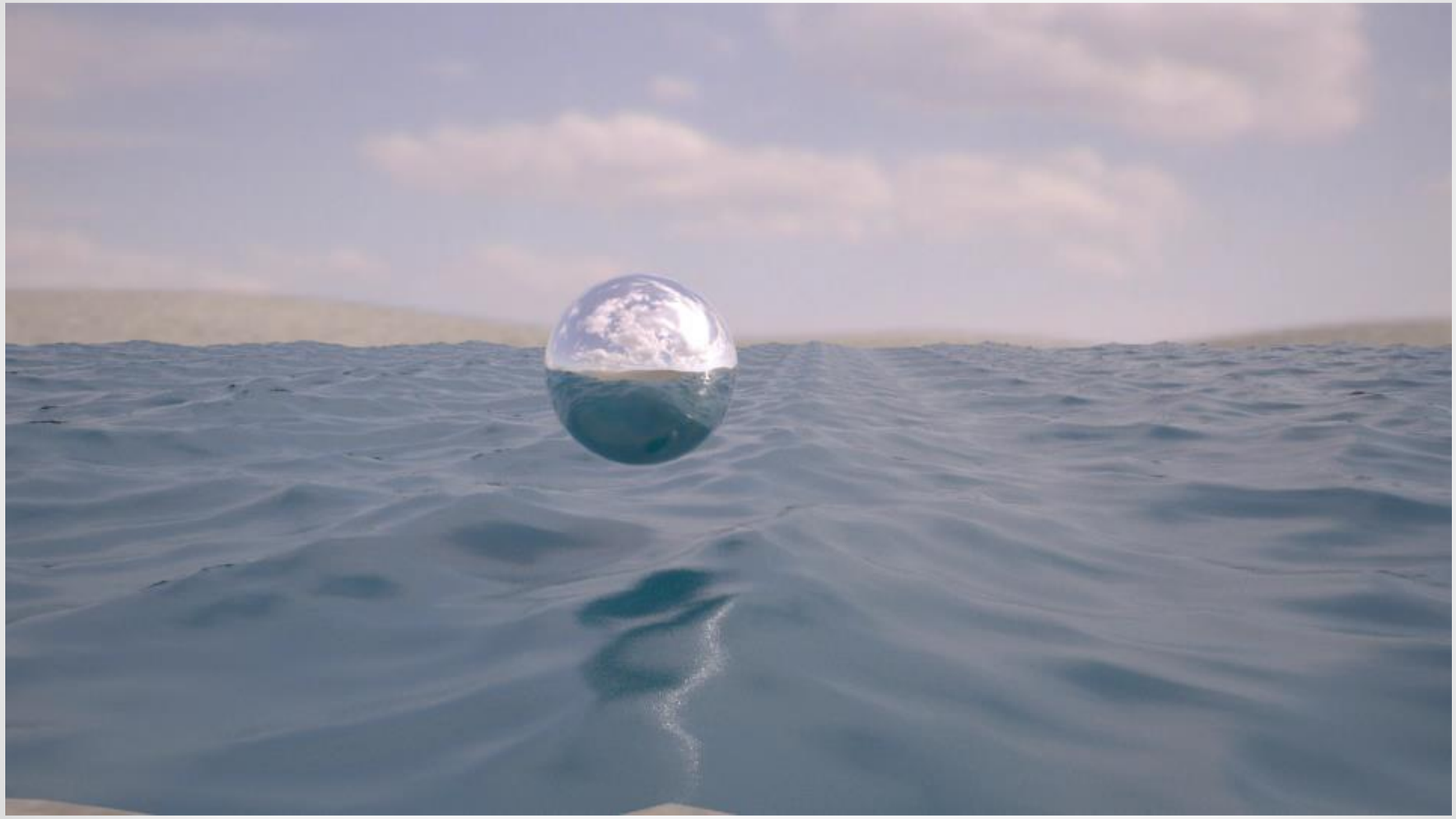
- How to use Flex modifier to mimic a dynamic water surface
- Understand Pros and Cons of various Caching options
- How to use Houdini Ocean plugin (free)
- Use Pflow for simple water applications
- Harness the power of Vray Proxies and Vray Instancer
- Circumvent some limitations of Populate
- Avoid some performance hindering situations in 3ds Max

Topics Covered

We will be examining the following:

- Create quick small and large scale water surfaces
- Generate trees/forests for wide aerial shots
- More efficiently implement crowds into large scenes

Quick Water Surfaces



Quick Small Scale and Large Scale Water Surfaces

- Good for shots where water is not primary focus
- Limited interaction with other objects
- Uses Flex Modifier and Houdini Ocean (a free Plugin)
- Alembic Caching
- Recommended 3rd Party plugins
  - Frost (Thinkbox Software)
  - Xmesh (Thinkbox Software)

Small Scale Water Surfaces

- Fountains/Decorative Ponds

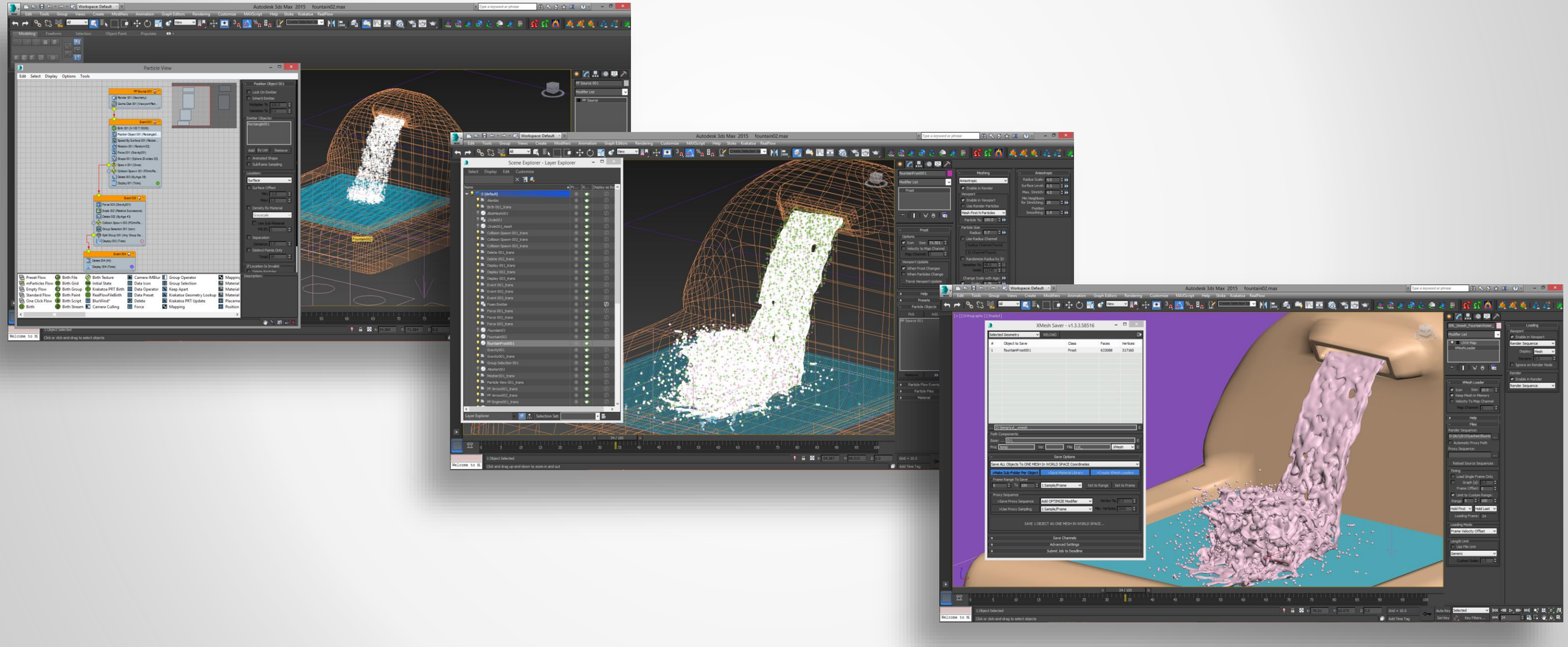
Small Scale Water Surfaces

Workflow Overview

- Create Pflow stream
- Mesh the Pflow stream
- Cache the meshed Pflow stream
- Animate proxy objects that will disturb the surface
- Run flex simulation
- Cache the flex water surface
- Create Pflow foam system

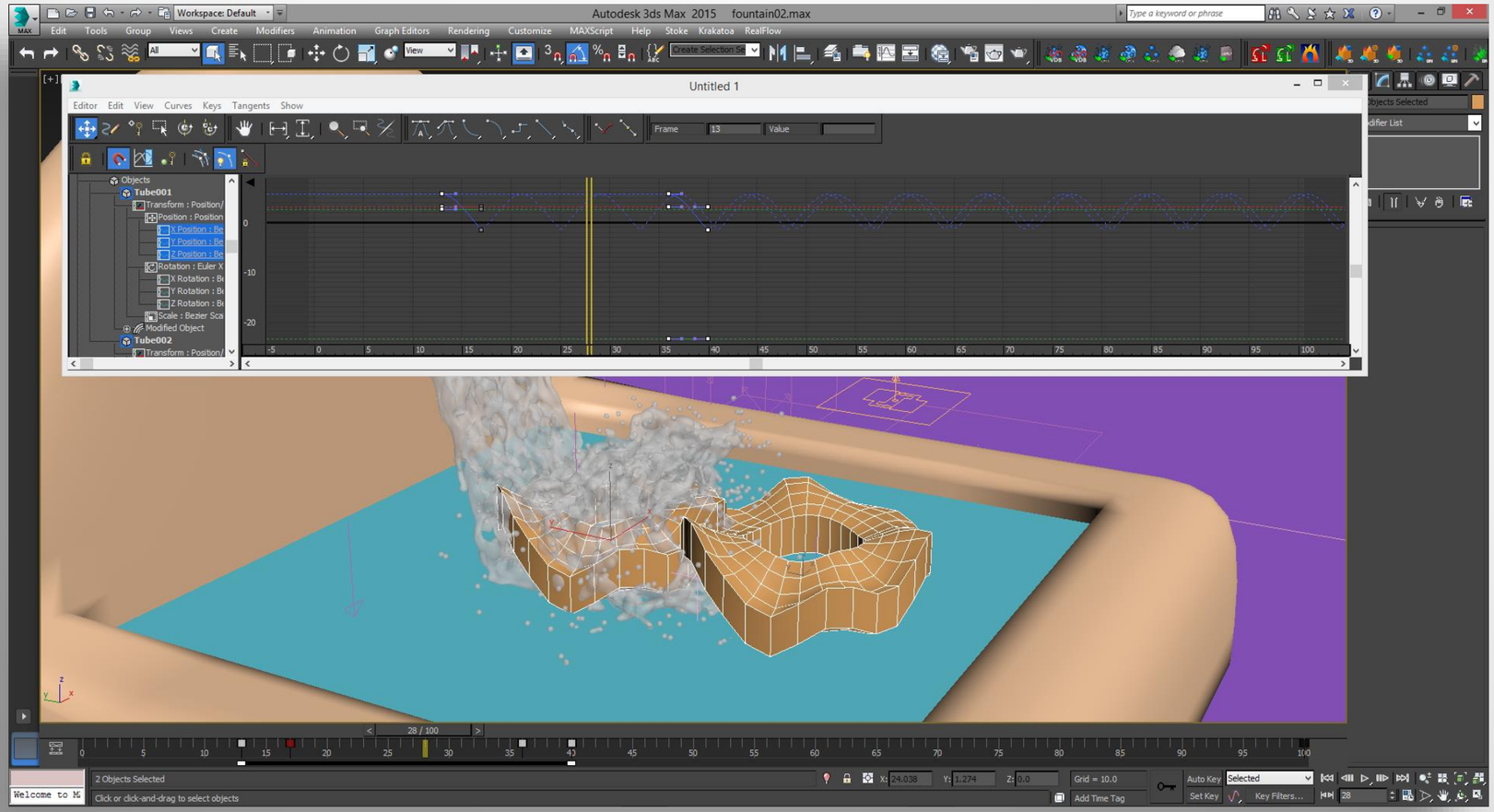
Small Scale Water Surfaces

Create, Mesh and Cache a Pflow Water Stream



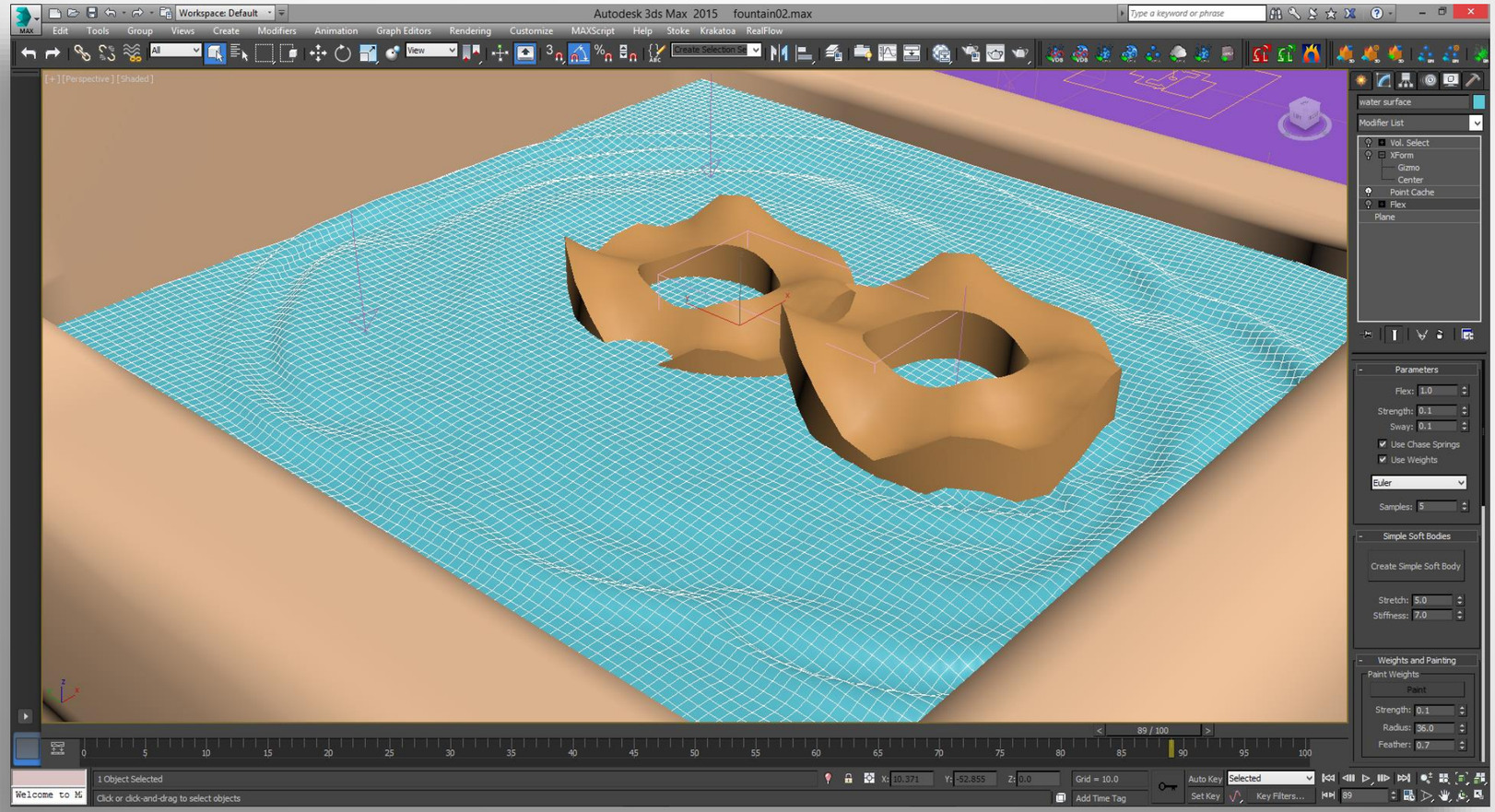
Small Scale Water Surfaces

Animate proxy objects



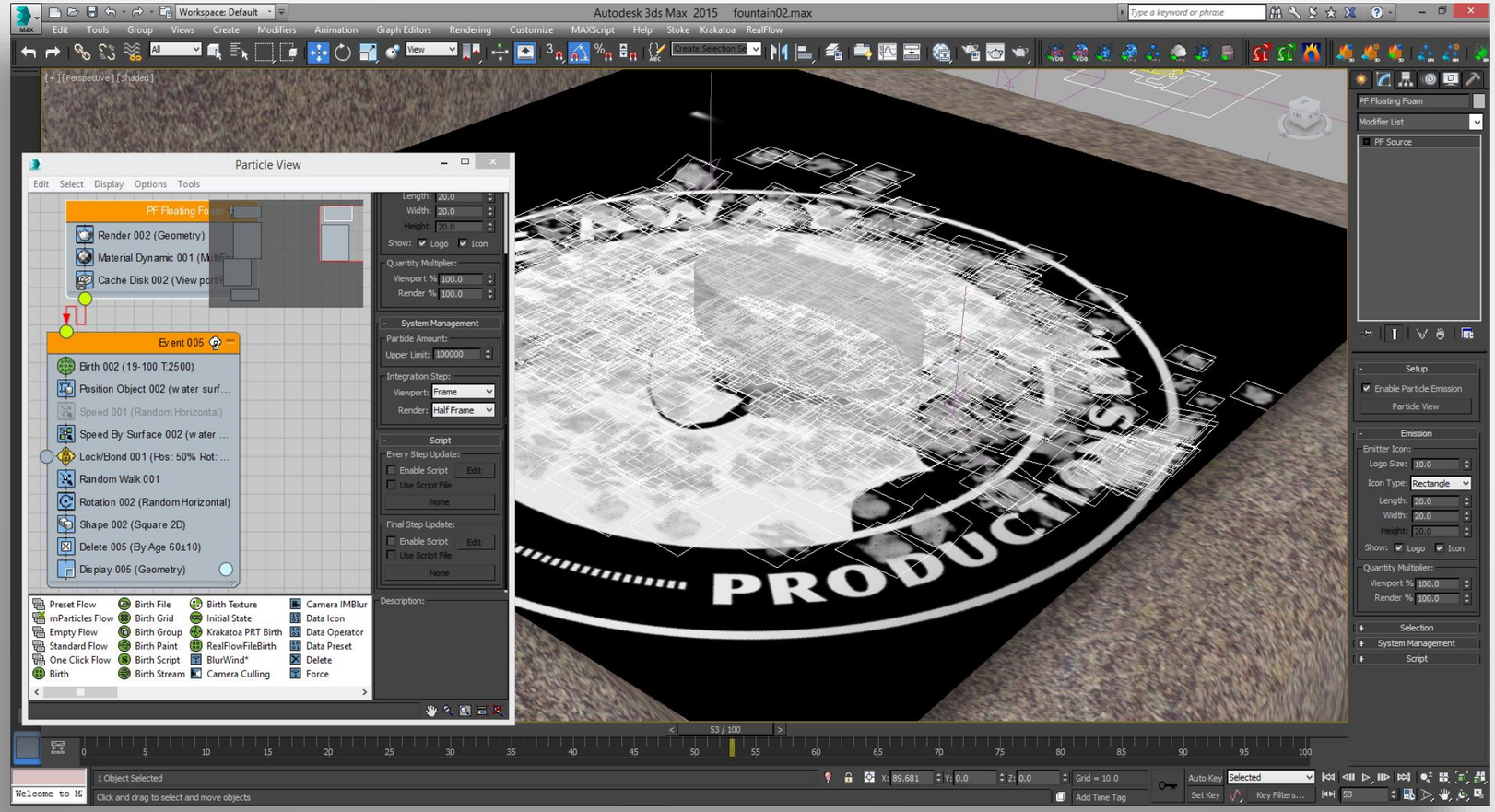
Small Scale Water Surfaces

Run flex simulation and cache



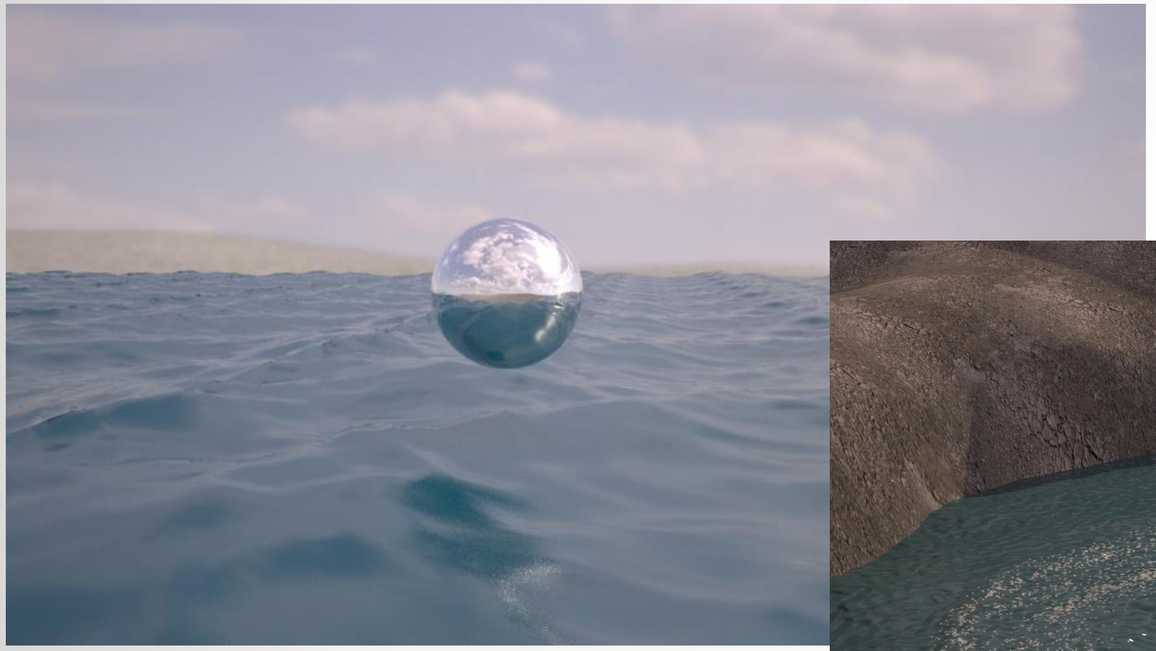
Small Scale Water Surfaces

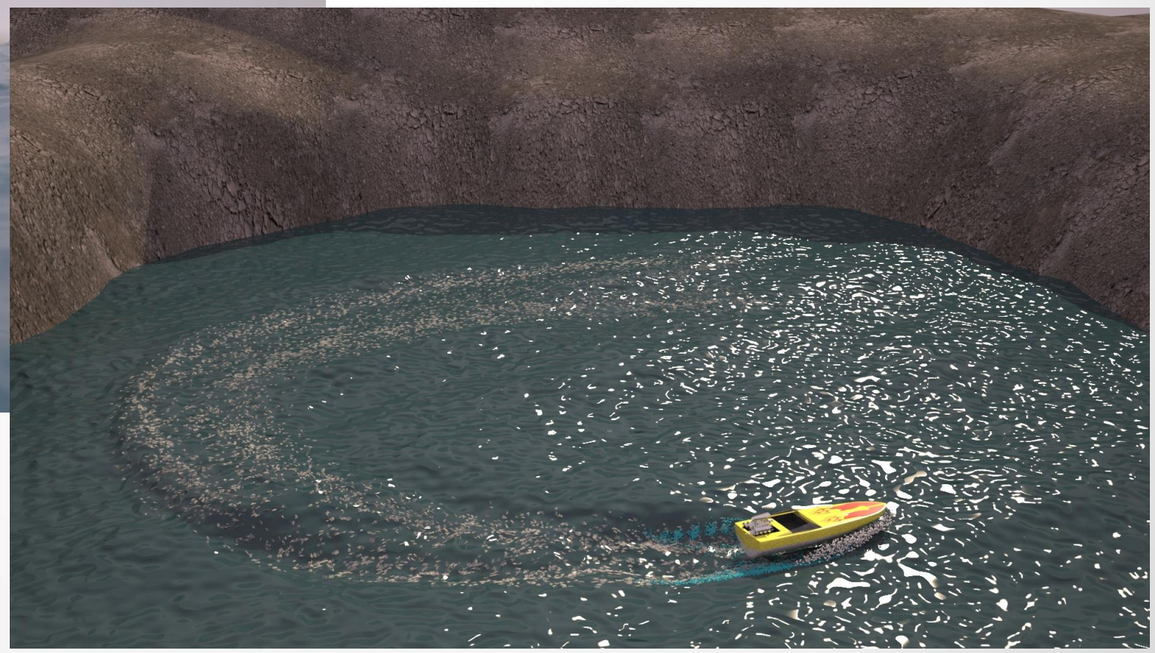
Create Pflow foam system



Large Scale Water Surfaces

- Lakes and Oceans





Large Scale Water Surfaces

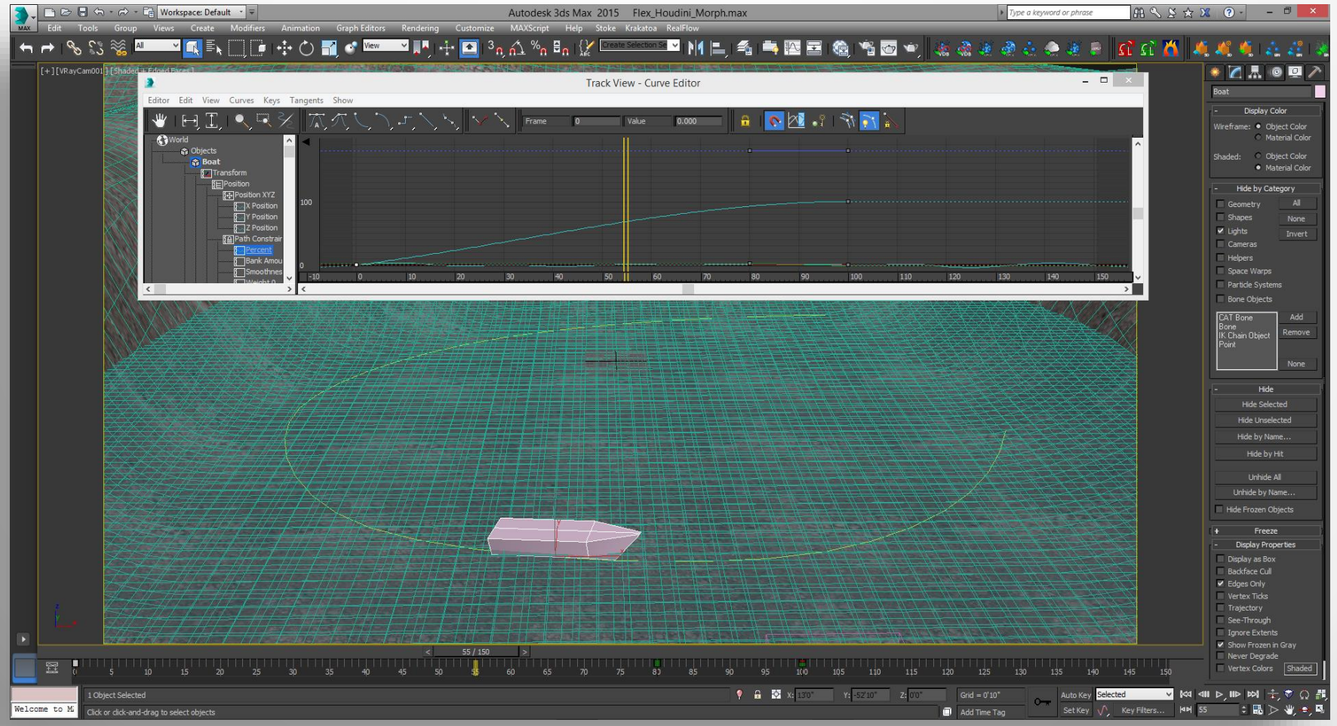
Workflow Overview

- Create plane for water surface
- Create interaction objects and animate as needed
- Setup flex simulation
- Cache the flex water surface
- Add Houdini Ocean
- Create Pflow foam system

Large Scale Water Surfaces

Workflow Overview

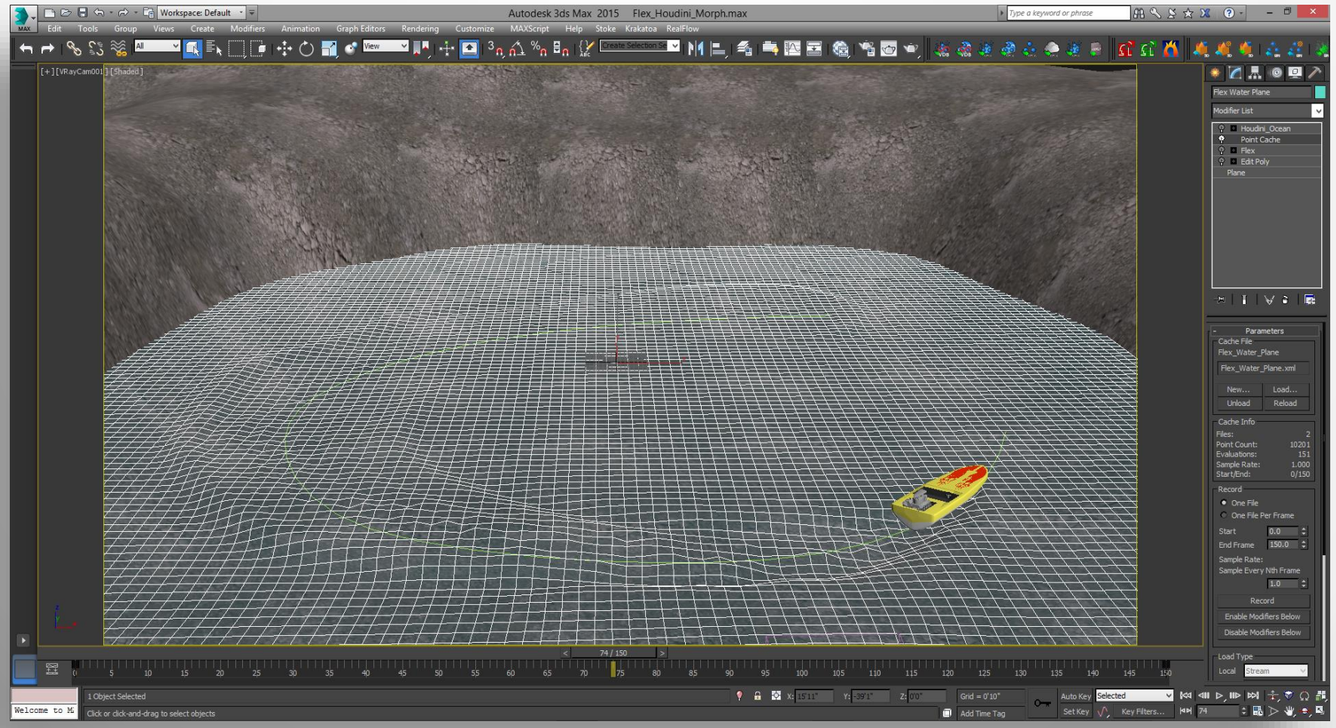
- Create plane for water surface
- Create interaction objects and animate as needed



Large Scale Water Surfaces

Workflow Overview

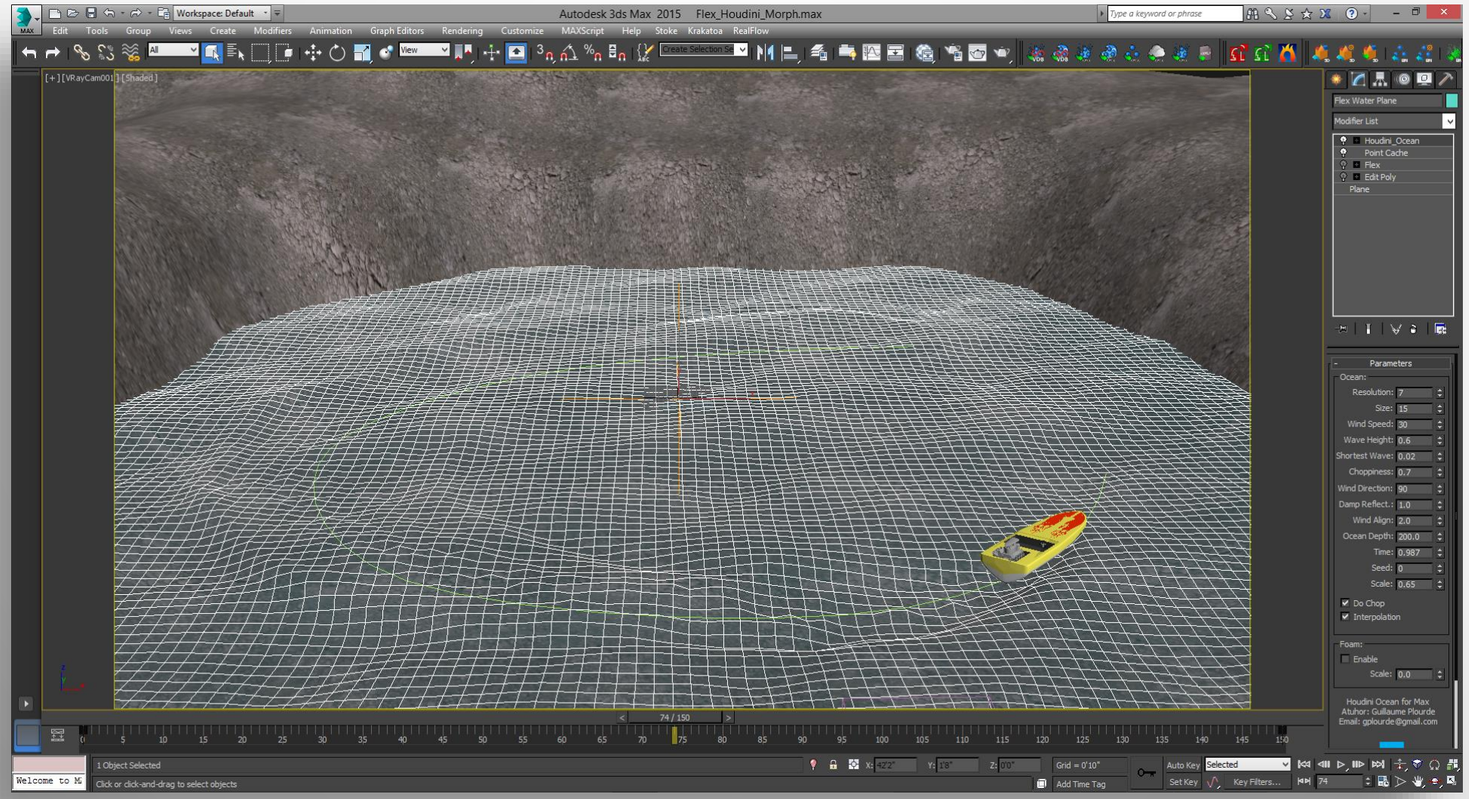
- Setup flex simulation
- Cache the flex water surface



Large Scale Water Surfaces

Workflow Overview

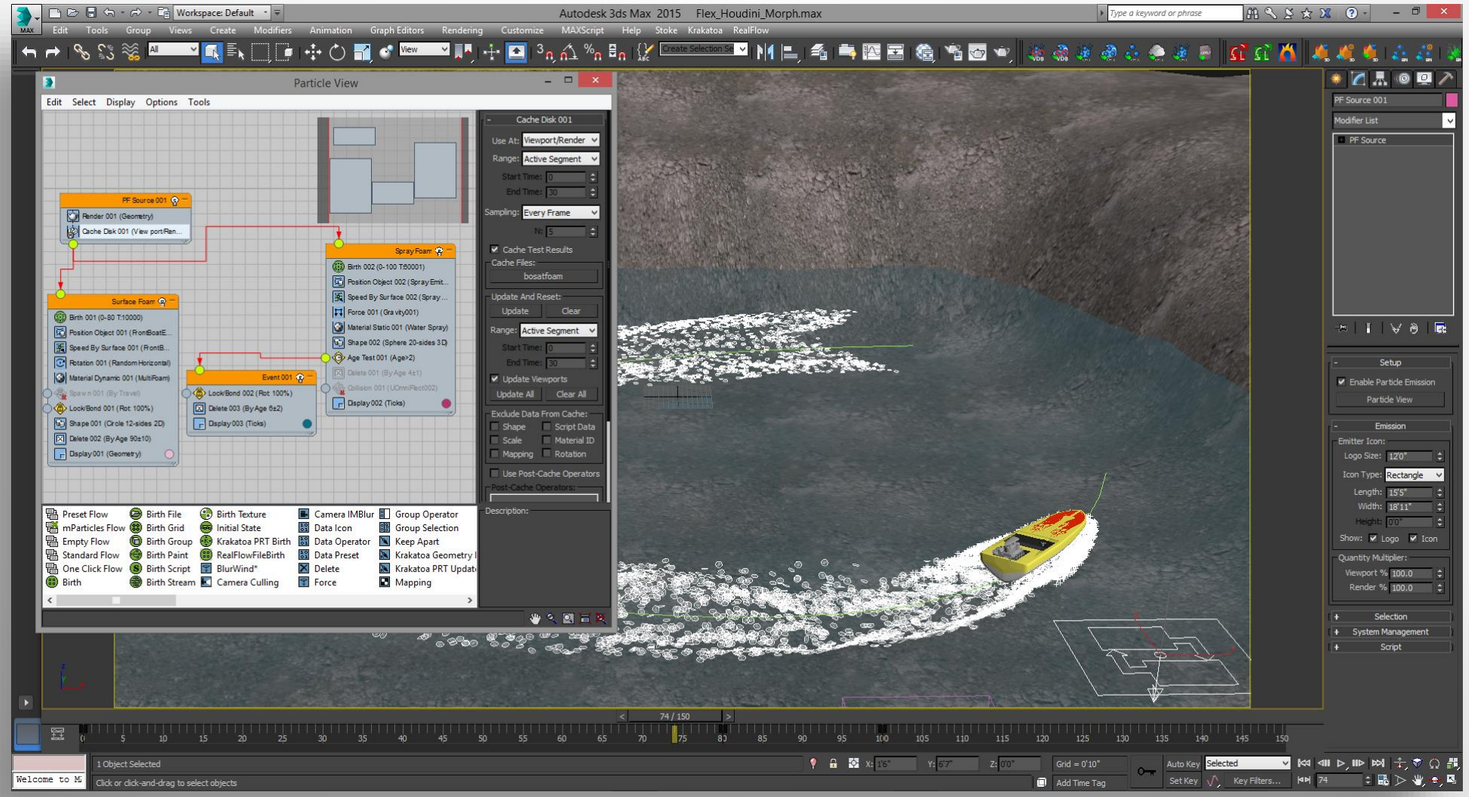
- Add Houdini Ocean

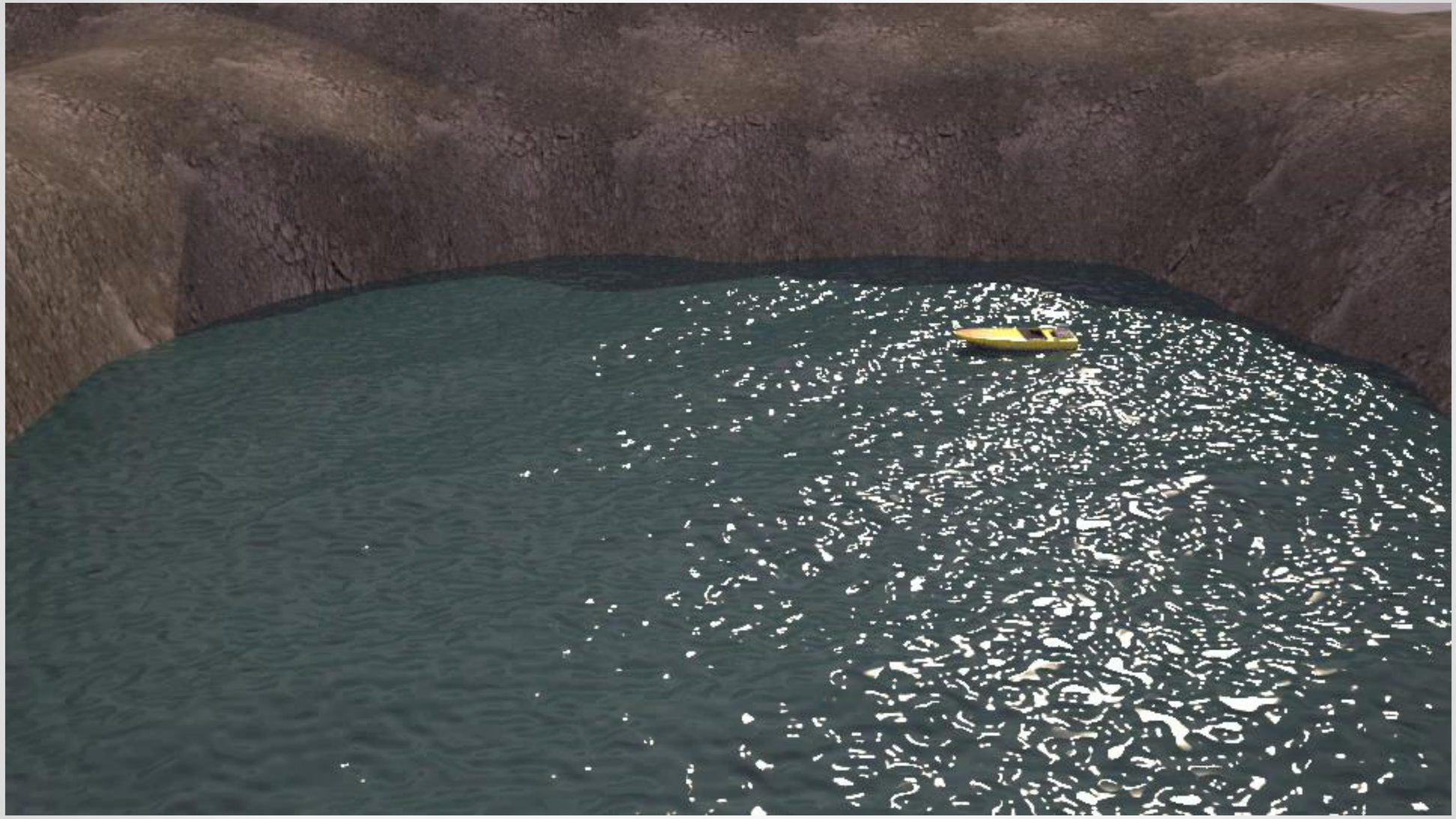


Large Scale Water Surfaces

Workflow Overview

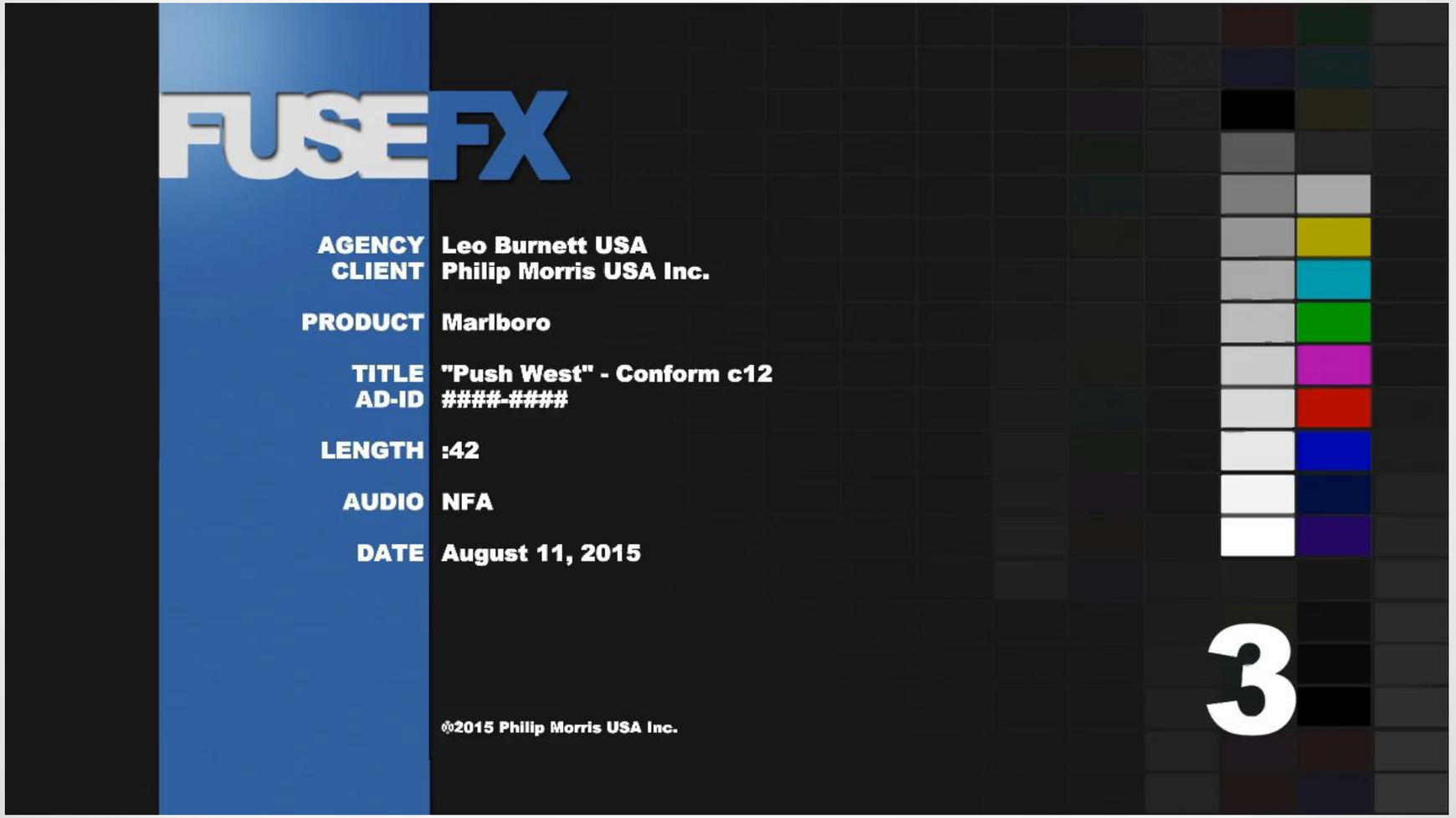
- Create Pflow foam system





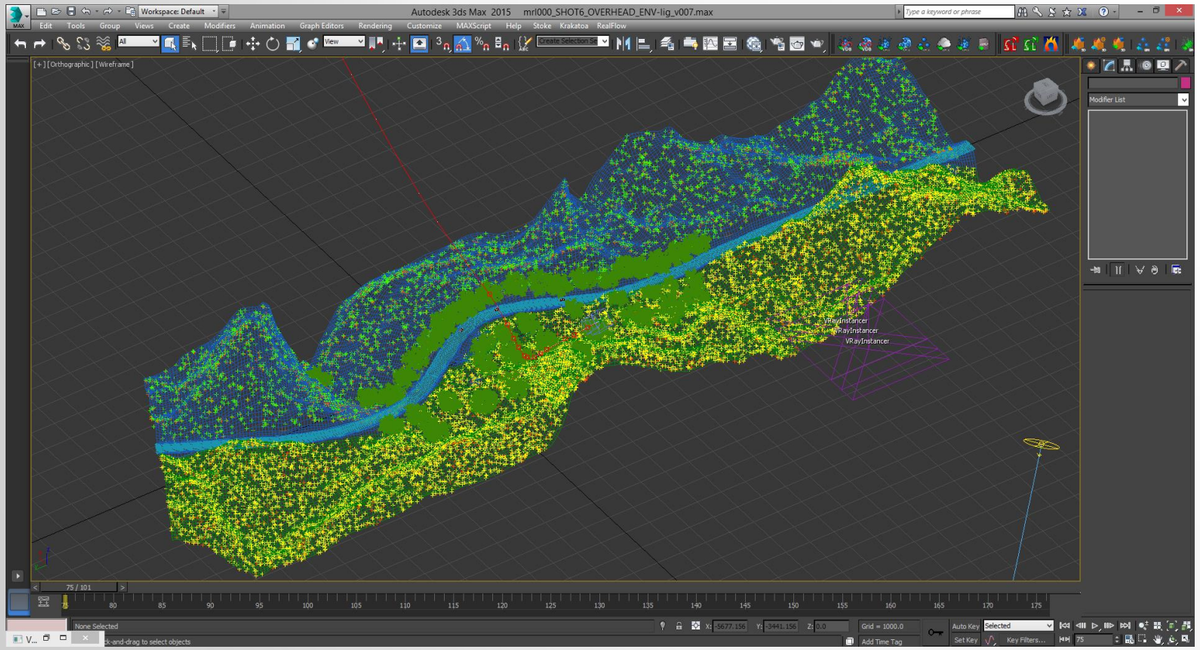
Aerial View Foliage

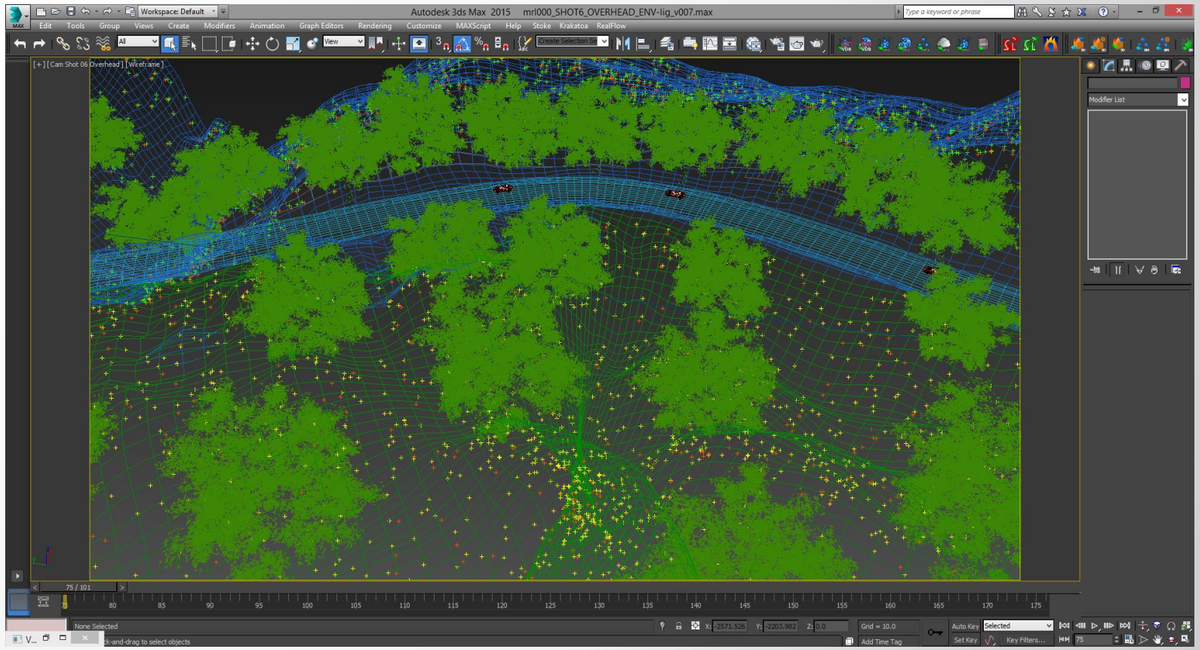
Aerial View Foliage



Forest Canopy Without Using All Tree Models

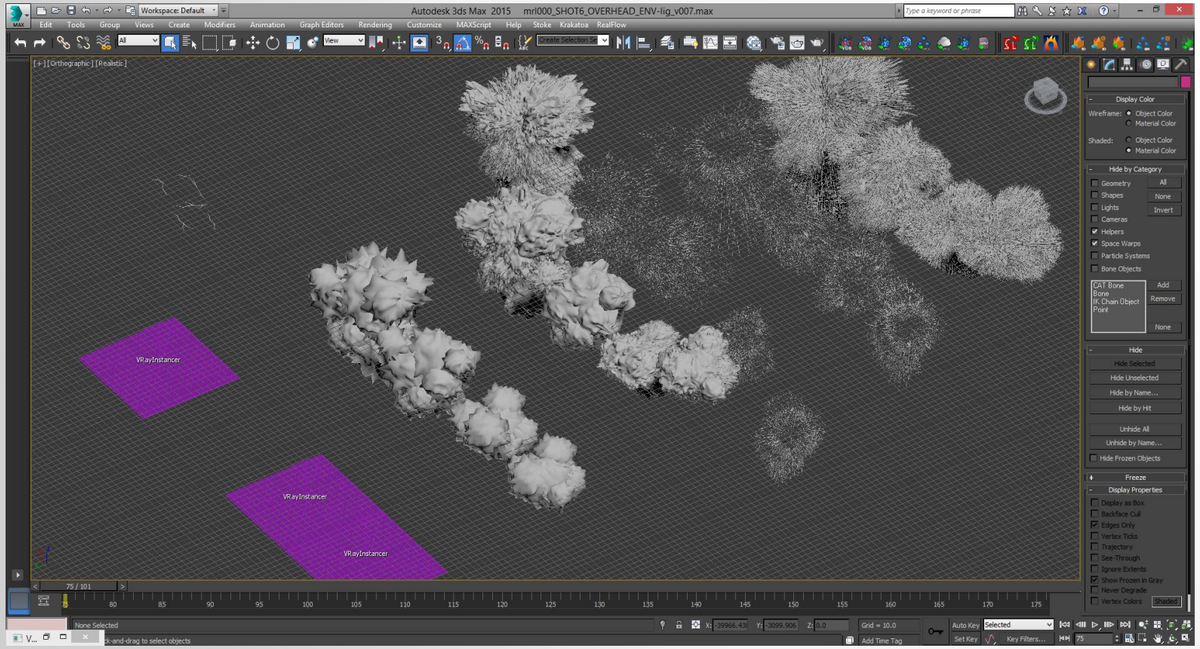
- Good for shots High Altitude Wide Aerial Shots
- Lighter to work with and render than full tree models
- Uses Vray Proxies and Vray Instancer with Pflow

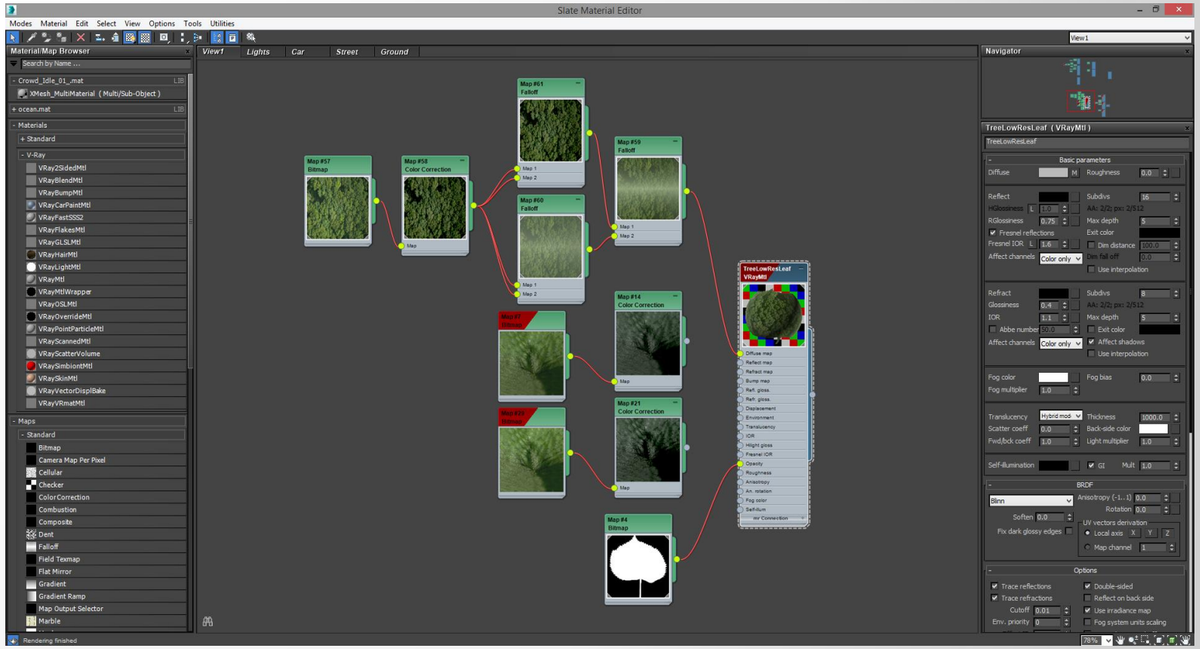




Forest Canopy Without Using All Tree Models

- Spheres with Displacement modifier
- Use nested Falloff maps in material

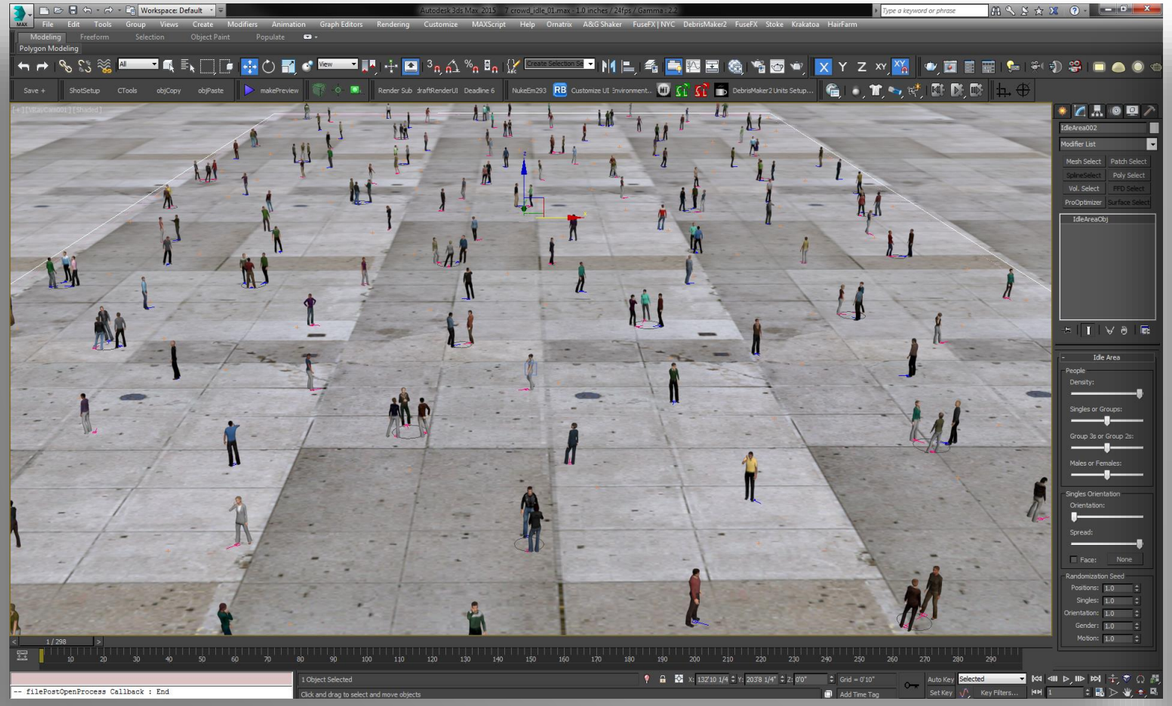




Efficient Large Crowds

Efficient Distribution of Populate Assets

- Good for shots needing generic non-hero idle crowds
- Bypasses crowd-density/area limitations of Populate
- Expands crowd distribution options



Efficient Large Crowds

Workflow Overview

- Create generic idle crowd with Populate
- Create Cache of all crowd objects to 1 proxy file with Xmesh
- Repeat as necessary for more varied crowd
- Setup Pflow crowd distribution system
- Create and setup Vray Instancer

Miscellaneous Production Tips and Tricks

Topics Covered

We will be examining the following:

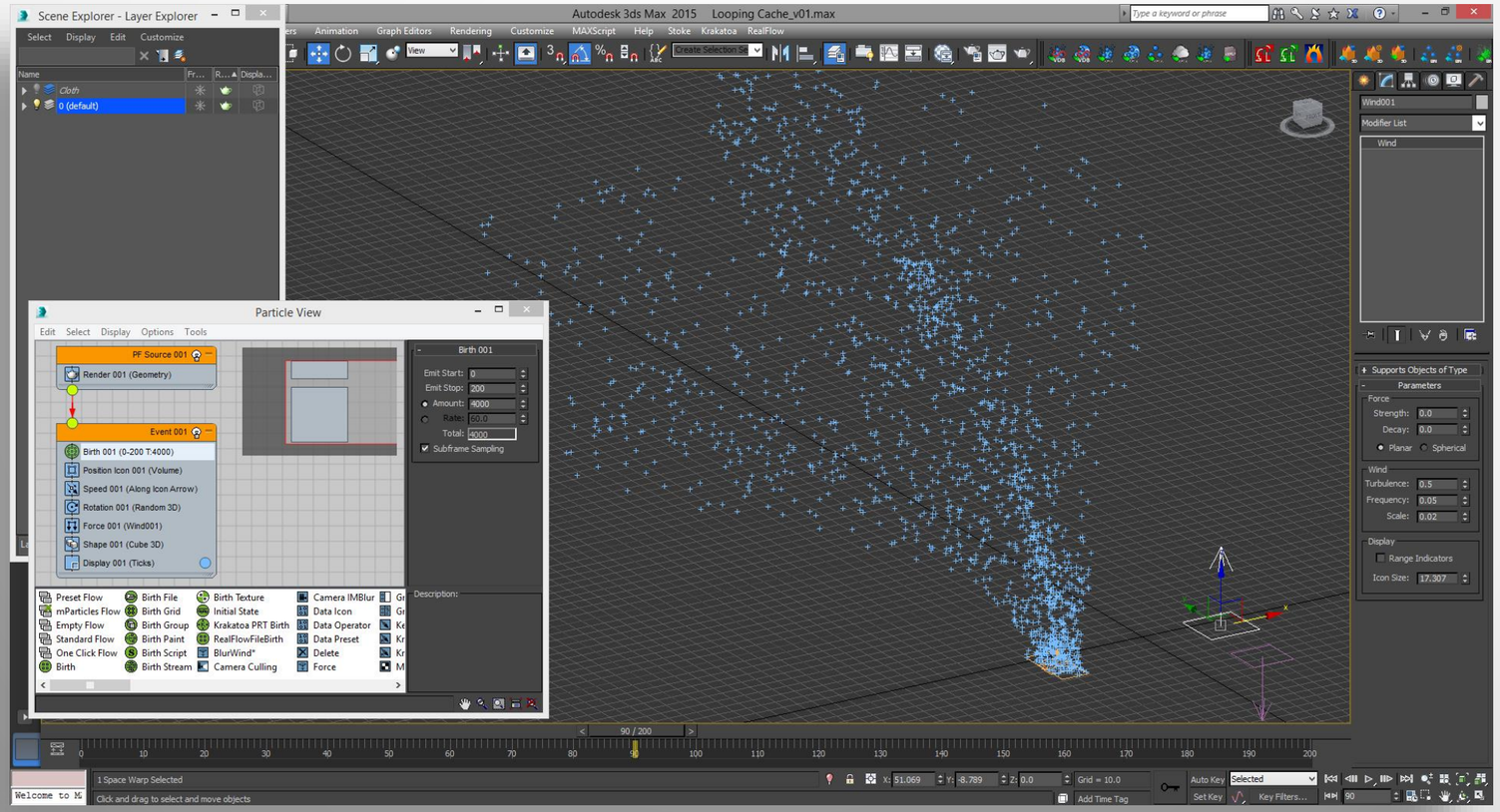
- Quick HDRI config for use with Vray
- Using particles for quicker Turbulence/Noise visualization
- Creating Looping Geometry Caches
- Show Trajectories Toggle
- Render EXR whenever possible for sweetening in comp
- Avoiding Viewport Performance Hits

Quick HDRI configuration with Vray Dome Light

- Use sphere with fully reflective shader
- Goal is to maintain a 1x multiplier in the dome light
- Sphere used to gauge processing multipliers in HDRI map controls

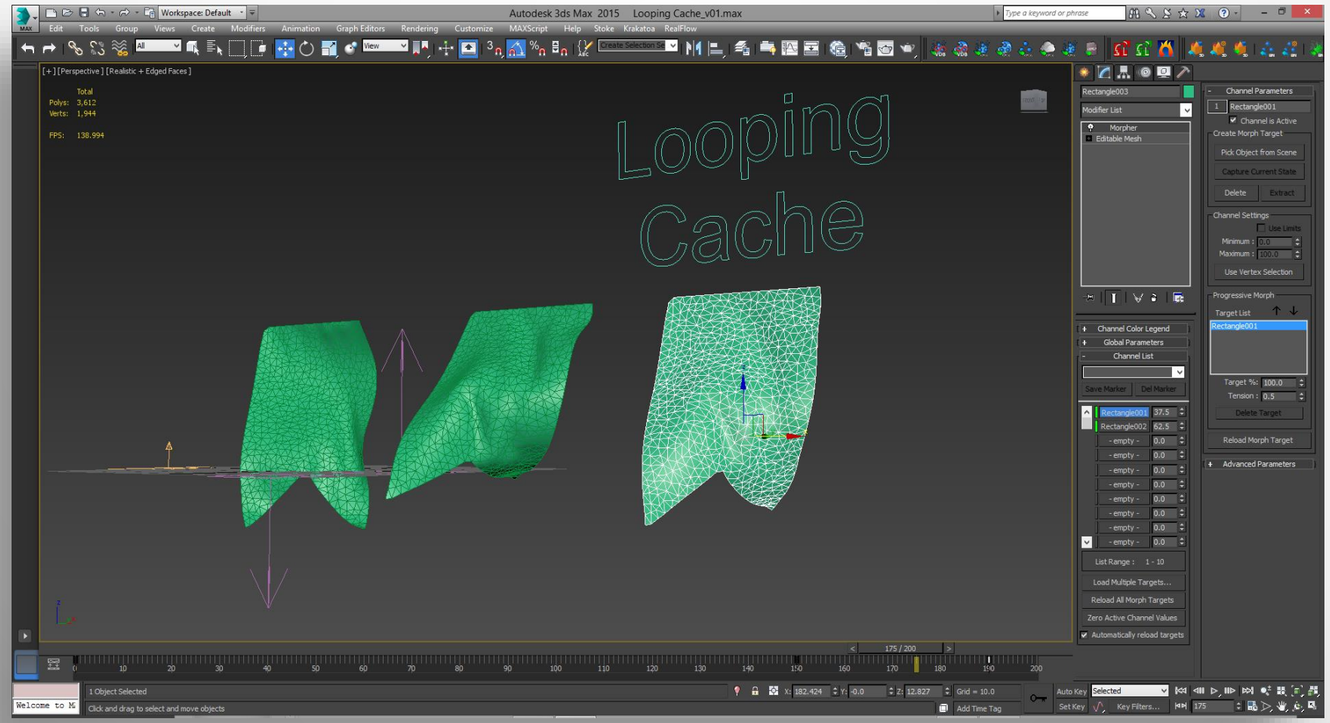
Use Particles to Visualize Noise/Turbulence Faster

- When creating Foliage or Cloth blowing in wind/turbulence
- Faster to use a particle system to visualize noise/turbulence patterns
- Then apply to Cloth or Flex simulation and adjust strength



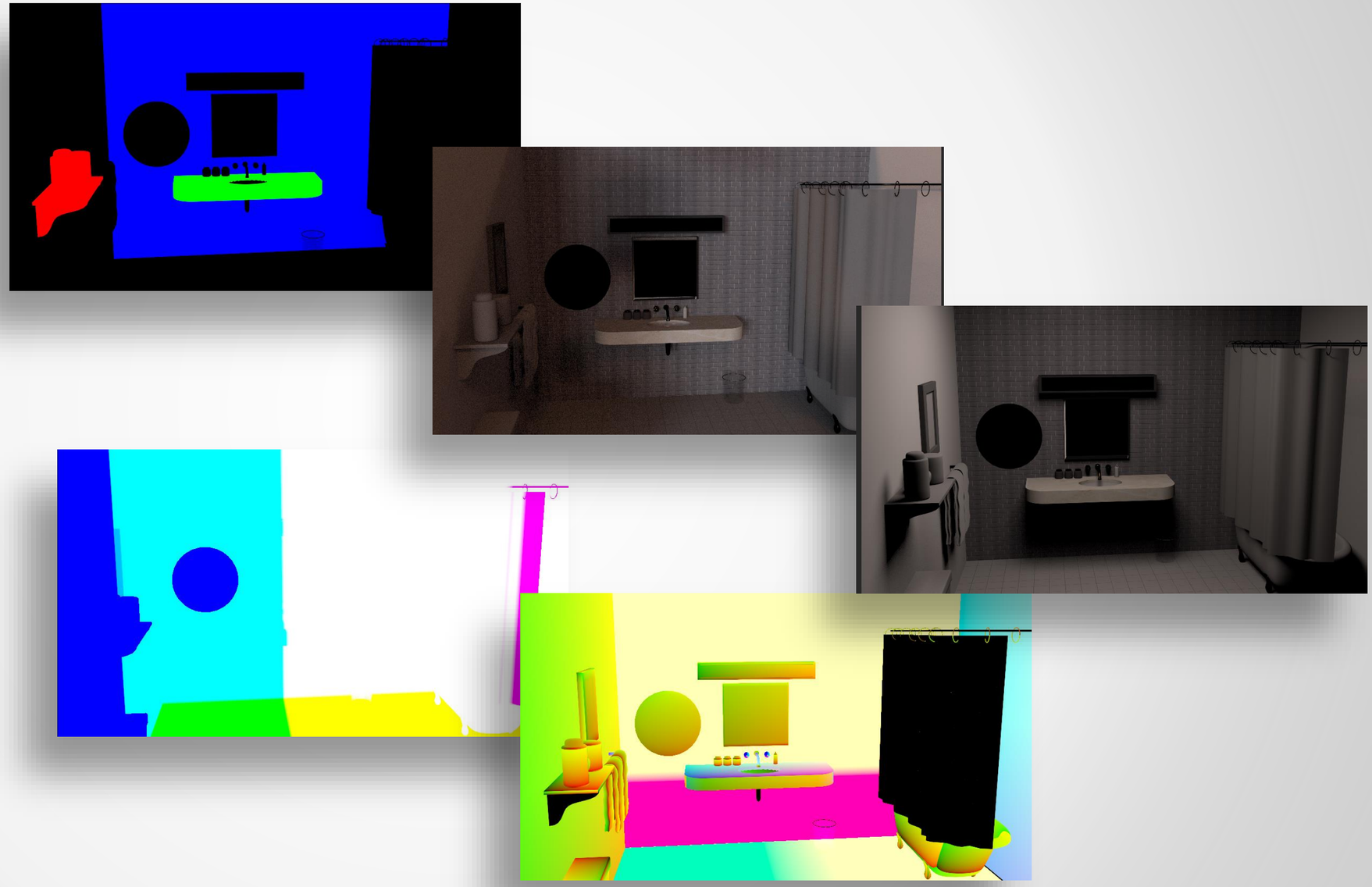
Looping Geometry Caches

- After calculating Cloth or Flex simulation
- Cache resulting animation to disk
- Make a clone and offset playback timings
- Use Morpher to create loop
- Cache resulting loop animation to disk



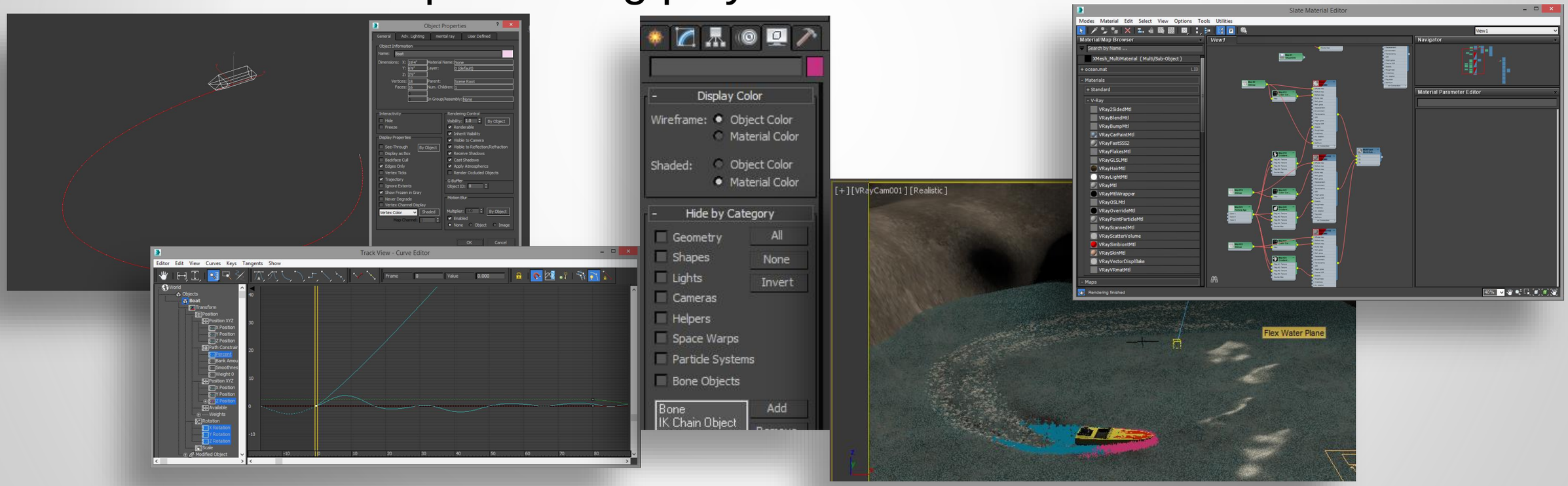
Benefits and General Workflows with Open EXR

- MultiMatte
- Light Select
- Velocity
- SamplerInfo
  - Point
  - UVW



Avoiding 3ds Max viewport performance hits

- Displaying object trajectories
- Having Track View open
- Having Display Tab of Command Column Selected/Visible
- Realistic viewport mode
- Material Editor open during playback



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