Flooding Surface Interpolator

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GIS Programming
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Flooding Surface Interpolator AP

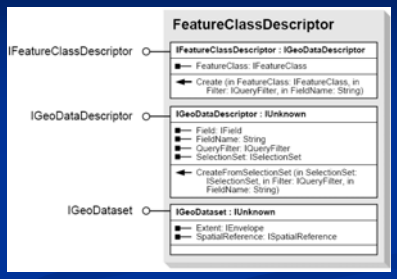
- What does the FSI AP do?
  - Creates a raster surface that represents an interpolated approximation of a river surface from river stage data available at discrete points
  - Inverse distance weighting IDW
    - Local - values used in interpolation area a specified # of neighboring points
    - Exact - returns exact value at known data values
    - Deterministic – no error analysis is performed
- How can it be used?
  - Will be used in combination with a fluvial tidal model of the Lower Columbia River to hindcast inundation and model salmonid shallow water habitat back to the early 1900's

Using the FSI Tool

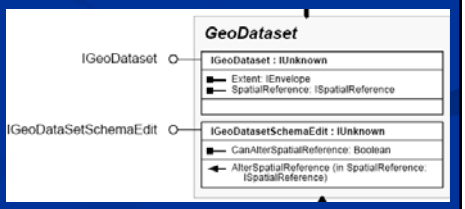
- Inputs
  - feature class with river stage data
    - Must contain enough data to reasonably approximate the river surface
  - Raster data set covering area of interest
    - Used as a mask to define output extent and cell size
- User selects
  - Which feature class and raster layers to use from a list
  - Field name of data to interpolate from attribute list
  - Input the name of the interpolated layer
- Run the interpolation
  - Requires Spatial Analyst Extension

Key Interfaces Used

- **IFeatureClassDescriptor**
  - coclass
  - Create a feature class descriptor
  - Arguments
    - Feature class
    - Filter, not used here
    - Field name

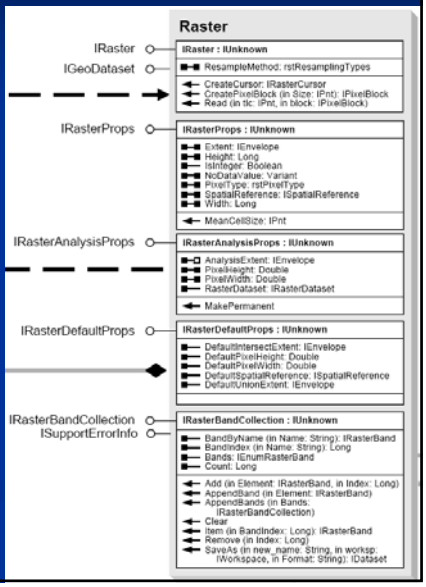


- **IGeoDataset**
  - abstract class
  - Get the extent and spatial reference data from the mask

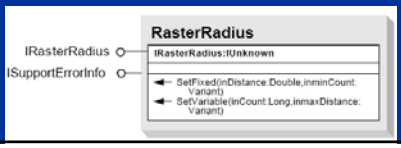


Key Interfaces Used

- **IRaster**
  - coclass
  - Create a virtual representation of the a raster dataset to perform raster operations on

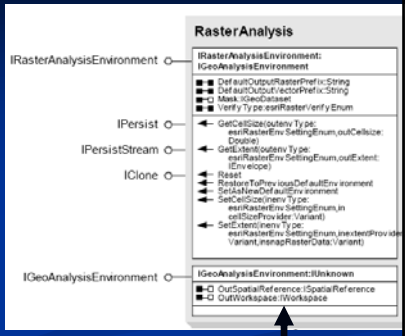


- **IRasterRadius**
  - coclass
  - Use **SetVariable** method to define a search radius
    - Specifies the number of sample points used in the IDW interpolation

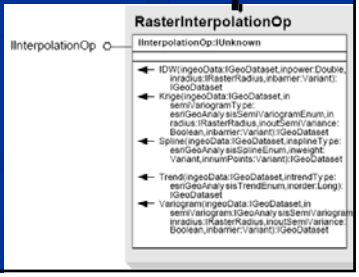


Key Interfaces Used

- **IRasterAnalysisEnvironment**
  - coclass
  - Set the analysis mask and cell size



- **IInterpolationOp**
  - coclass
  - Implement interpolation methods (IDW)
    - Feature class data
    - Interpolation function power
    - # points to include
  - Inherits properties and methods of IRasterAnalysisEnvironment



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Reference Code from:
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