

CUMULATIVE IMPACTS

Fall 2010 Consultant Workshop



US Army Corps of Engineers
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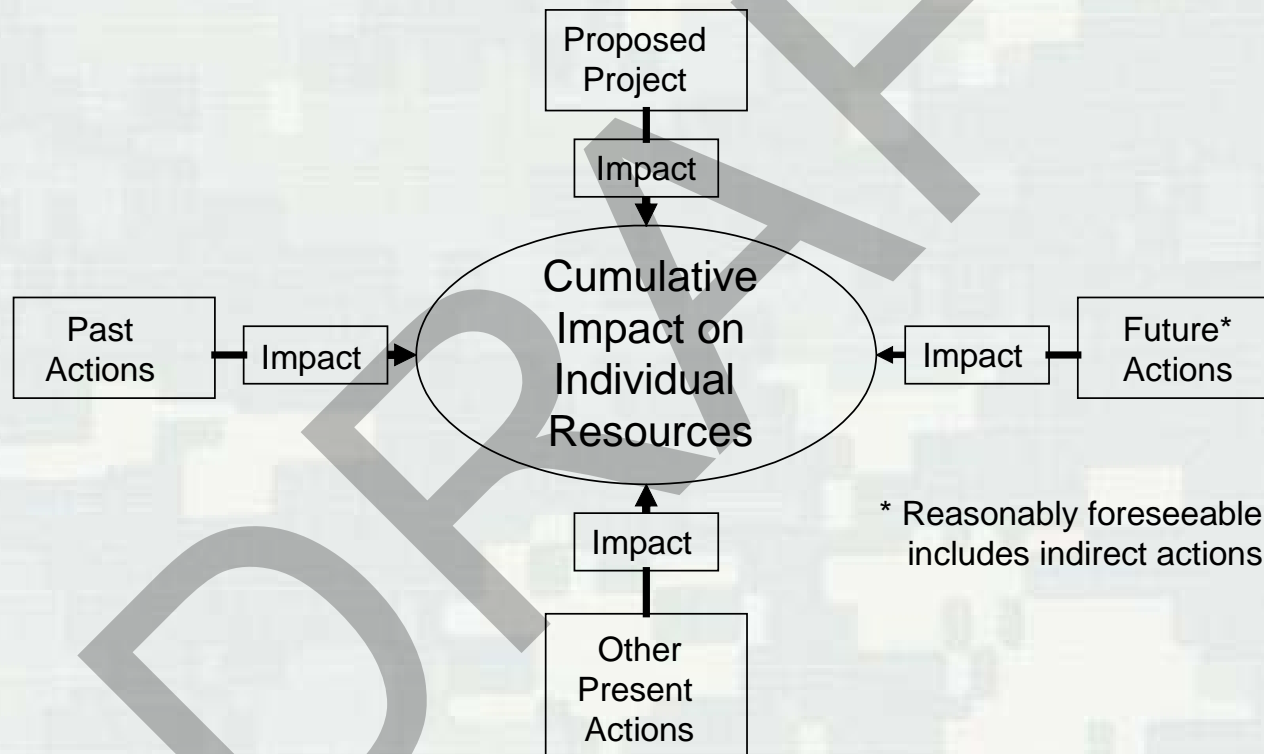


Topics

- Accomplish objective by providing the following:
 - ▶ What Are Cumulative Impacts
 - ▶ Examples of Cumulative Impacts
 - ▶ Savannah District Approach to Cumulative Impacts
 - ▶ What Are Secondary Impacts
 - ▶ Examples of Secondary Impacts



"Cumulative impact" is the impact on the environment which **results from the incremental impact of the action** when added to other **past, present, and reasonably foreseeable future actions**



Taken from: <http://www.highways.dot.ca.gov/ser/vol1/sec1/ch1fedlaw>



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1984 Betz Creek



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1997 Betz Creek

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2007 Betz Creek



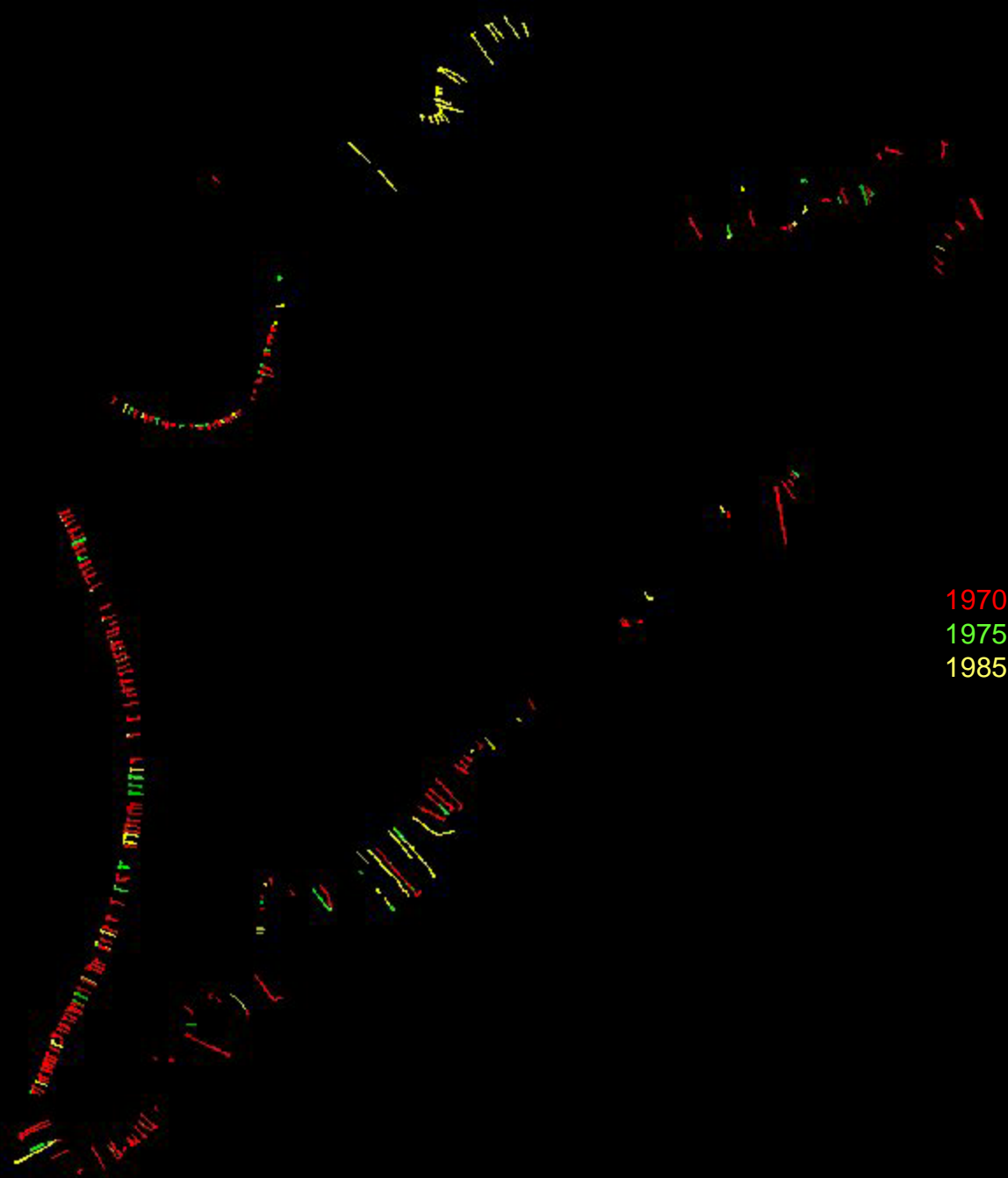
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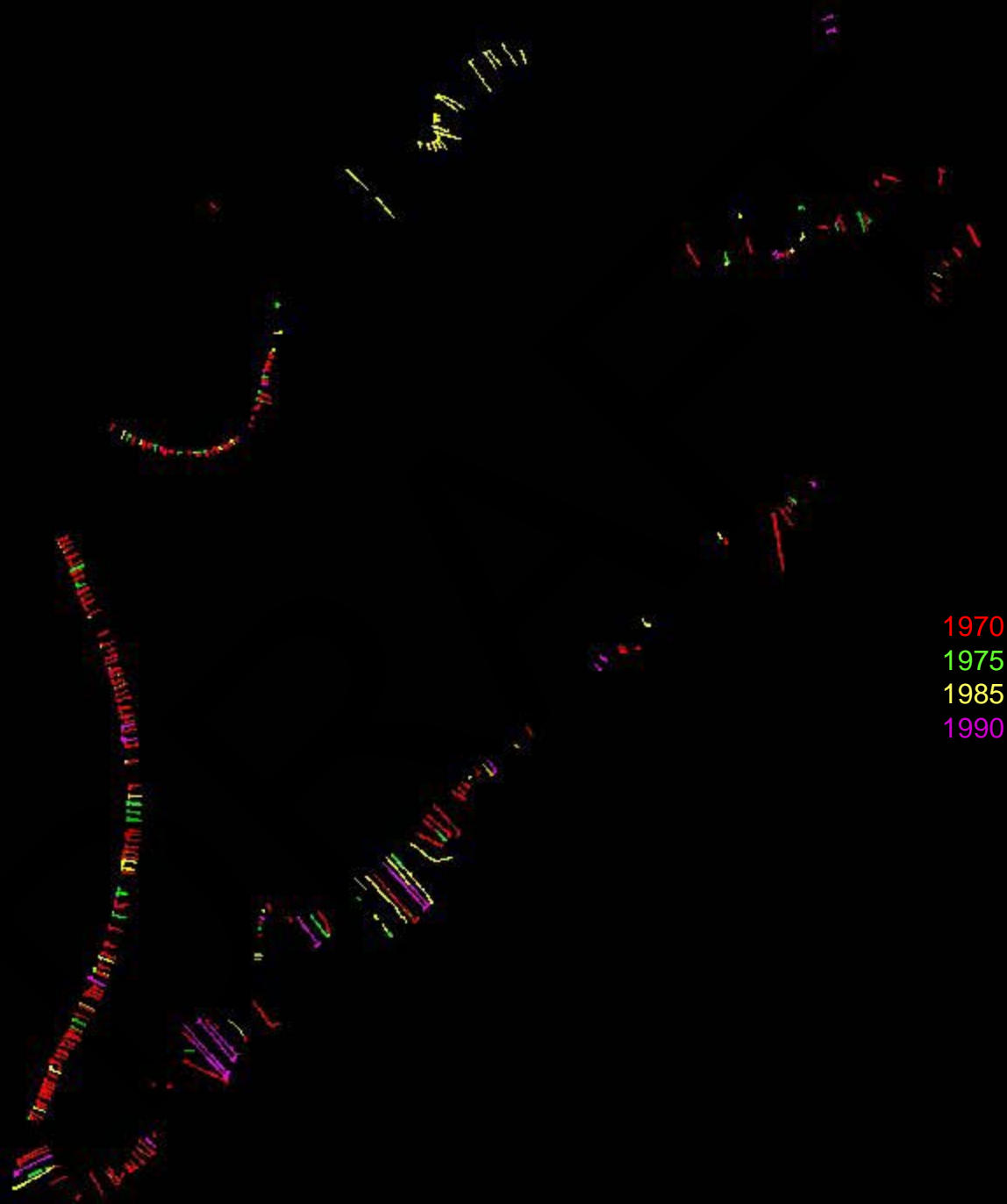
What about Cumulative Impacts for Docks?

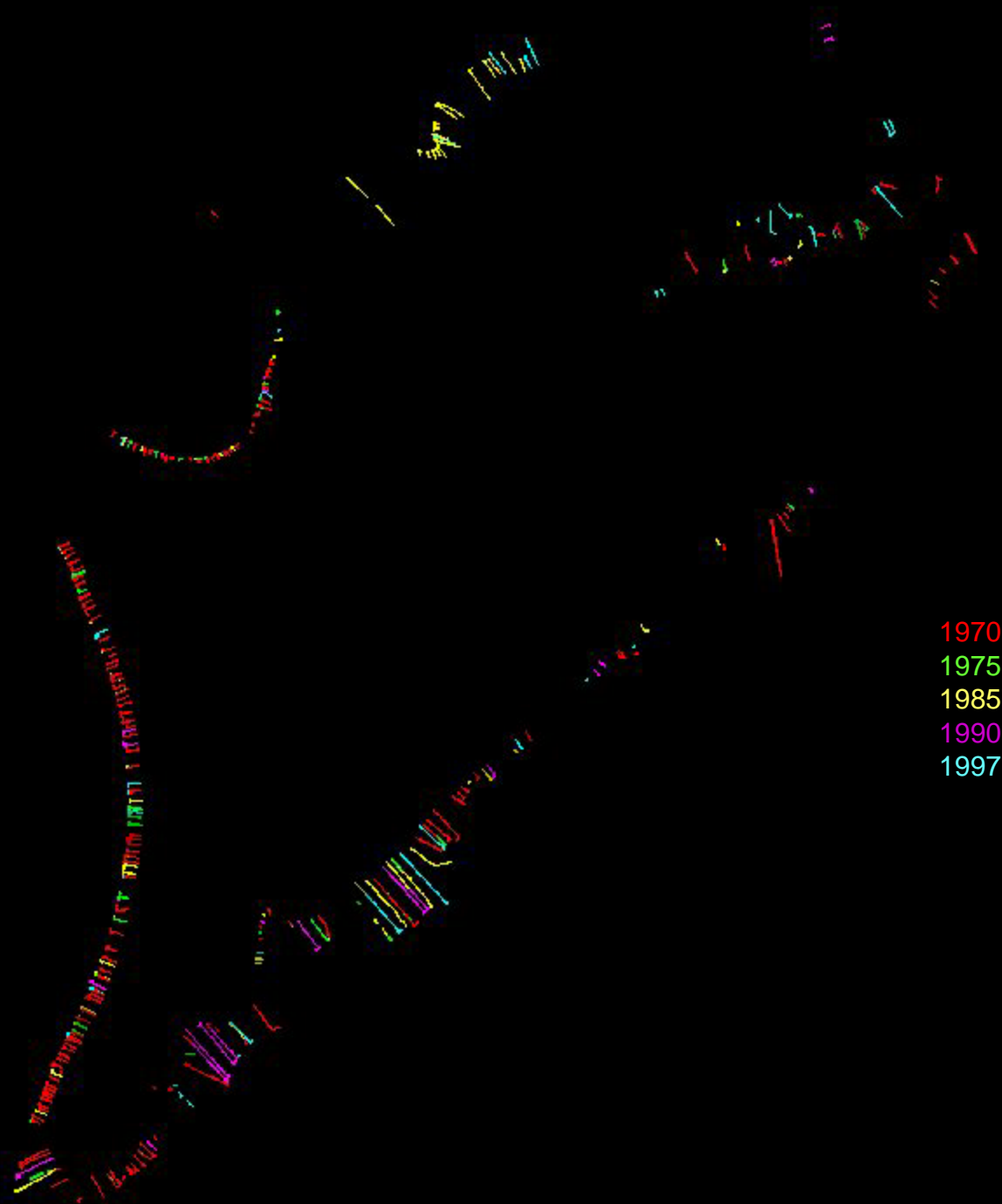
Slides courtesy of Clark Alexander
(clark.alexander@skio.usg.edu)

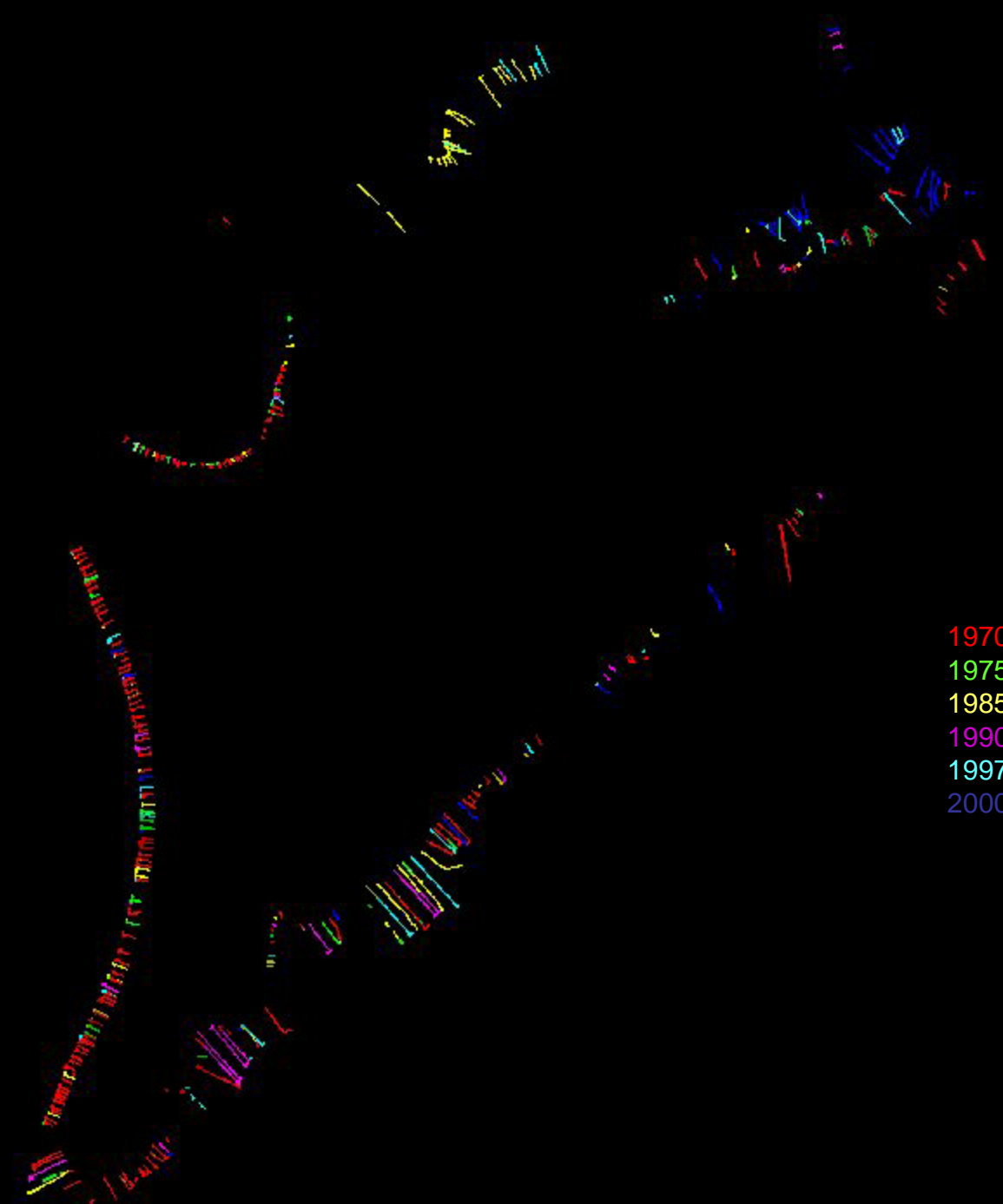


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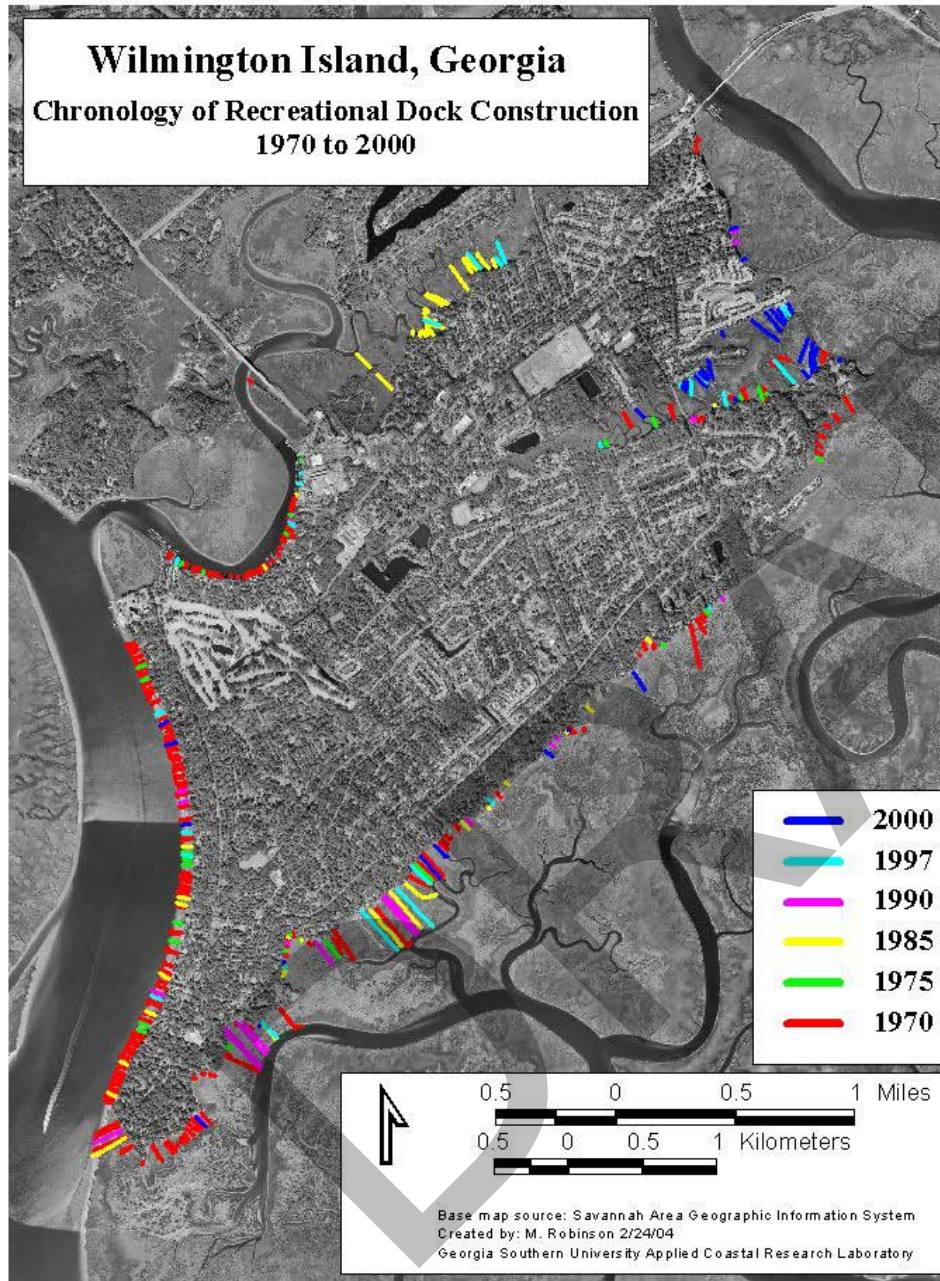






Wilmington Island, Georgia

Chronology of Recreational Dock Construction
1970 to 2000



Slides courtesy of
Clark Alexander (clark.alexander@skio.usg.edu)



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What are the Cumulative Impacts Associated with Docks?



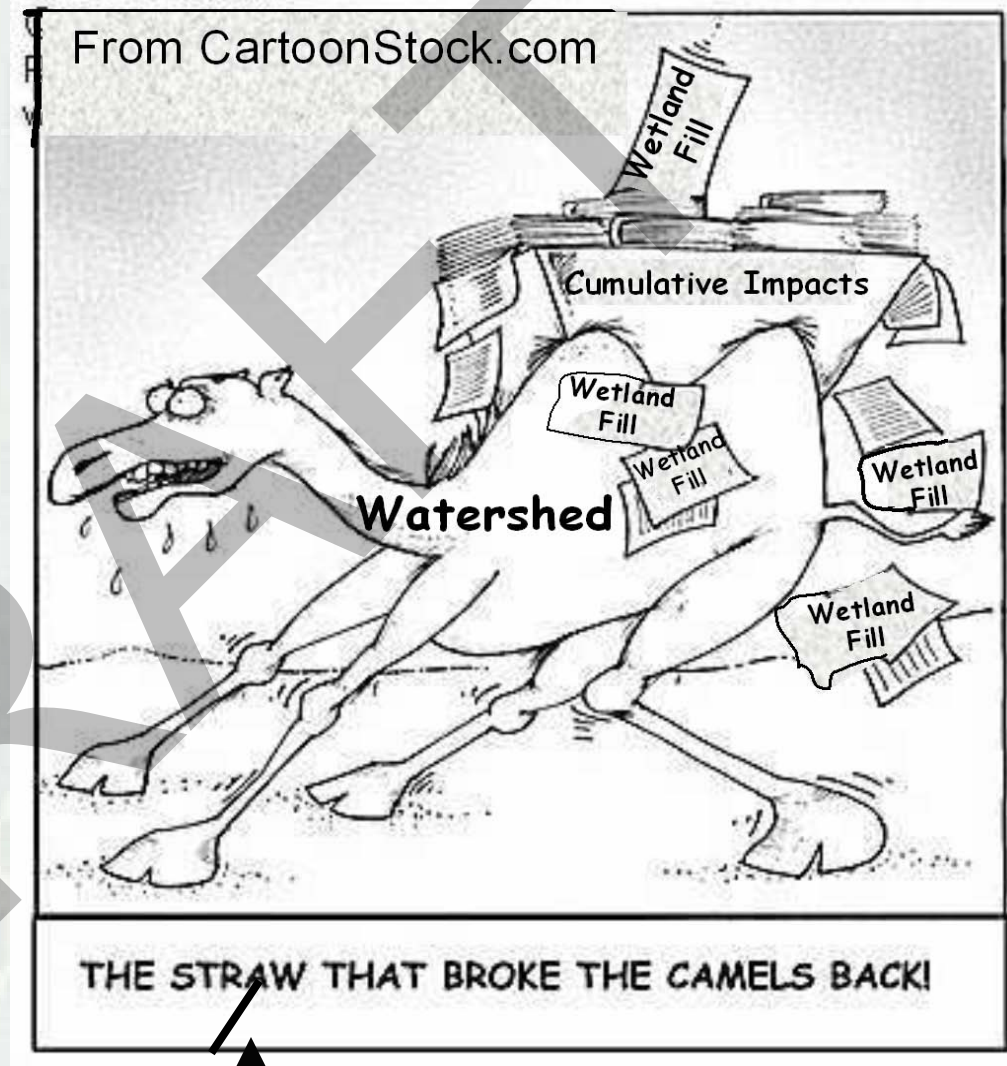
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Cumulative Impacts

- What is breaking point?
- How much development is too much?
- How do you justify a “Maximum Capacity” determination?



The 1-acre of Wetland Fill



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Principles of Cumulative Effects Analysis

- Past, present, and reasonably foreseeable future actions.
- Include both direct and indirect effects.
- Effects analyzed in terms of the specific resource, ecosystem, and human community being affected.
- The list of environmental effects must focus on those impacts that are truly meaningful.
- Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with county boundaries.



Savannah District's Approach to Cumulative Effects Analysis

- Focus of Analysis
 - ▶ Wetlands and/or Streams
 - ▶ Water Quality
 - ▶ Aquatic Species

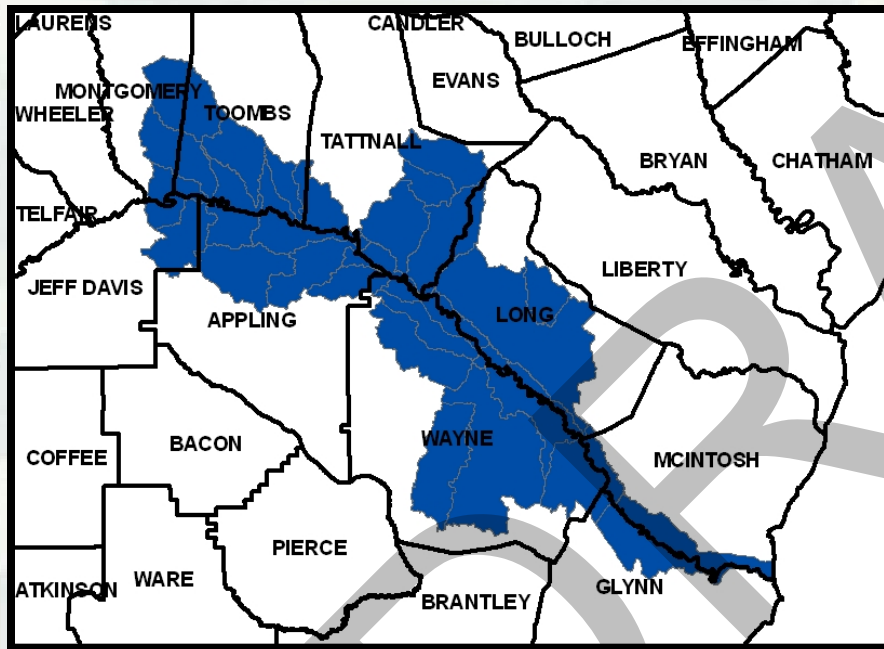
“Cumulative effects analysis should “count what counts”, not produce superficial analysis of a long laundry list of issues that have little relevance to the effects of the proposed action of the eventual decisions.”

- Council on Environmental Quality (Jan 1997)



Savannah District's Geographic Scope of Analysis

Based on 8 Digit Hydrologic Unit Codes (HUC)



The Hydrologic Unit system is a standardized watershed classification system developed by USGS in the mid 1970s. Hydrologic units are watershed boundaries organized in a nested hierarchy by size.

Altamaha Watershed (HUC: 03070106) and ten counties that comprise basin.



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Find your [watershed](#) using the form below. Once you have found your watershed, you will be able to find citizen based groups that are active in your watershed.

Find your watershed

Step 1) Pick your geographic unit:

| |
|--|
| Zip Code (5 digit number) |
| City Name |
| Watershed Name (Name associated with 8 digit HUC code) |
| State (2-character state abbreviation) |
| Stream (Stream name and state abbr., e.g., Fall Creek, NC) |

Step 2) Enter your geographic information:

Submit

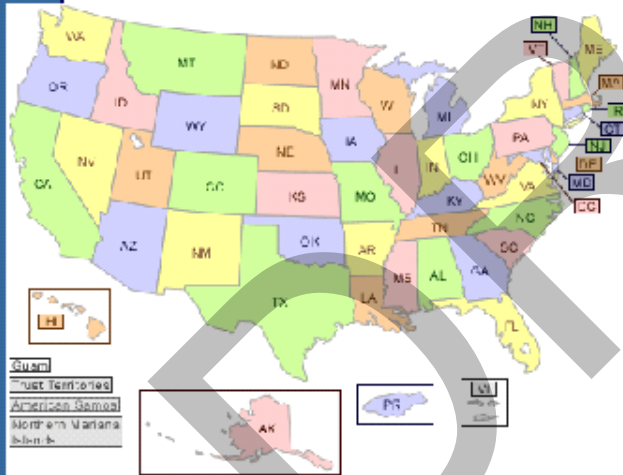
Reset

Locate by state

Choose a state or territory from the map below or the list to the right.

Alabama

GO



Website:

<http://cfpub.epa.gov/surf/locate/index.cfm>

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» Altamaha Watershed -- 03070106

Altamaha Watershed -- 03070106

Altamaha

Watershed Profile

Watershed Name: Altamaha
USGS Cataloging Unit: 03070106
GA 1st Congressional District
GA 12th Congressional District

[Citizen-based Groups at work in this watershed](#) (Provided by [Adopt your Watershed](#))

[Environmental Websites Involving this Watershed](#)

[National Watershed Network](#) (provided by [Conservation Technology Information Center](#)) [EXIT Disclaimer](#)

Visit the [Envirofacts Warehouse](#) to retrieve environmental information from EPA databases on [Air](#), [Community Water Sources](#), [Water Dischargers](#), [Toxic Releases](#), [Hazardous Waste](#), and [Superfund Sites](#). Geographic searches include zip code, city, EPA Region, or county.

Assessments of Watershed Health

[Impaired Water for this watershed](#)

- Assessed Waters by Watershed
 - [Georgia](#)

Information provided by the United States Geological Survey (USGS) [EXIT Disclaimer](#)

- [Stream Flow](#) (Source: USGS)
- [Science in Your Watershed](#)
- [Water use data \(1985-2000\)](#): Information about the amount of water used and how it is used.
- [Selected USGS Abstracts](#)

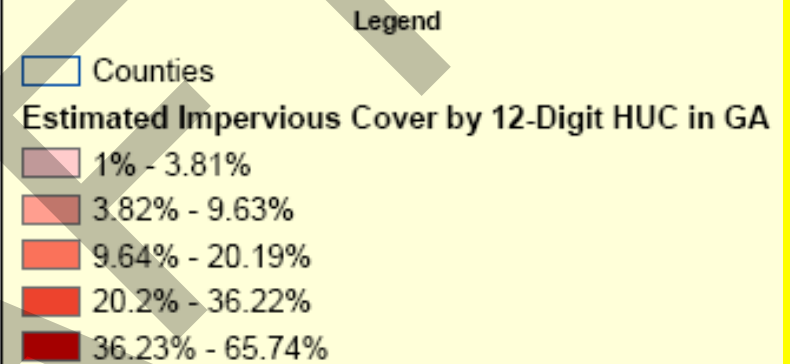
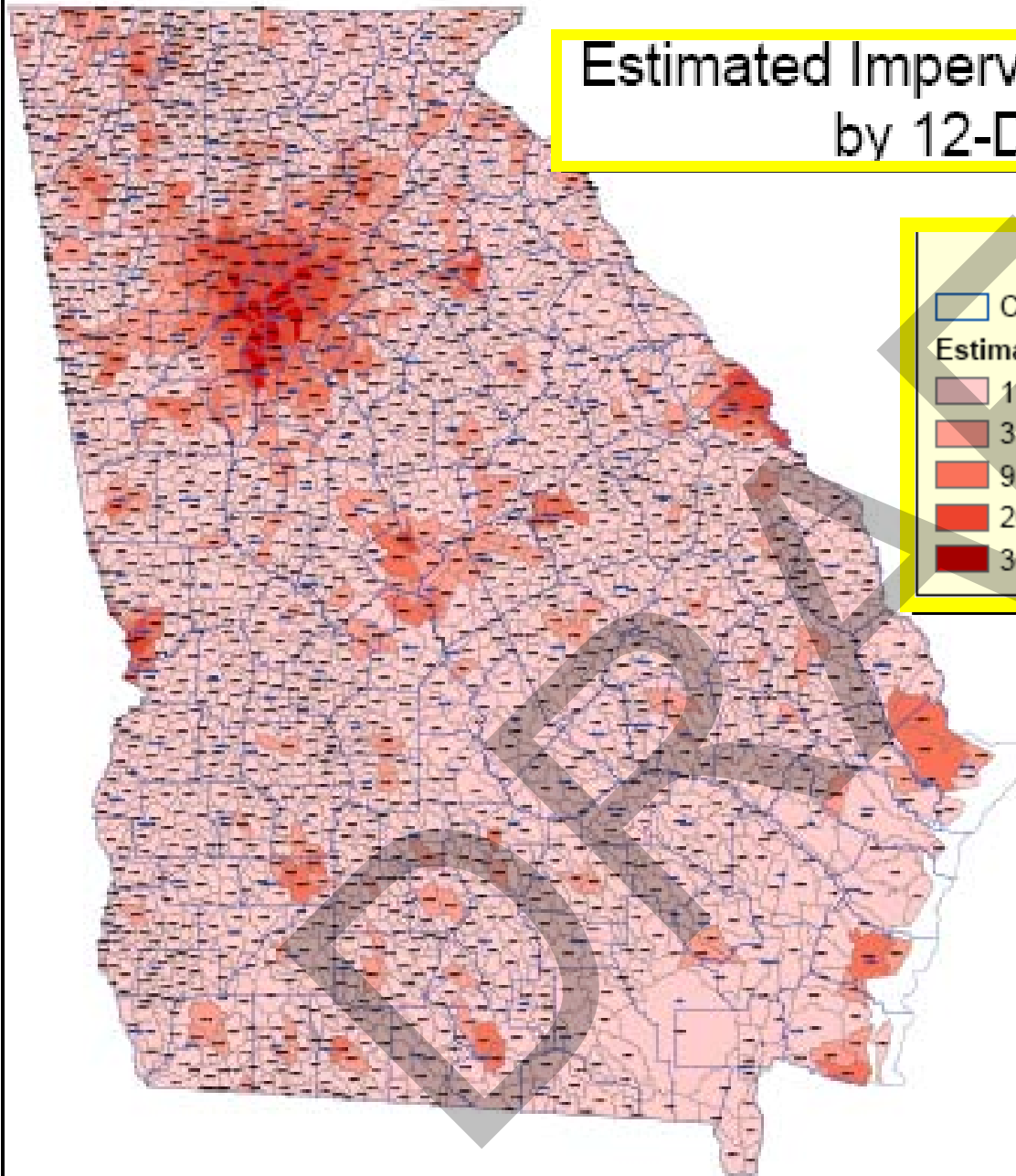


Determining Future Anticipated Impacts to Wetlands and Water Quality

- Requires Ability to Predict Changes in Land Use (Complex Task)
- Changes in Land Use Can Result in Loss of Wetlands and Degraded Water Quality
- Impervious Surface Coverage a Function of Land Use Type and Population Trends
- Increase in Impervious Surface Coverage Suggest Greater “Stress” on Wetlands, Water Quality, and Aquatic Species



Estimated Impervious Cover for Year 2000 by 12-Digit HUC in GA



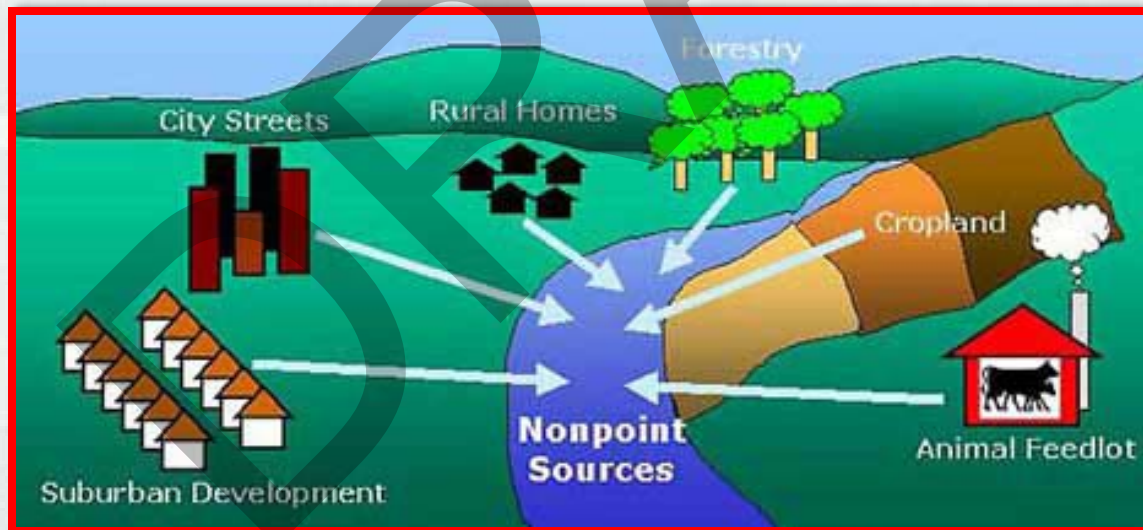
Jon Becker
USEPA – Region IV



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Secondary Effects: Definition

40 CFR Part 230.11h(1) Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but **do not result from the actual placement of the dredged or fill material.**



Examples of Secondary Effects:

- Septic tank leaching and surface runoff from residential/commercial developments
- Fluctuating water levels in an impoundment and in downstream waters associated with the operation of a dam
- Growth induced by improved access
- “Disney World” effect in the middle of rural area.



Food for Thought

The passage of time has only increased the conviction that cumulative effects analysis is essential to effectively manage the consequences of human activities on the environment. The purpose of cumulative effects analysis, therefore, is to ensure that federal decisions consider the full range of consequences of actions. **Without incorporating cumulative effects into environmental planning and management, it will be impossible to move towards sustainable development** (i.e., development that meets the needs of the present without compromising the ability of future generations to meet their own needs).

(World Commission on Environment and Development, 1987;
President's Council on Sustainable Development, 1996)



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