Impediments and Challenges of Permitting Water Supply

Greenville Utilities Commission

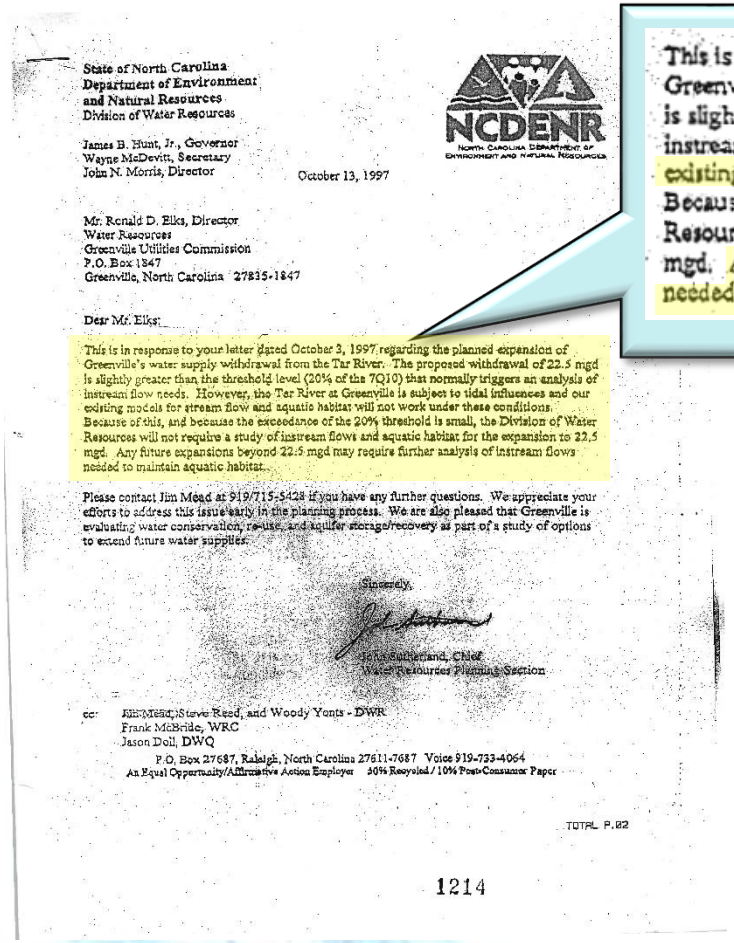
Mary Sadler, PE

David Springer, PE

Hazen

Greenville Utilities

- **Why is this discussion important?**
  - **GUC's water supply issues are not unique in North Carolina**
  - **A timeframe of decades for securing new water supply is unacceptable for protecting public health and safety**
- **What are we disputing?**
  - **Regulatory process is flawed**
  - **Policy and/or rules change frequently**
  - **Lack of decision-making authority**
- **What are action items?**
  - **Support recent NC AWWA-WEA and NCLM recommendations**
  - **Find a conclusion to GUC's water supply planning effort**



State of North Carolina
Department of Environment and Natural Resources
Division of Water Resources

James B. Hunt, Jr., Governor
Wayne McDevitt, Secretary
John N. Morris, Director

October 13, 1997

Mr. Ronald D. Elks, Director
Water Resources
Greenville Utilities Commission
P.O. Box 1847
Greenville, North Carolina 27835-1847

Dear Mr. Elks:

This is in response to your letter dated October 3, 1997 regarding the planned expansion of Greenville's water supply withdrawal from the Tar River. The proposed withdrawal of 22.5 mgd is slightly greater than the threshold level (20% of the 7Q10) that normally triggers an analysis of instream flow needs. However, the Tar River at Greenville is subject to tidal influences and our existing models for stream flow and aquatic habitat will not work under these conditions. Because of this, and because the exceedance of the 20% threshold is small, the Division of Water Resources will not require a study of instream flows and aquatic habitat for the expansion to 22.5 mgd. Any future expansions beyond 22.5 mgd may require further analysis of instream flows needed to maintain aquatic habitat.

Please contact Jim Mead at 919/715-5428 if you have any further questions. We appreciate your efforts to address this issue early in the planning process. We are also pleased that Greenville is evaluating water conservation, re-use, and aquifer storage/recovery as part of a study of options to extend future water supplies.

Sincerely,

John Sutherland, Chief
Water Resources Planning Section

cc: Jim Mead, Steve Reed, and Woody Yonts - DWR
Frank McBride, WRC
Jason Doll, DWQ

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- **DWR staff stated in 1997 that existing models not applicable to GUC's intake**
  - **Tidally influenced**
- **GUC knew in 1997 that a large (and expensive) flow study would be required for the next WTP expansion**

Timeline for GUC's water supply resources journey:

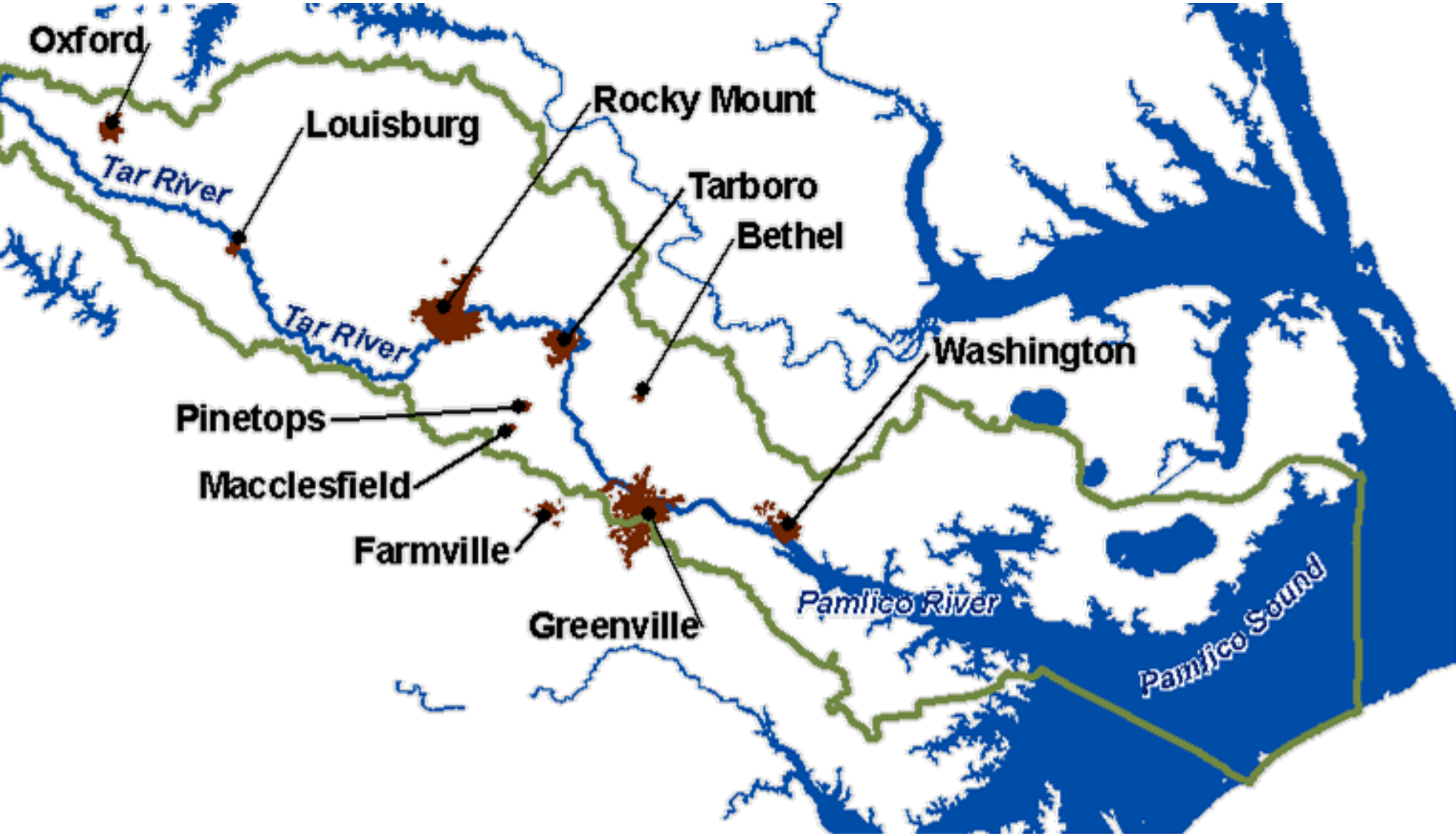
2006 → 2007 → 2008 → 2009 → 2010 → 2011 → 2012 → 2013 → 2014 → 2015

We started at "GO"

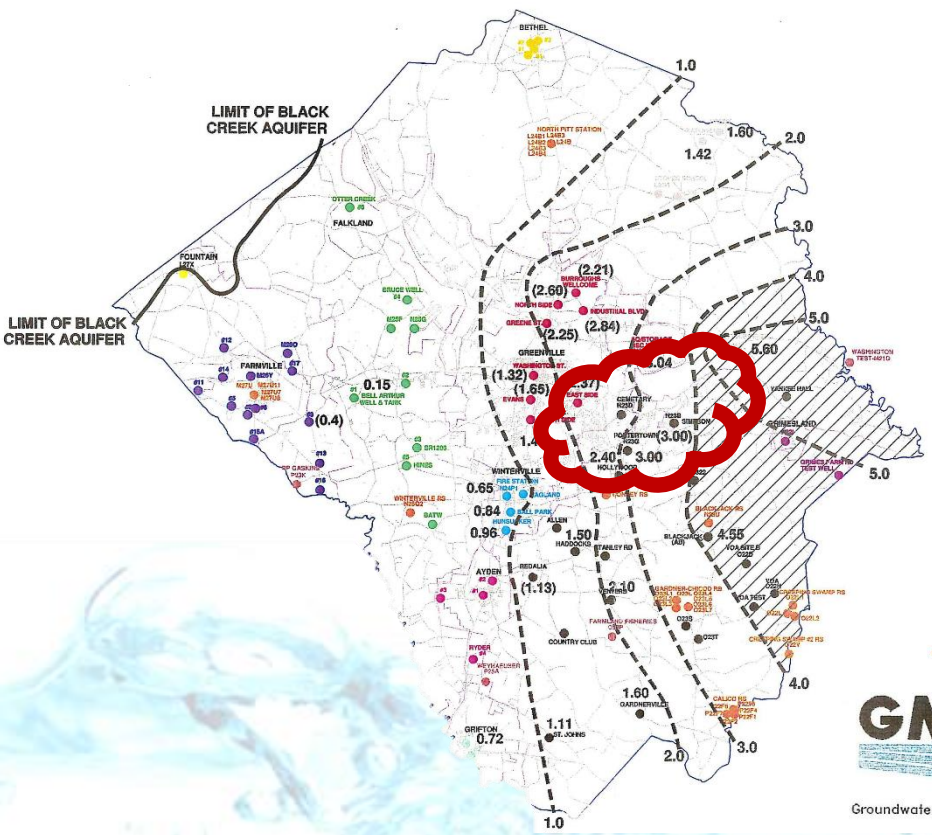
We can't seem to get past "GO"

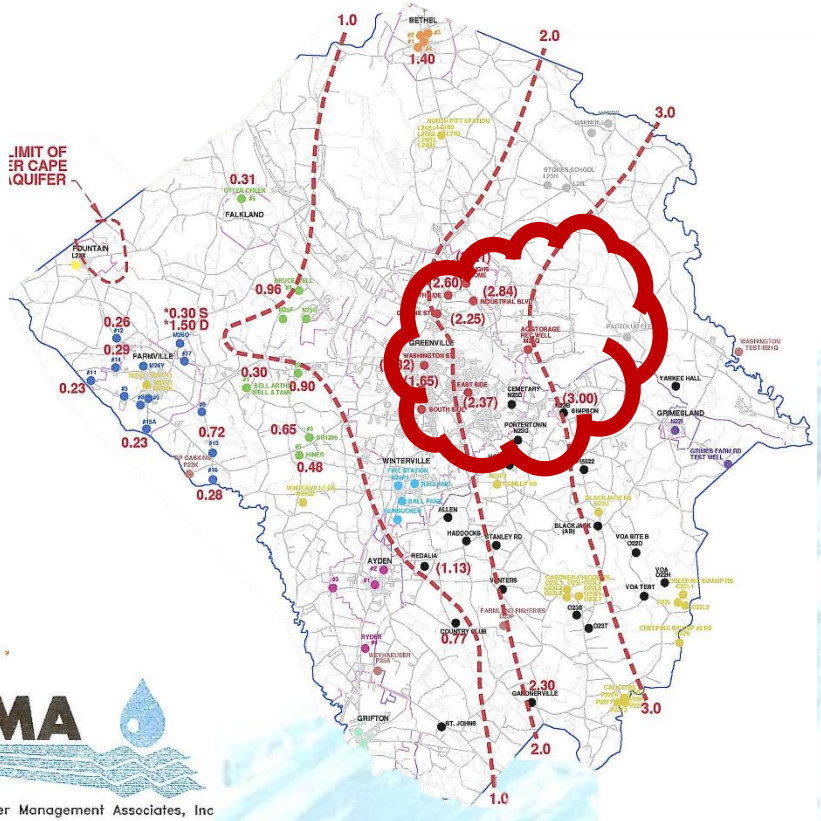
GUC withdrawing from the Tar since 1905

Last WTP Expansion to 22.5 mgd completed in 2002

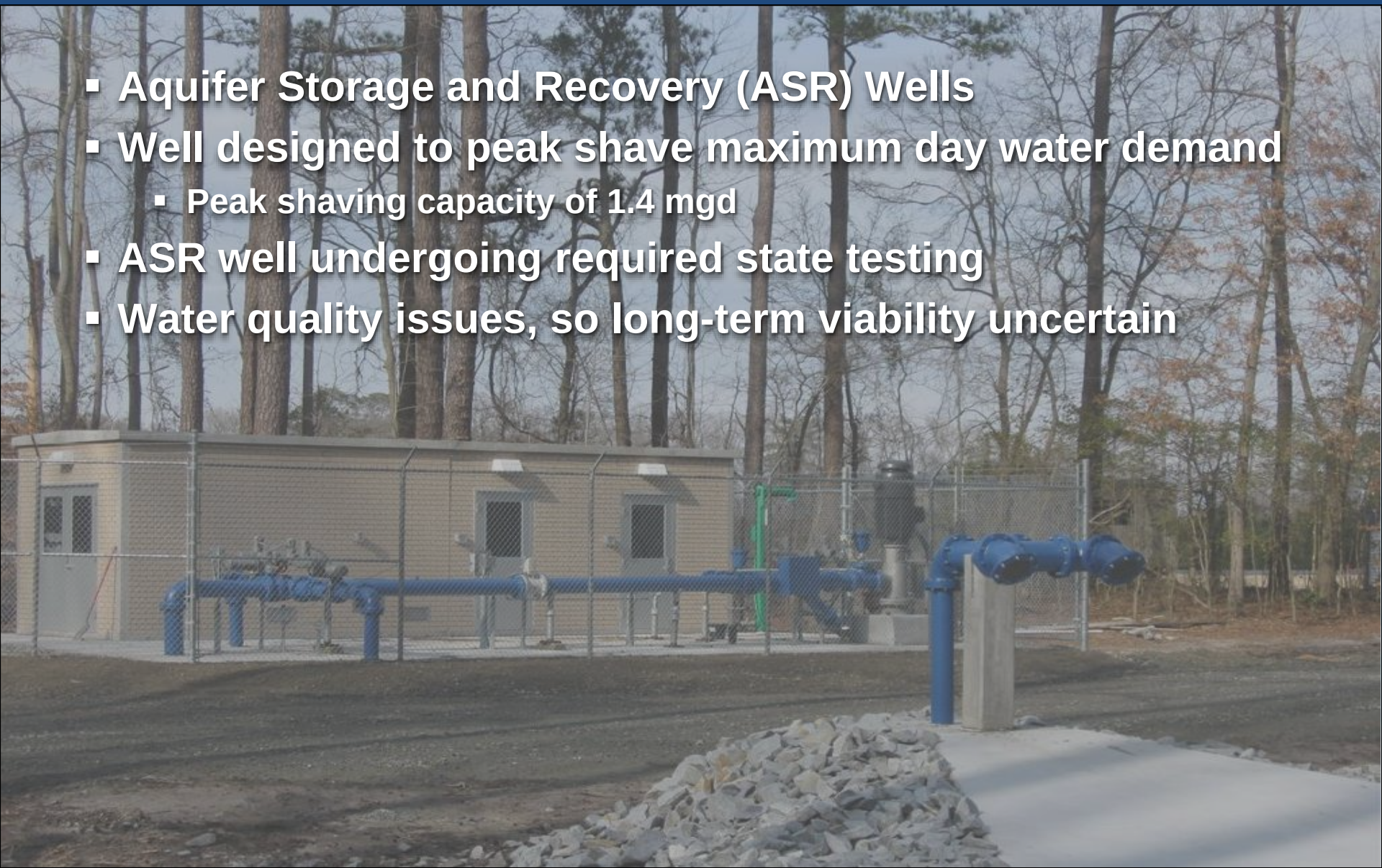

Oxford
Louisburg
Rocky Mount
Tar River
Tarboro
Bethel
Tar River
Washington
Pinetops
Macclesfield
Farmville
Greenville
Pamlico River
Pamlico Sound

- **Groundwater supply yields little capacity (< 1 mgd)**
- **GUC's wells (Black Creek & Lower Cape Fear) have fluoride water quality issues**
  - **MCL 4 ppm, SMCL 2 ppm**

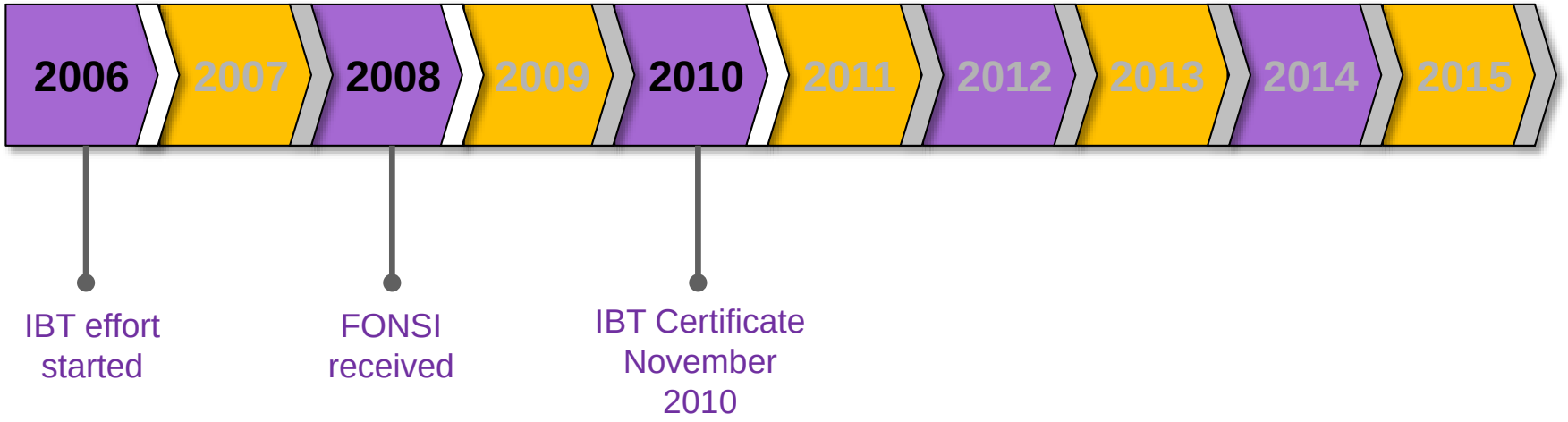




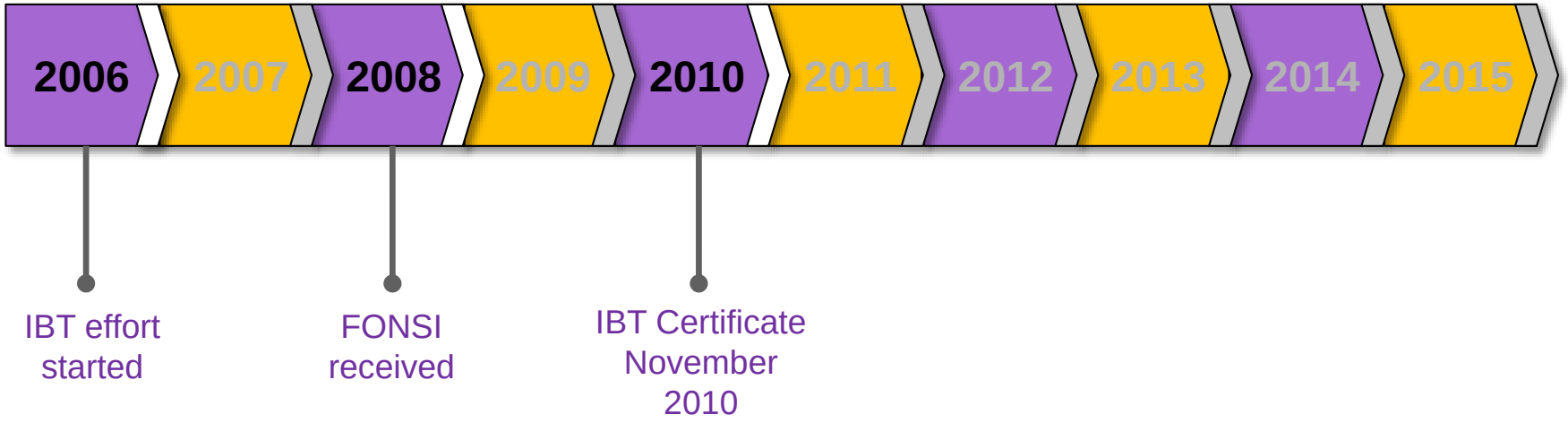
GMA
Groundwater Management Associates, Inc



- Aquifer Storage and Recovery (ASR) Wells
- Well designed to peak shave maximum day water demand
  - Peak shaving capacity of 1.4 mgd
- ASR well undergoing required state testing
- Water quality issues, so long-term viability uncertain



- **IBT process started in 2006**
- **A WTP expansion was not part of IBT, so Tar River Flow study was not required**
  - **Other hydrologic modeling method was required to support IBT**
- **FONSI in 2008**
- **During Finding of Fact Phase, EMC asked for an EIS-like analysis of alternatives even with FONSI**
- **GUC spent $330k**



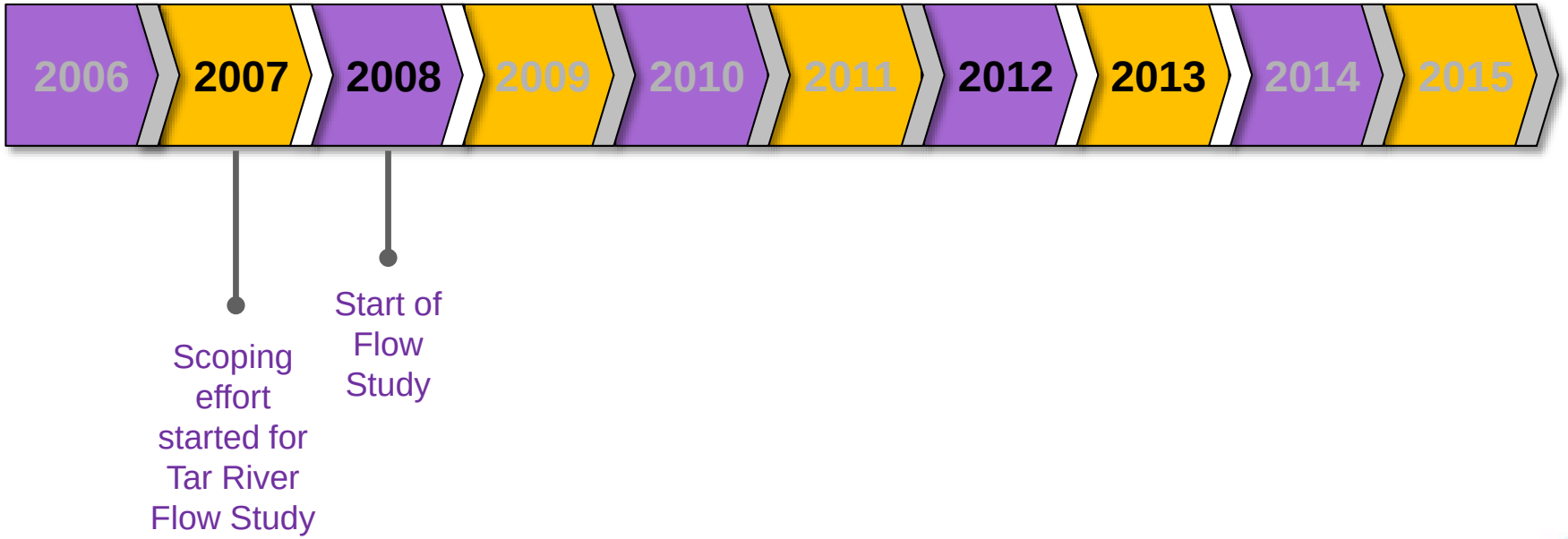
- **Unreasonable conditions attached to IBT Certificate**
  - **Greene County had to implement Phase II post construction measures**
  - **In 2010 Greene County was ranked 82/100 in population, 86/100 in income**
  - **Impervious surface analysis of ENTIRE County normalized to anticipated population growth indicated less than a 0.47% increase in impervious surface**
- **IBT process did not fairly weigh positive benefit of protecting groundwater resource**

2006 | **2007** | **2008** | 2009 | 2010 | 2011 | **2012** | **2013** | 2014 | 2015

Scoping effort started for Tar River Flow Study

This is in response to your letter dated October 3, 1997 regarding the planned expansion of Greenville's water supply withdrawal from the Tar River. The proposed withdrawal of 22.5 mgd is slightly greater than the threshold level (20% of the 7Q10) that normally triggers an analysis of instream flow needs. However, the Tar River at Greenville is subject to tidal influences and our existing models for stream flow and aquatic habitat will not work under these conditions. Because of this, and because the exceedance of the 20% threshold is small, the Division of Water Resources will not require a study of instream flows and aquatic habitat for the expansion to 22.5 mgd. Any future expansions beyond 22.5 mgd may require further analysis of instream flows needed to maintain aquatic habitat.

- **1997 letter from DENR**
- **Letter stated Flow Study MAY be needed for next WTP expansion**
  - **Withdrawals > 20% of 7Q10 considered an impact per 15A NCAC 01C .0408(2)(b) and 15A NCAC 2K .0100**
- **GUC interpreted the "MAY BE" required as a "WILL BE" required**

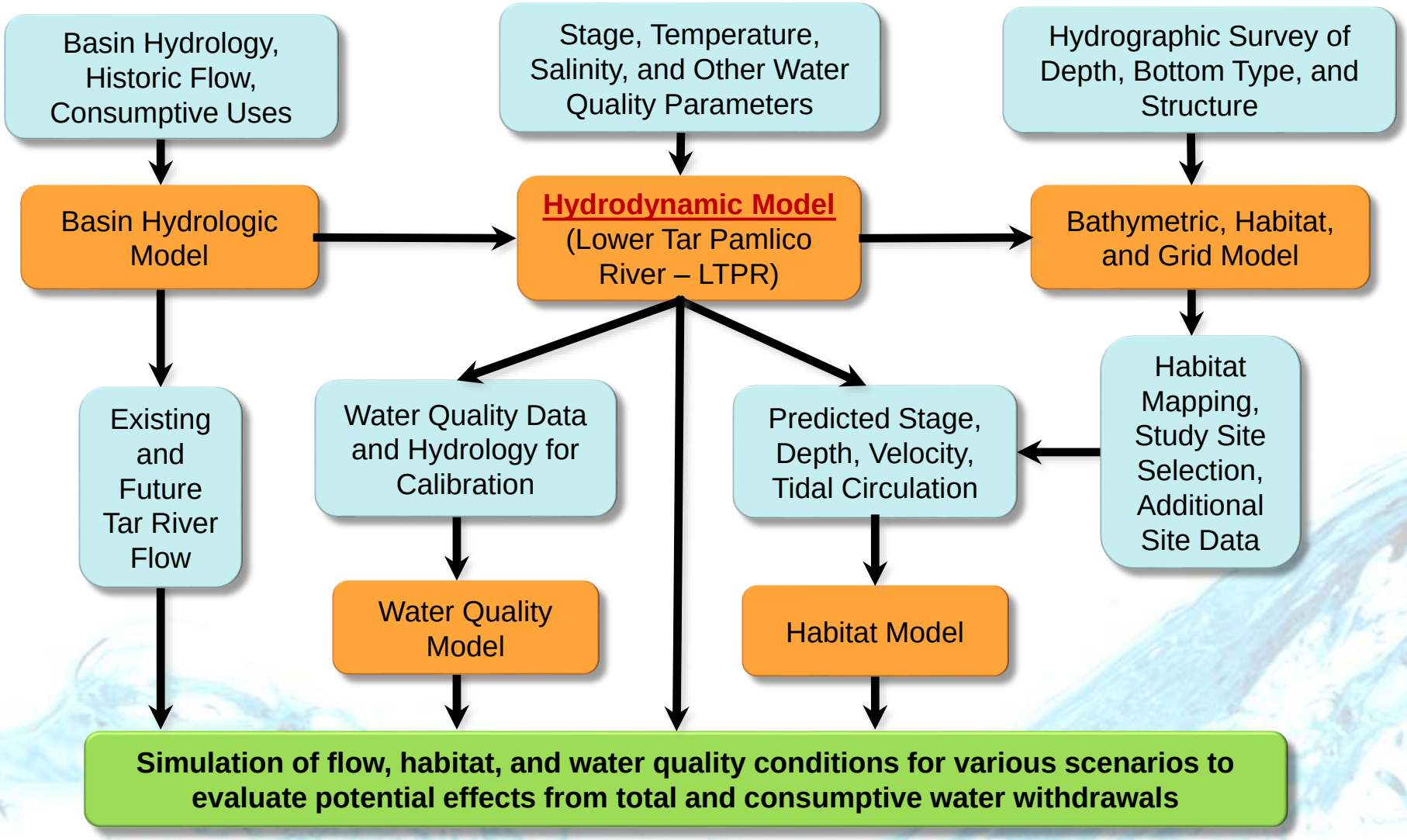


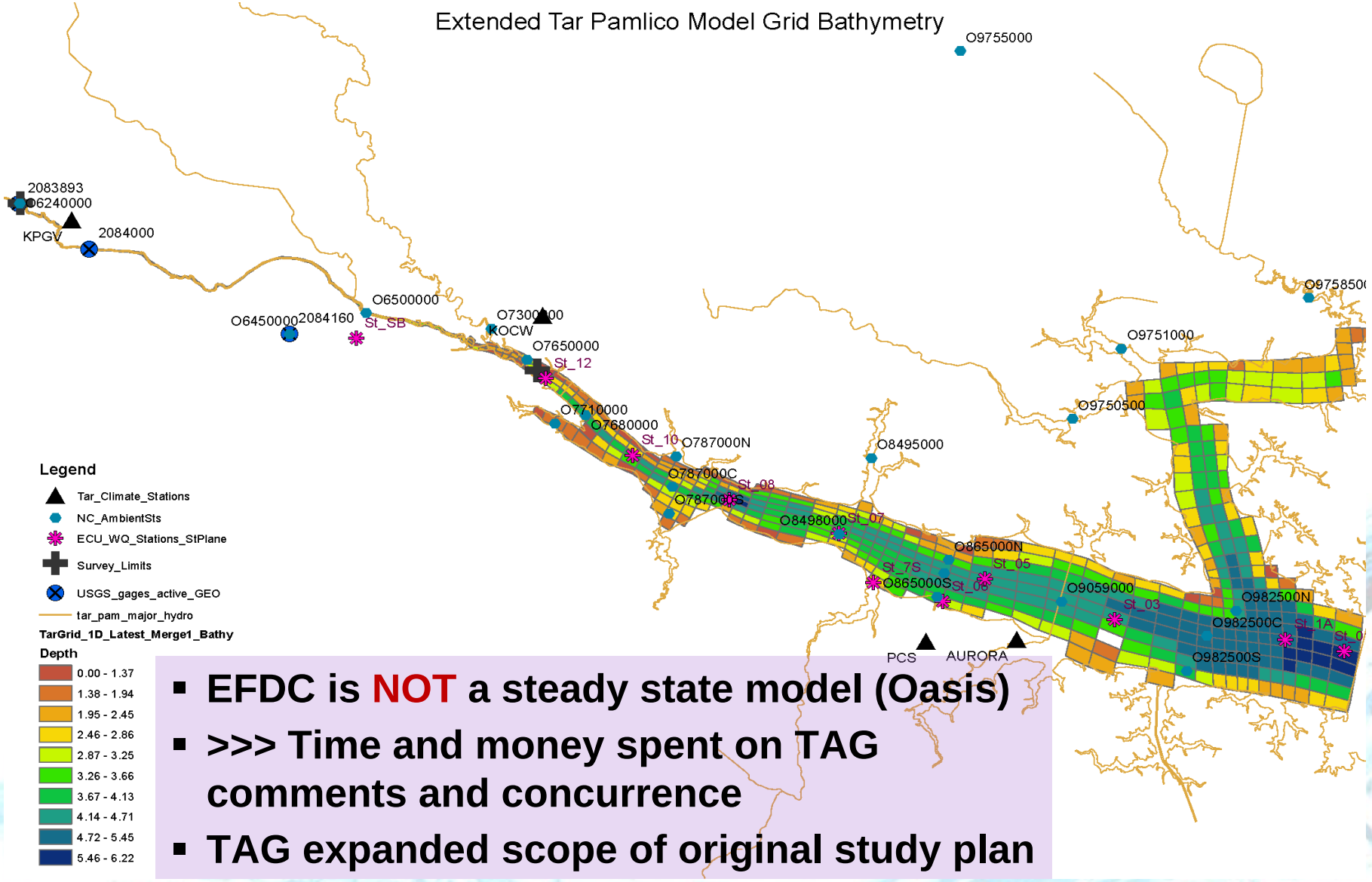
- **Flow study started well before WTP expansion would be needed**
  - **Anticipated >>>> Time and >>>> $$$$**
  - **GUC spent $1.3 million**
- **Based on scoping, decision made to assemble a Technical Advisory Group (TAG)**

Technical Advisory Group: 11 State and Federal Agency Members

- **Scoping process provided valuable information**
- **General agency awareness of:**
  - **CCPCUA and pressure on surface water supplies**
  - **Greenville Utilities ASR progress**
  - **Flow-related water quality / habitat issues in Tar River and Pamlico Sound**
- **Limited agency experience:**
  - **Analysis in tidal environments**
  - **Only key regulatory staff knowledgeable**
- **Few suggestions on specific approaches**
- **No mention of how to address sensitive aquatic species**
- **Tar River at Greenville designated as Inland Primary Nursery Habitat**
- **DWR considered water quality in the Tar River to be good**
- **Segments of Pamlico Sound considered impaired due to high chlorophyll-*a* and low dissolved oxygen levels**

Lower Tar Pamlico River EFDC and water quality model:





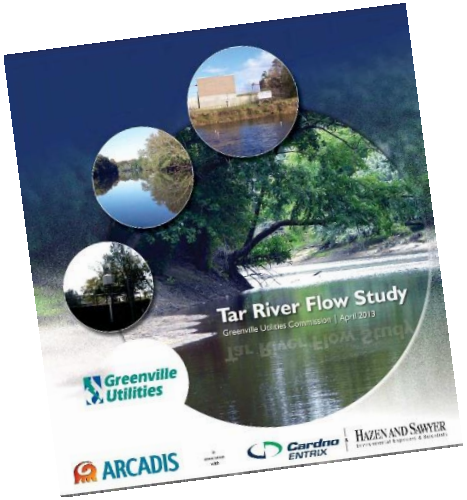
- **EFDC is NOT a steady state model (Oasis)**
- **>>> Time and money spent on TAG comments and concurrence**
- **TAG expanded scope of original study plan**

- **EFDC modeled a managed system demand for a year 2050 planning period**
  - **Uncertain of the specific WTP expansion increment**
- **Effort considered IBT partners (consumptive use), WWTP flow projections, and updated GUC water demand projections**

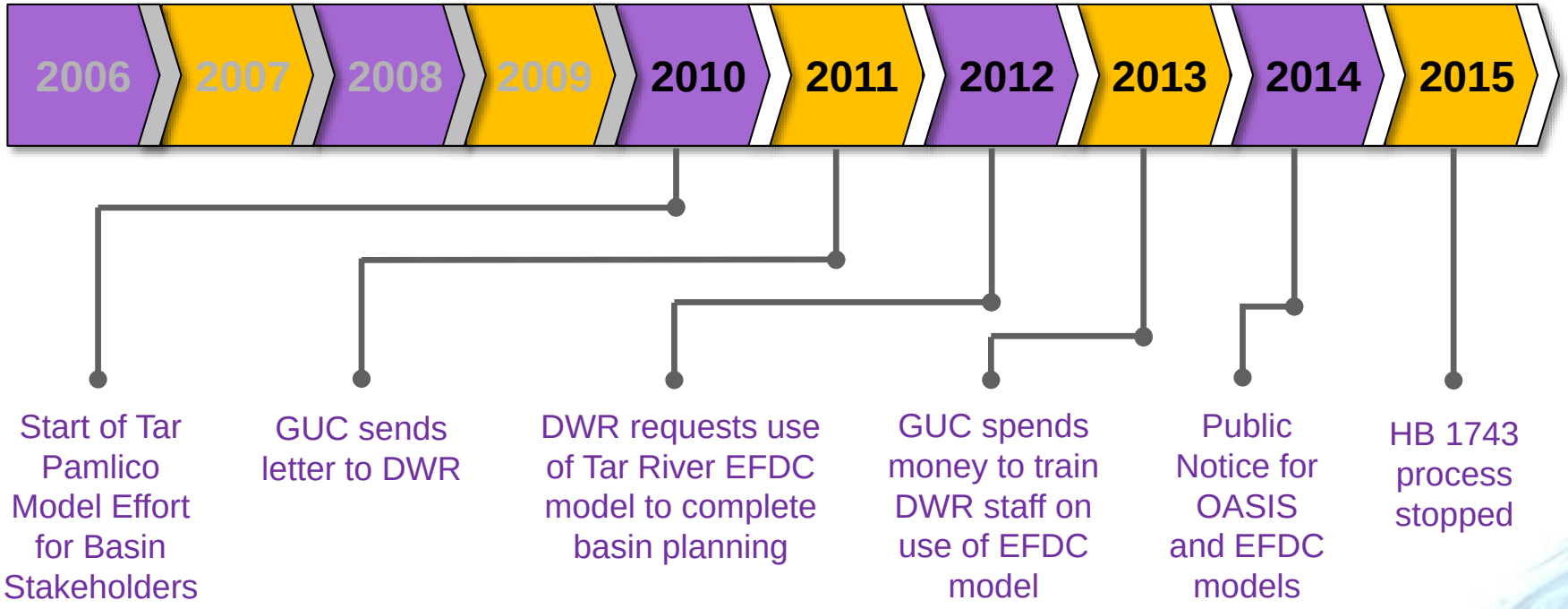
EFDC Model Scenario	Average Daily Withdrawal (mgd)	Maximum Day Withdrawal (mgd)	WTP Return (mgd)	WWTP Discharge (mgd)	Consumptive Use (mgd)
Existing	13.3	17.7	0.5	10.2	2.6
2050	47.1	60.7	1.9	30.4	14.7

2006 | **2007** | **2008** | 2009 | 2010 | 2011 | **2012** | **2013** | 2014 | 2015

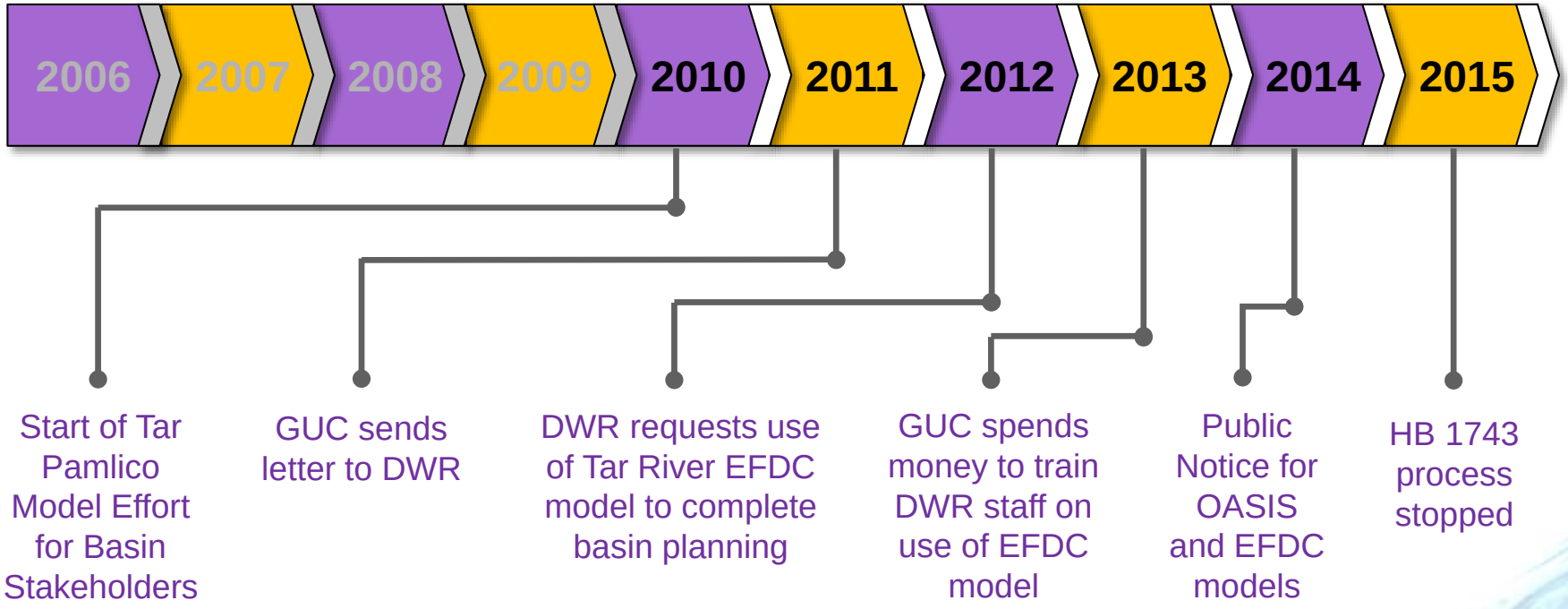
- 2007: Scoping effort started for Tar River Flow Study
- 2008: Start of Flow Study
- 2012: GUC MOA Request
- 2013: Final Flow Study published



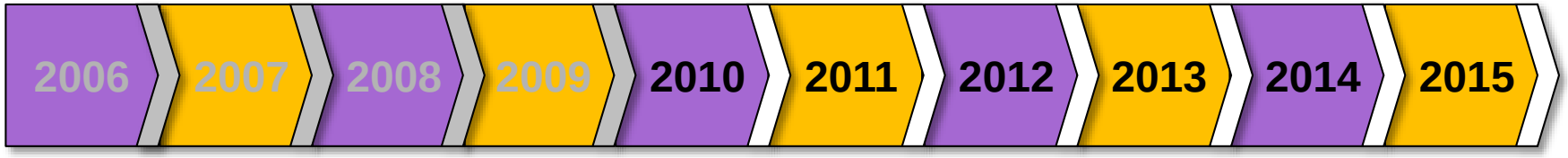
- **GUC approached DWR in 2012 about a Memorandum of Agreement documenting results of Flow Study**
- **Answer:**



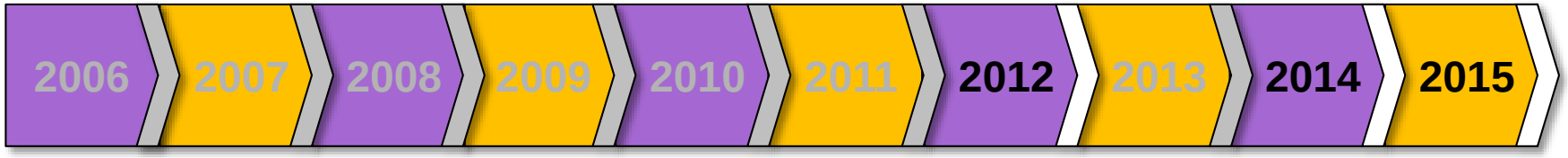
- **HB 1743 kicks off for Tar Pamlico stakeholders in 2010**
  - **DENR-approved steady state OASIS model used**
- **GUC sends letter to DWR:**
  - **"*OASIS model not applicable at GUC intake*"**



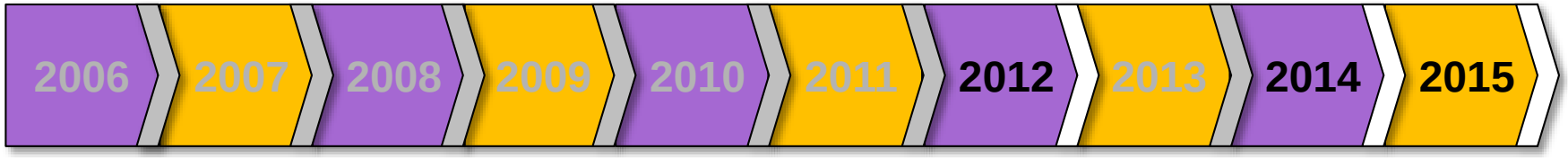
- **One year later (2012)…DWR acknowledges that OASIS not applicable to GUC's tidally influenced intake**
  - **Fact known in 1997**
  - **DWR a TAG member of Tar River Flow Study since 2008**
- **GUC never reimbursed for EFDC model effort**
  - **Only utility in NC that had to pay for their own model**



- **DWR only approved the EFDC portion of model as part of HB 1743**
  - **TAG-requested water quality model was NOT included**
- **Basinwide model approval halted as a result of Ecological Flow Study in 2013 and peer review issues in 2015**
  - **Lost opportunity for leveraging model approval**
  - **GUC supported suspending basin-wide model approvals for greater good**



- **HB 609 was answer to GUC's request for an MOA**
- **In May 2012, met with DENR Secretary and DWR**
  - **Lots of questions:**
    - ***General process***
    - ***Agency primacy (decision-making authority)***
    - ***Preferred alternative selection***
    - ***IBT considerations***
    - ***How will process conclusions be documented?***
    - ***How will EFDC model approval be achieved?***
  - **Few answers**
- **GUC passed resolution in July 2012 to enter into HB 609 process**
- **Fall 2012 meetings with DWR:**
  - **Water demand projections and water conservation analysis**
  - **Water supply alternatives from Master Plan**
  - **Tar River Flow Study presentation**



- GUC spent an additional $70k on HB 609 and HB 1743 efforts
- DWR met with agency representatives in Fall 2014 to discuss EFDC model for HB 609
- DWR Email and Final Memorandum in January 2015

Group required DMF concurrence

GUC did not have a seat at the table

HB 609 email and Memo from DENR on January 19, 2015:

email:

An agency meeting was held on October 9, 2014 to discuss the results from the water quality modelling efforts conducted by Cardno Entrix on behalf of GUC. Representatives from the Division of Water Resources, Wildlife Resources Commission, and the US Fish and Wildlife Service were in attendance. During the meeting, it was generally agreed that the results appear to demonstrate no anticipated effects from saline moving upstream would be expected from the proposed increased withdrawal from the Tar River. Furthermore, none of the agency representatives in attendance sought the need to conduct any additional water quality modelling to demonstrate impacts to aquatic wildlife for the proposed project. The meeting summary from that meeting is attached.

memorandum:

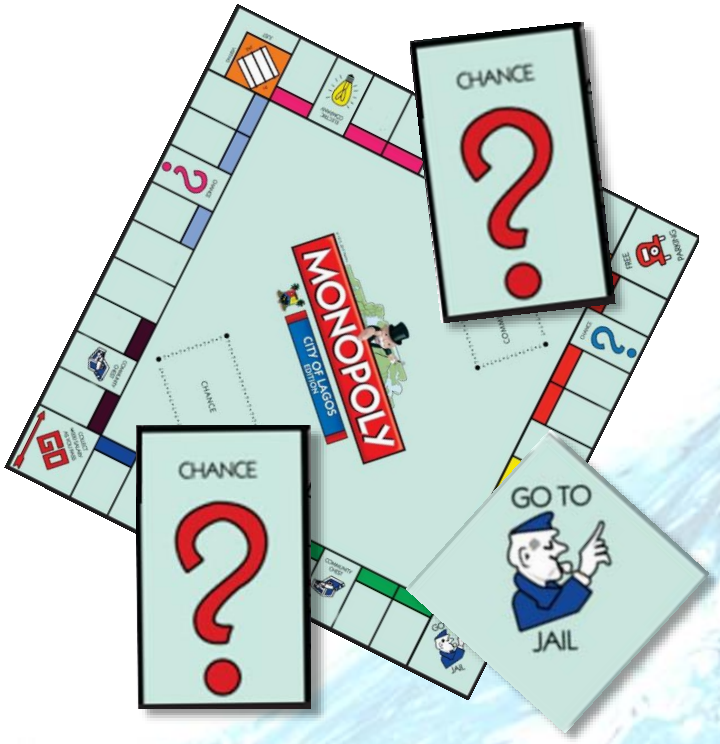
During the meeting discussions, both North Carolina Wildlife Resources Commission (NCWRC) and U.S. Fish and Wildlife Service (USFWS) agency representatives felt that modelling efforts which demonstrated no adverse saline impacts to the freshwater reaches of the Tar River caused by the additional withdrawal would be a sufficient assessment in lieu of an in-field instream flow study. All three agencies represented were concerned that there were no representatives from the North Carolina Division of Marine Fisheries (DMF) present. It is essential that DMF's concurrence on any decision would be required before GUC could move forward with the proposed WTP expansion. In addition, both the NCWRC and the USFWS expressed documentation and monitoring concerns that would need to be addressed by GUC.

In-field instream flow study issue resolved in 2009!!

Additional documentation??

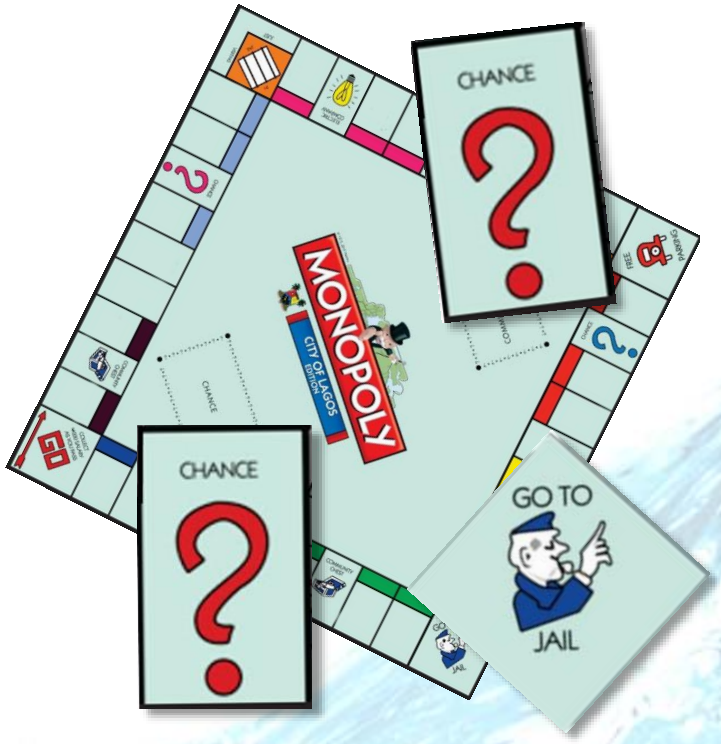
2006 2007 2008 2009 2010 2011 2012 2013 2014 **2015**

- **Here we are in 2015**
  - **10. Long. Years. Later.**
- **GUC knew the answer to the water supply question in 2007**
- **GUC followed all the rules, planned ahead, asked agency representatives for input**
- **GUC has spent $1.7 million to date**



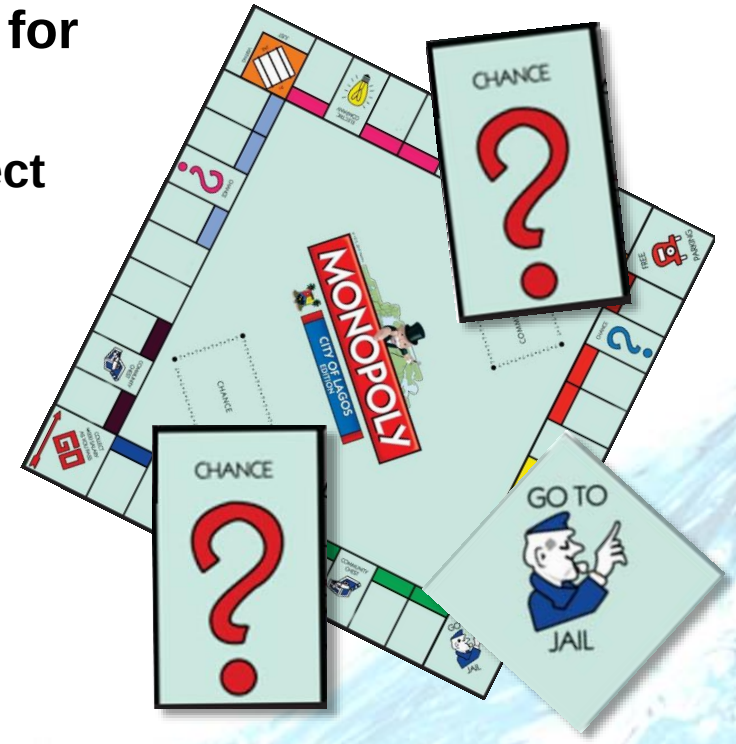
2006 2007 2008 2009 2010 2011 2012 2013 2014 **2015**

- **No clear conclusion from HB 609**
- **GUC's water supply future is still uncertain**
- **Is massive / expensive Tar River Flow Study going to be applicable in 10 to 15 years?**
  - **Flow Study demonstrated NO IMPACT at a 2050 maximum day withdrawal**



2006 2007 2008 2009 2010 2011 2012 2013 2014 **2015**

- **HB 795 effectively eliminates SEPA for most projects**
  - **Unclear if the WTP expansion project will trigger new legislative SEPA criteria**
  - **Possible federal funding**
- **Is GUC going to have to keep defending this work every 5 to 8 years?**
- **How can GUC preserve the conclusions of the Tar River Flow Study?**



- **Greenville Utilities lends support to NC AWWA-WEA and NC League of Municipalities proposal**
- **Proposal recommendations:**
  - **Regulated riparianism / permitted water withdrawal**
  - **Capacity Use Area designations for surface water**
  - **Encourage regional water supply planning**
  - **Ecological flow should not be a stand-alone regulatory component without water supply considerations**
  - **Review interbasin transfer regulation**
  - **Increased cooperation with state agencies**
    - **Decision-making authority**
    - **Regulatory support**
    - **Accountability**

Questions?

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