



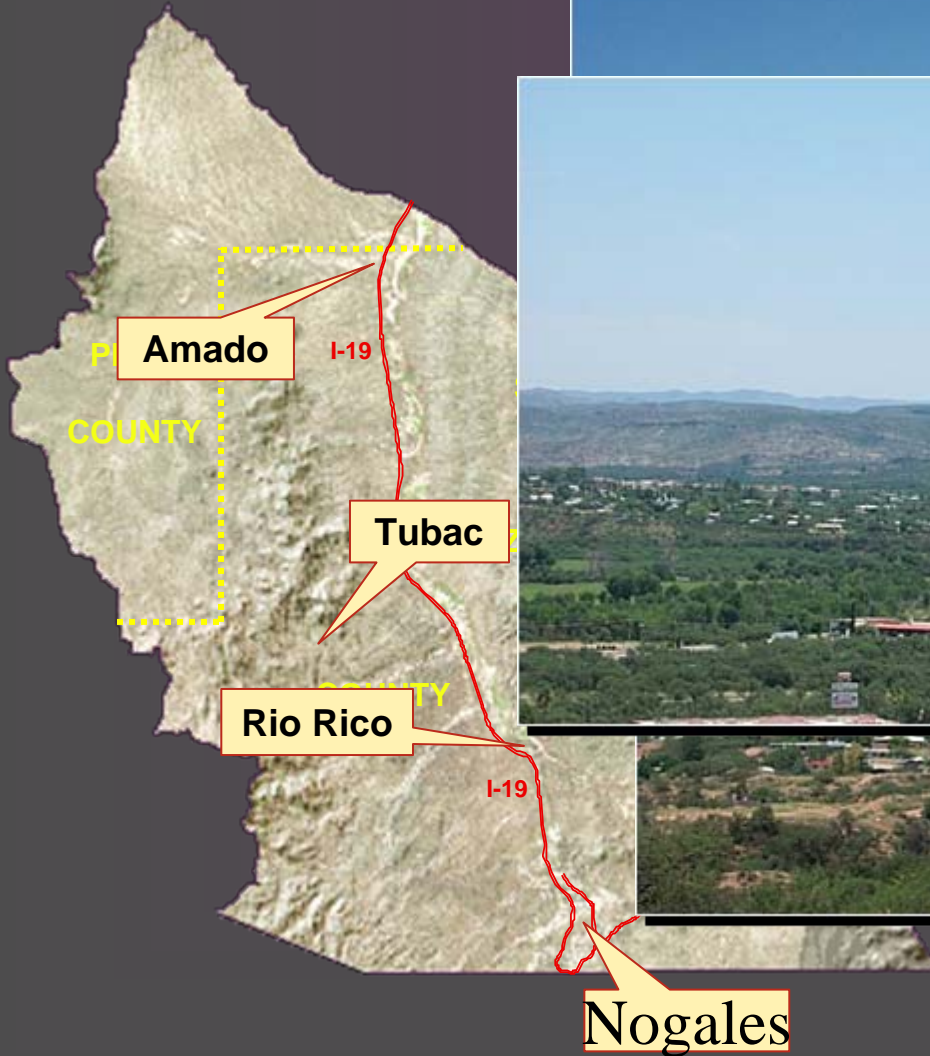
Santa Cruz AMA

Growth and Water Supply

Sep 2008



Santa Cruz AMA



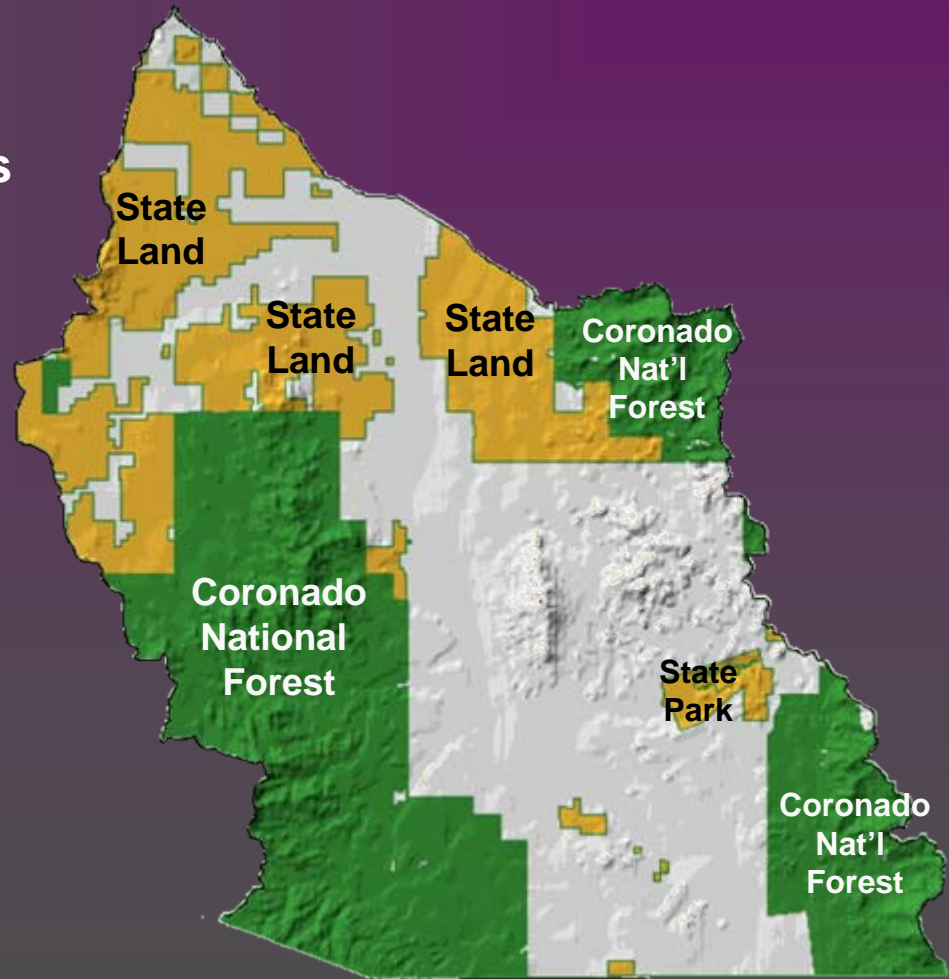
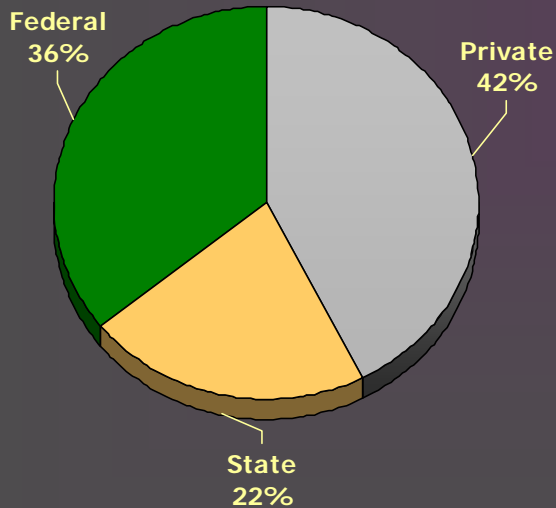


Land Ownership

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- SCAMA covers 716 square miles

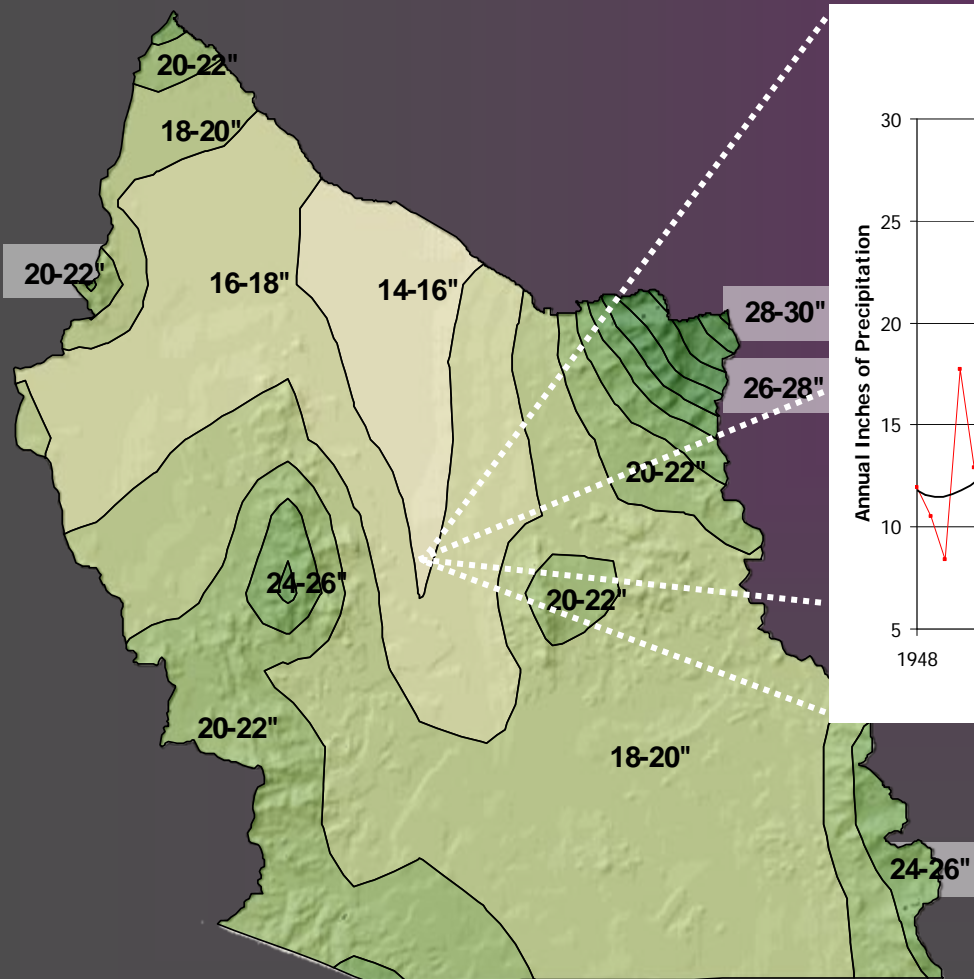
Land Ownership



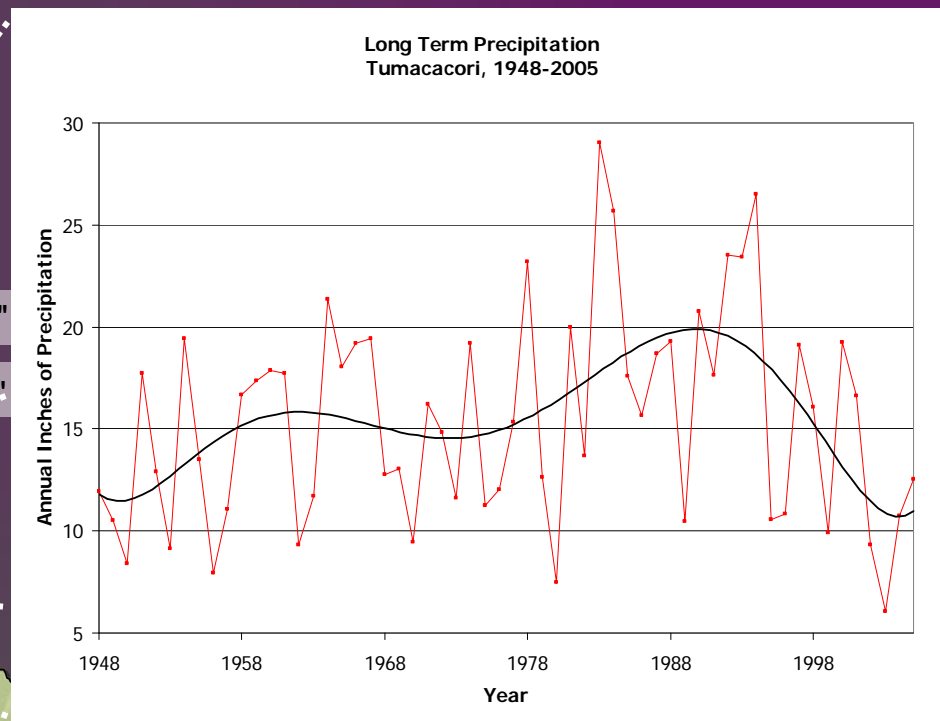
Physical Setting

Santa Cruz AMA

Climate

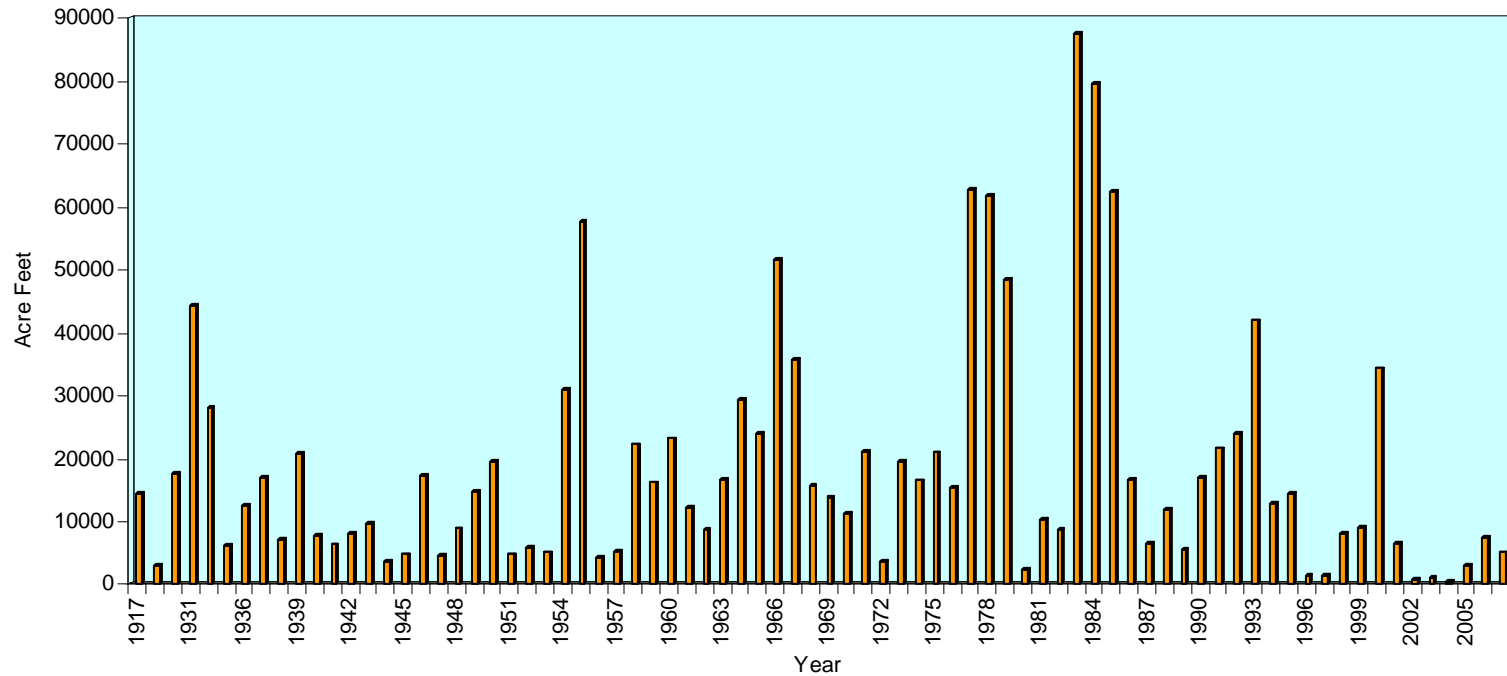


Mean annual precipitation





ANNUAL DISCHARGE OF THE SANTA CRUZ RIVER YEARS 1937 TO 2007, AT BUENA VISTA





Demographics

Santa Cruz AMA

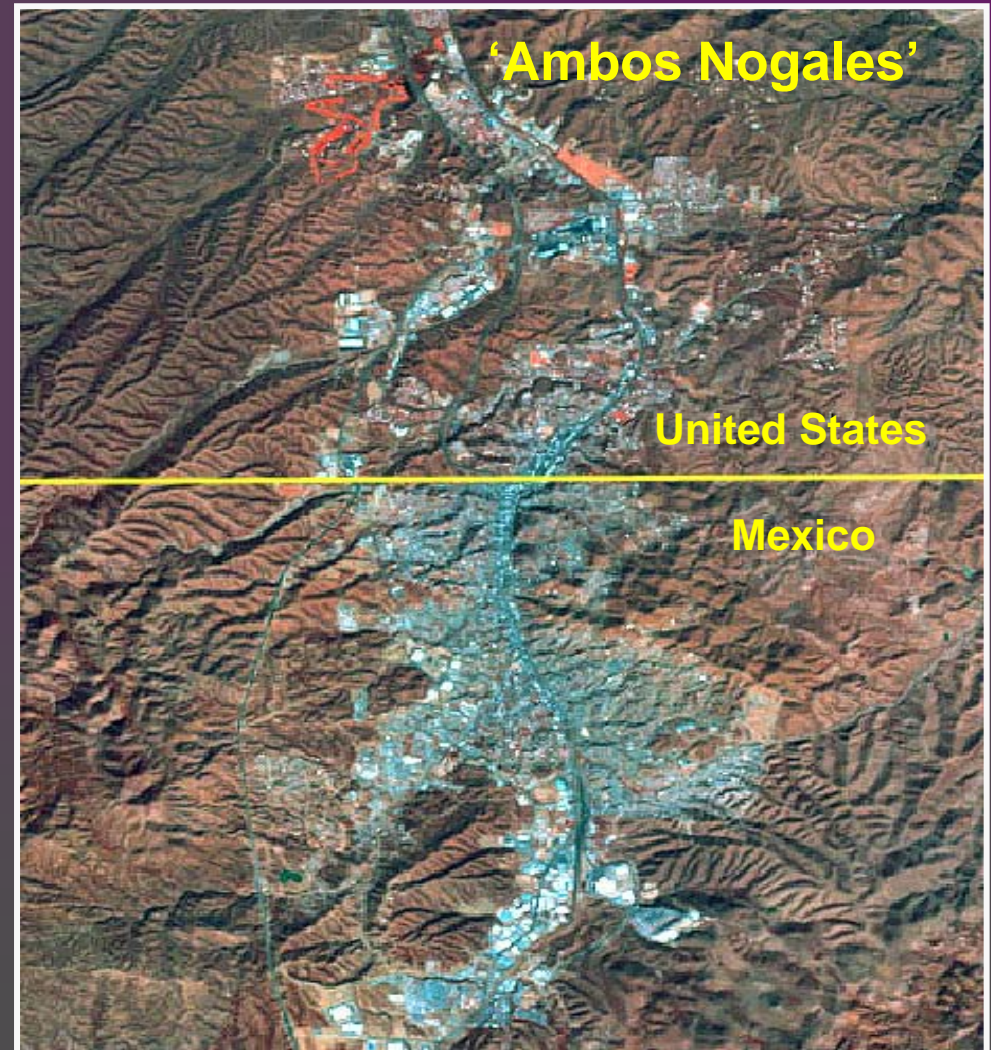


- 37,000 people
- Nogales, Rio Rico, Tubac and Amado
- Population concentrated in Nogales and along the Santa Cruz River
- Large fluctuations in temporary residents

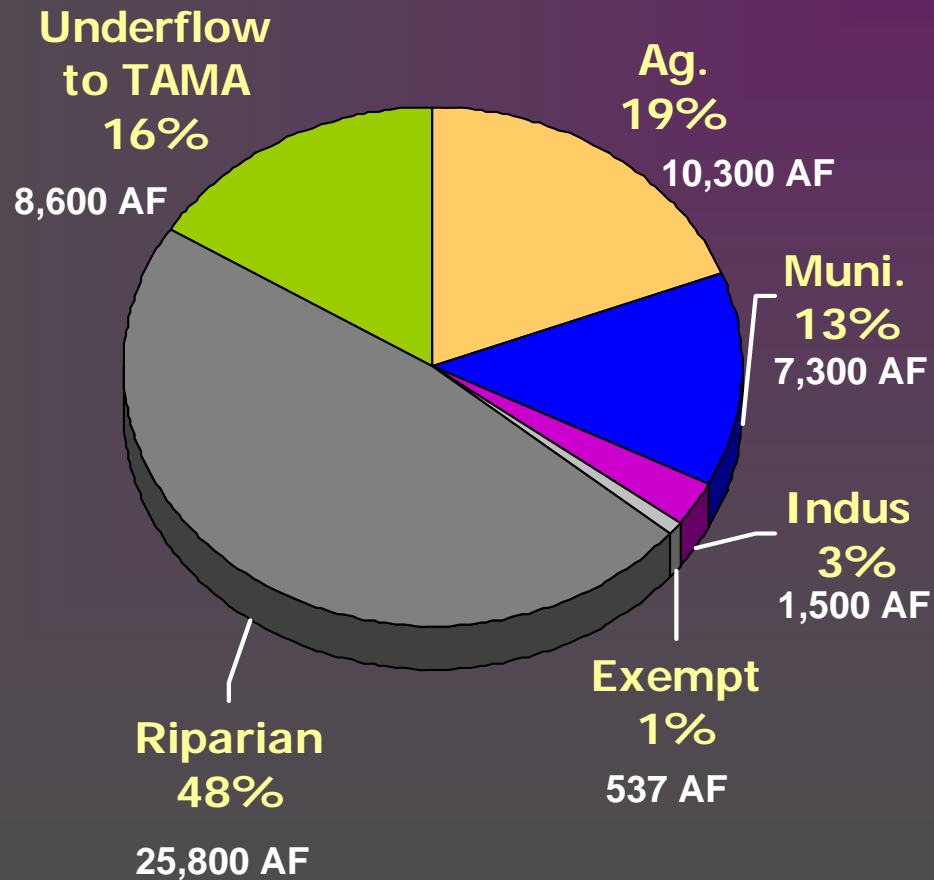
Binational Setting

Santa Cruz AMA

- Nogales, AZ population approximately 23,000
- Nogales, Mexico population approximately 350,000
- Binational watershed
- Well fields in Arizona downstream from well fields in Sonora
- Impact in AZ from water policies in Mexico
- Mexico's right to return effluent flows
- Impact of additional development in Mexico



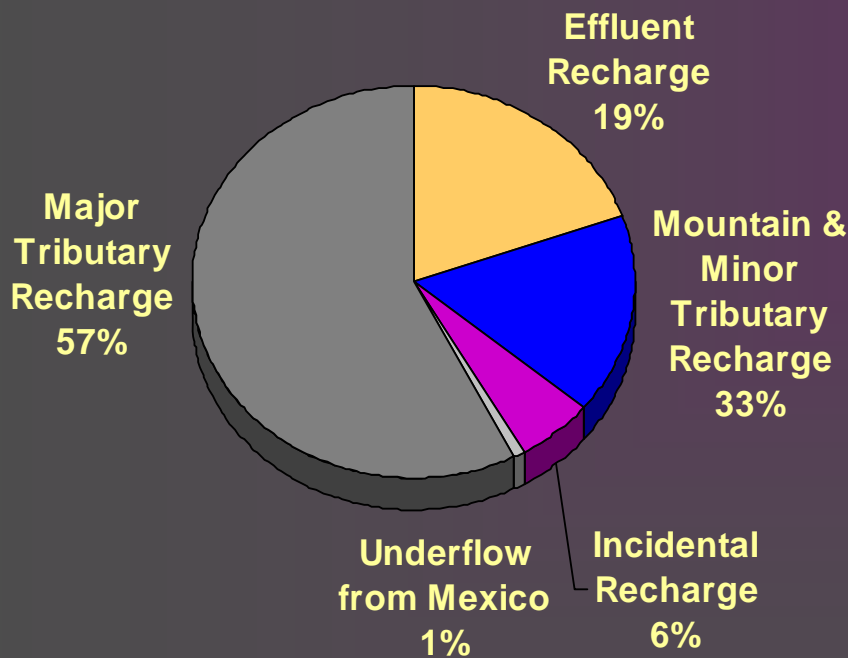
All water uses



Supply

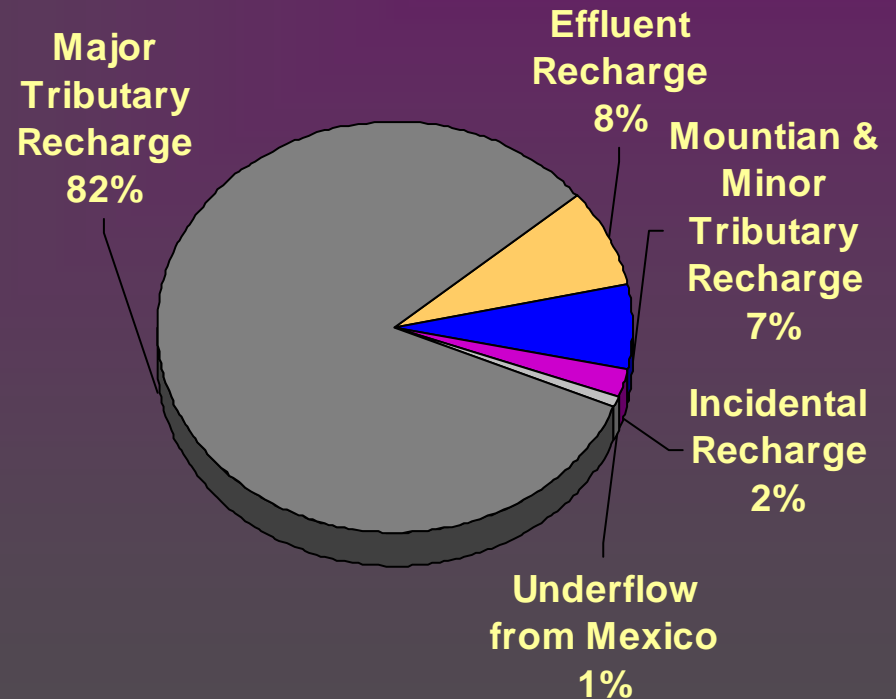
Santa Cruz AMA

Low Range/Poor Year
Estimate (10th Percentile)



Total supply \approx 39,600

High Range/Good Year
Estimate (90th Percentile)



Total supply \approx 142,900

Water Sources

Santa Cruz AMA

- **Groundwater**

- Aquifers with Limited Storage Capacity
- Not enough knowledge of potential production

- **Surface Water**

- More that 90% of water production in SCAMA is from wells in the younger alluvium of the Santa Cruz River

- Difficult to differentiate ground water and surface water

- **Effluent**

- Most of the effluent is generated by the Nogales International Wastewater Treatment Plant

- 2/3 of effluent from Mexico 1/3 from the USA
- Mexico has the right to recapture its effluent

Issues and Challenges

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The management goal of the Santa Cruz AMA is to maintain a safe-yield condition in the active management area and to prevent local water tables from experiencing long-term declines.

§45-562(C)

- Maintain the AMA goal in a highly variable system
- Lack of access to outside renewable water supplies
- Conjunctive Management of Surface Water and Groundwater
 - Impact on surface water rights by groundwater pumping
 - Community desire to protect riparian habitat
 - Physical challenge in developing recharge facilities
 - Difficulty in measuring achievement of management programs

Issues and Challenges

Santa Cruz AMA

- Implementation of Assured Water Supply Rules
- Establishment of well spacing criteria
- Work with local water users to propose legislation to create a replenishment/water district authority
- Continue dialogue with local, state and federal agencies in Mexico to negotiate agreements in future effluent uses

Development

Santa Cruz AMA

- Local Pressures

- Tubac

- Residential and commercial development at a rate of growth of more that 17% in the last 5 years

- Rio Rico more that 20,000 lots plated without AWS compliance

- City of Nogales increase of international commercial activity

- International Pressures

- Nogales Sonora continued rate of growth of more that 4% for the last 5 years

- Industrial and Residential growth closely link to the “Maquila” Industry and to the Importation and transportation of Fresh Produce

Management

Santa Cruz AMA

- Development of AWS rules for consistency with AMA
Management goal

- Improve understanding of AMA hydrology

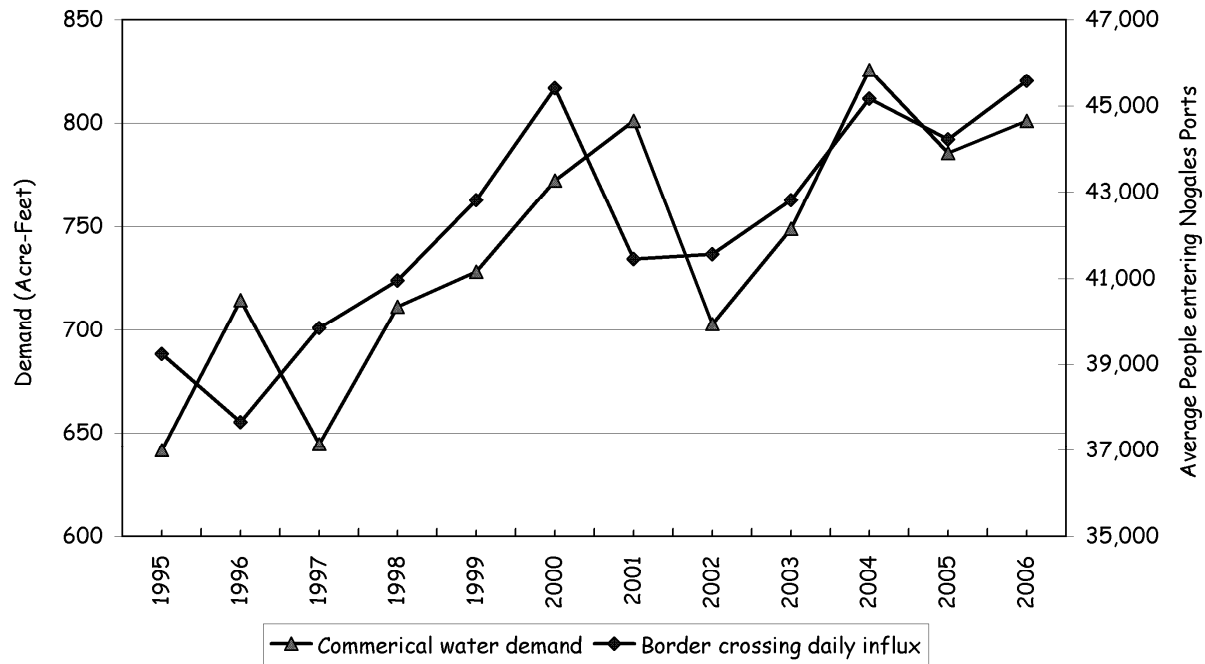
- Hydrological model
- Technical Studies (Geophysics, Statistical analysis of surface flows)
- Intensive water data collection

- Develop binational partnerships with local, state, federal and academic organizations

- Transboundary Aquifer Assessment
- Creation of water work group in the Arizona/ Mexico Commission.
- BOR, EPA, USGS, IBWC, CNA, CEA, OOMAPAS



City of Nogales Commerical Demand
and Average Daily Border Population Influx



Santa Cruz AMA

Santa Cruz AMA

