

# WHY CAUSAL ASSESSMENT?

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- **Not every stream is going to meet biological objectives**
- **When stream non-compliant, site-specific causes need to be determined for remediation**
- **Causal assessment approaches have not been well-vetted in California**

# PROJECT GOAL

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- **Conduct three case studies**
- **Produce a Guidance Document as a resource for stakeholders and regulatory agencies**
- **Provide recommendations for future activities**
  - **Optimize causal assessment designs for California**
  - **Distinguish tools that work (or don't work)**
  - **Identify data gaps or new tools that need to be refined/created**

# WE'VE SELECTED OUR THREE CASE STUDIES

- **Showed you our selection criteria at the last meeting**
- **Garcia River in Northern California**
  - RWQCB, Nature Conservancy
- **Salinas River in Central California**
  - RWQCB, Agriculture collaborative
- **Santa Clara and San Diego Rivers in Southern California**
  - RWQCBs, Sewage Treatment Plant, Municipal Stormwater

**Salinas River**



**Santa Clara River**



**San Diego River**



# WE'VE OPTED TO USE EPA'S TOOLS

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- **US EPA has, over the past 15 years, developed a causal assessment approach**
  - [www.epa.gov/CADDIS](http://www.epa.gov/CADDIS)
- **EPA (ORD-National Center for Environmental Assessment) joined our Science Team**
- **Employs a five-step process**
  - Utilize a workshop style format for implementation

# WORKSHOP TASKS AND TIMING

- **Define the case, list candidate causes**
  - All three cases together
  - Includes vested stakeholders**Feb 2012**
- **Evaluate data from the case and elsewhere**
  - Each case individually
  - Includes vested stakeholders**Jun 2012**
- **Identify probable causes**
  - All three cases together
  - Conducted in association with Science Panel meeting**Oct 2012**

# **WE'VE HAD OUR FIRST WORKSHOP**

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- **Narrowed each case to specific sites**
  - Identified comparator site(s)
- **Refined our biological impact beyond just assessment tool scores**
  - Most frequently a community metric
- **Long list of candidate causes**

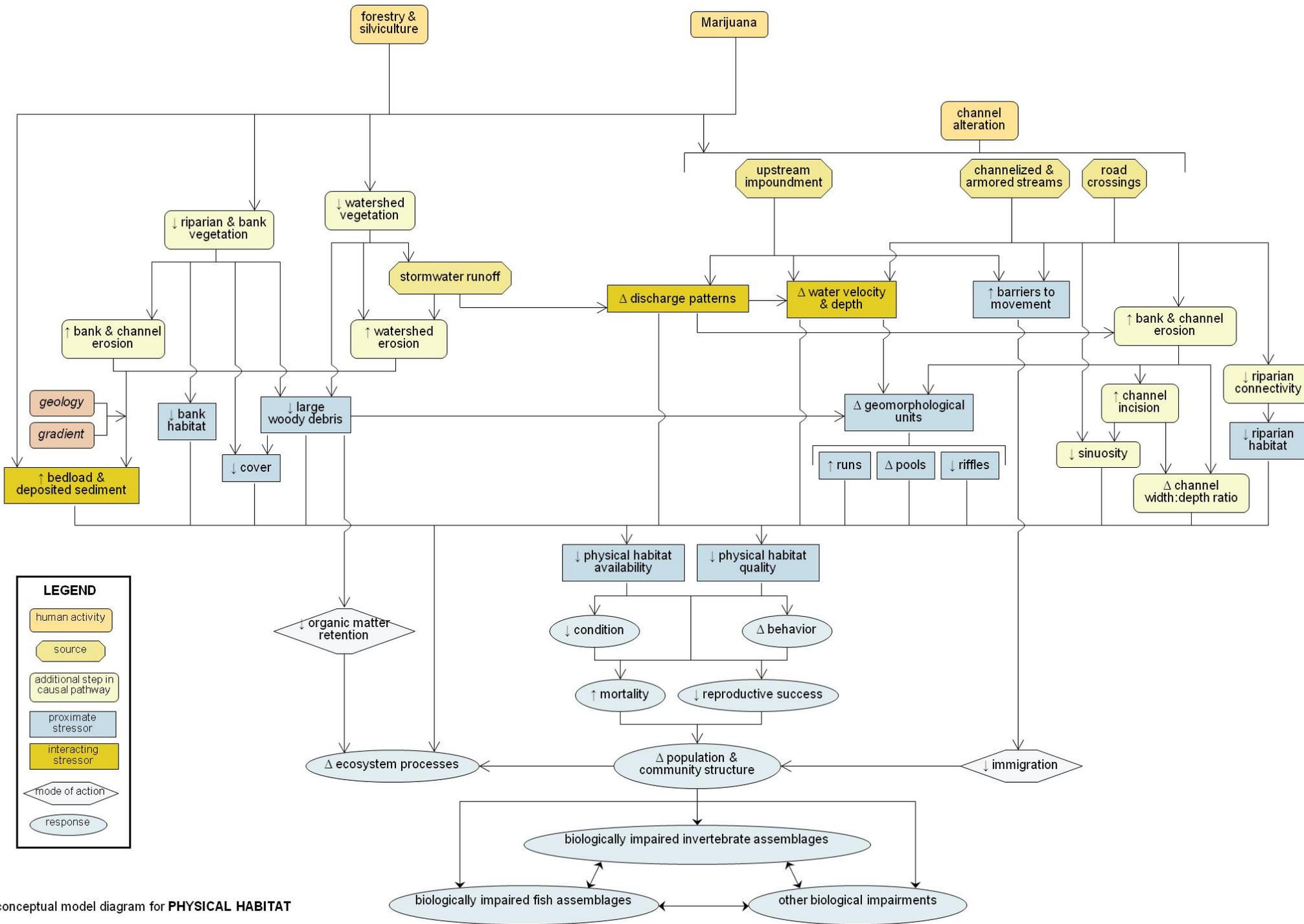
# CUMULATIVE LIST OF CANDIDATE CAUSES

- Flow alteration
- Physical habitat loss or alteration
- Temperature
- Dissolved oxygen
- Conductivity, TDS
- Sediment
- Nutrients
- Trace metals
- Pesticides
- PAHs
- Invasive species

# **WE'VE COMPLETED OUR CAUSAL DIAGRAMS**

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- **Meant to link sources to biological response**
  - **Can be simple or complex**
- **Used to establish causal pathways**
  - **Organize thoughts and data**
- **Group development was a useful communication tool**



Simple conceptual model diagram for **PHYSICAL HABITAT**

# WHERE WE'RE AT NOW

- **Collating data**
  - No new data collection for this effort
- **Initiating data analysis**
  - Weekly meetings of the science team
  - Monthly meetings with stakeholders
- **Our goal is to have score sheets prepared for our second workshop in June**

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