

# USING PHYSICAL MODELS TO MANAGE UNCERTAINTY: PART ONE

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[sfwmd.gov](http://sfwmd.gov)

## WHY BUILD A PHYSICAL MODEL?

**Complex natural and managed physical, biological and chemical processes create non-linear response surfaces that cannot be easily separated into cause and effect relationships.**

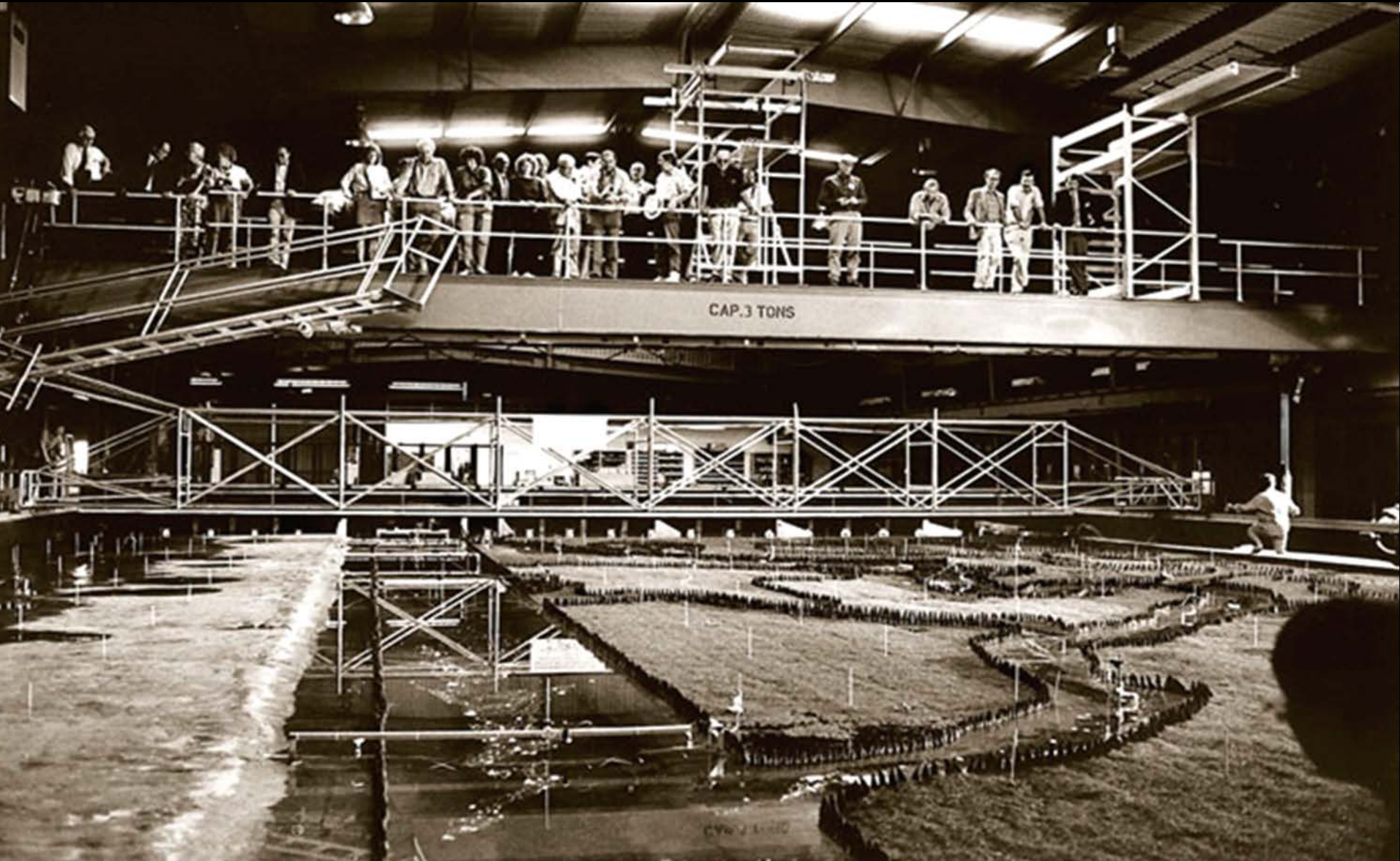
# WHAT IS A PHYSICAL MODEL?

**A physical model is a multi-functional, highly structured, macro-scale physical representation of a process, organism, community or landscape.**

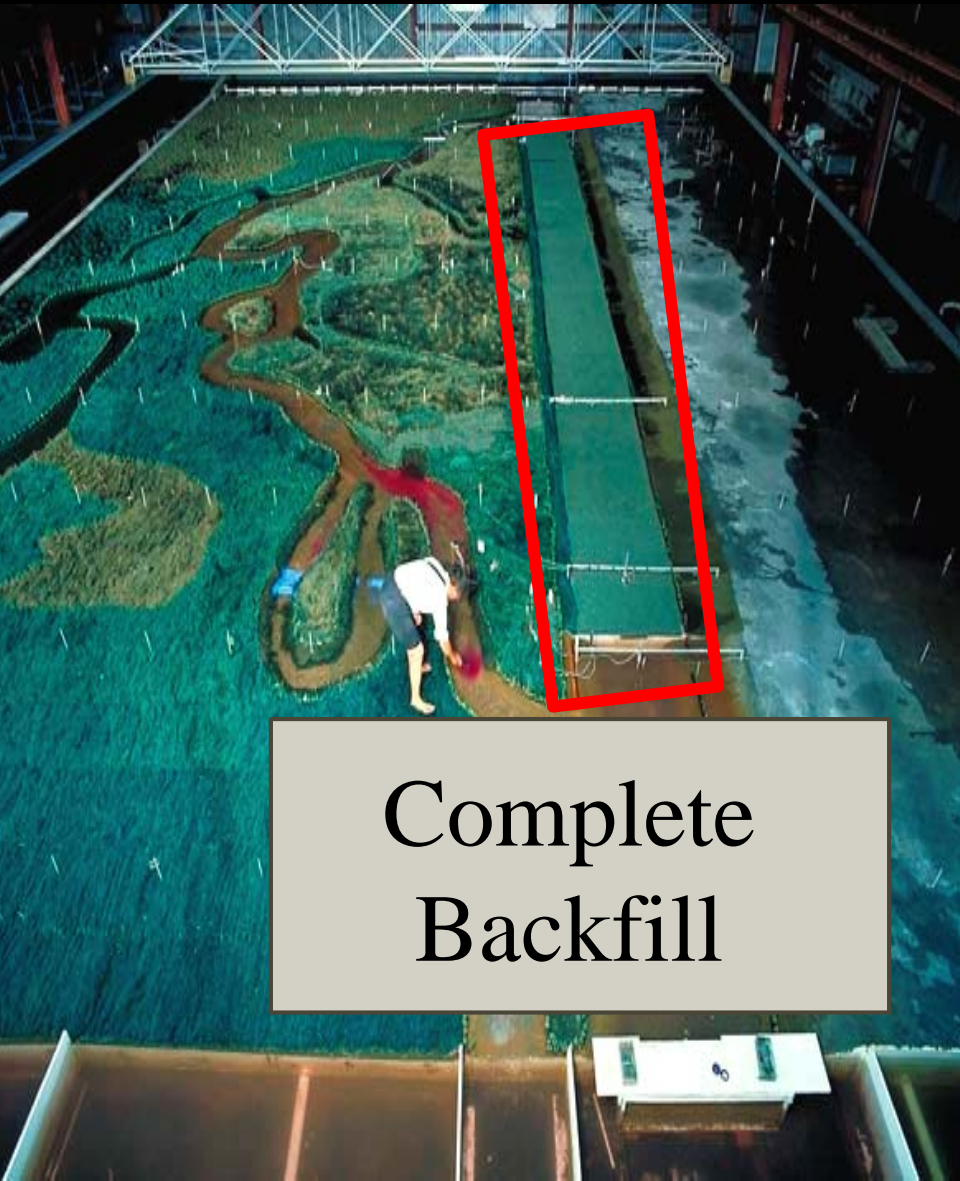
# EXAMPLES OF PHYSICAL MODEL CAN BE FOUND IN:

- 1. Medicine**
- 2. Art and Architecture**
- 3. Manufacturing**
- 4. Fluid Dynamics**
- 5. Ecology**

# PHYSICAL MODEL AT UC BERKELEY



# PHYSICAL MODEL AT UC BERKELEY



Complete Backfill



Weirs Only

# GOALS AND LIMITATIONS OF A PHYSICAL MODEL MUST BE CLEAR

- Avoid complexity: If your physical model is too complex, you might as well measure and work with the “real” system.
- Have a Clear Vision: Do not assume that your funding agency or your client understands the concept of a physical model.



For Example: The Zoolander Center for Kids Who Can't Read Good

<http://youtu.be/mBNom46c4tQ>

# PHYSICAL MODELS SESSION 25

## NCER 2016

- 1. Carlos Coronado, SFWMD: Tree Islands as models for understanding the role of hydrology**
- 2. Tiffany Troxler, FIU: Mesocosms used to Evaluate Peat Collapse**
- 3. Colin Saunders, SFWMD: The Decomp Physical Model**
- 4. Erich Mueller, USGS: Using the Grand Canyon for a Physical Experiment.**