Surfer Health Study

Study Early Progress Update

June 6, 2014
Beach Bacterial Contamination in Wet Weather Is Problematic

- Good progress has been made on cleaning up dry weather

- Wet weather bacterial contamination levels always seem high
  - Sources are uncertain

- Remediation strategies are expensive
  - TMDL compliance deadlines are on the horizon
Wet Weather May Not Be The Same As Dry Weather

- An assumption that non-human sources of FIB carry less risk than human sources
- The relationship between FIB and illness can be different with non-human sources
- There has not been a qualified epidemiology study in wet weather
Our Study Questions

- Is water contact associated with an increased risk of illness?
- Is illness risk greater from exposure following wet weather compared to dry weather?
- What is the association between levels of *Enterococcus* and illness following wet weather events?
- What level of *Enterococcus* corresponds to the same risk of illness as current water quality objectives?
A Wet Weather Epi Study Has Never Been Attempted

- We started with a Pilot Study
  - Two foundational goals

- Test logistics
  - Can we do the sampling?

- Test feasibility
  - Will our study design provide answers?
Surfers Are Our Biggest Challenge

- Surfers are the largest population in the ocean following storms
  - They are most “at risk” cohort

- Surfers may enter the ocean frequently
  - Multiple exposures days

- Surfers may use multiple beaches
  - Multiple exposure locations
Pilot Study Approach

- Two beaches
  - Ocean Beach and Tourmaline Surfing Park

- Collect water quality daily
  - Intensify during storm events

- Recruit 100-200 surfers

- Follow their surfing activity and health status weekly for three months using web or cell phone app
  - Compare illness rates when surfing vs. not surfing
  - Compare illness rates surfing in dry vs. wet weather
Incidence Risk Ratio

- Sinus Pain/Infection
- Ear Pain/Infection
- GI Illness
- Diarrhea
- Infected cut
Sinus Pain/Infection
Ear Pain/Infection
GI Illness
Diarrhea
Infected cut
Time For Deciding Next Steps

- We know we can conduct (and improve upon) the study logistics
  - Sample collection, surfer recruitment, reporting

- We know the study design can work
  - Power analysis indicates we will need 3 to 7 times more “exposure days” for statistical confidence

- Is it worth continuing on with the full study?
  - How representative are these two beaches?