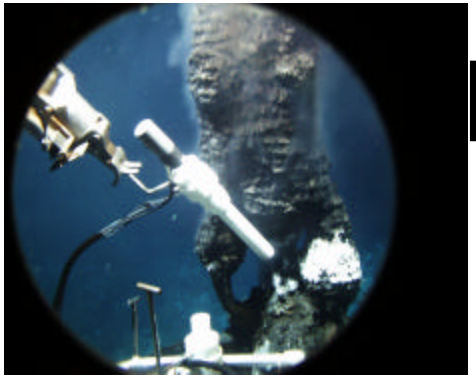
- May 1999 (Luther and Cary)- 9N
- Oct 1999 (Rita Colwell et al.)-Juan de Fuca
- Jan 2000 (Luther and Cary)- Guaymas



Key objectives and findings

Hypothesis: Pyrite formation =Energy (H_2)

- Characterize microbial diversity associated with active sulfides
- Isolate novel microbes-H_2
  - chemolithoautotrophic thermophiles
- Chemistry

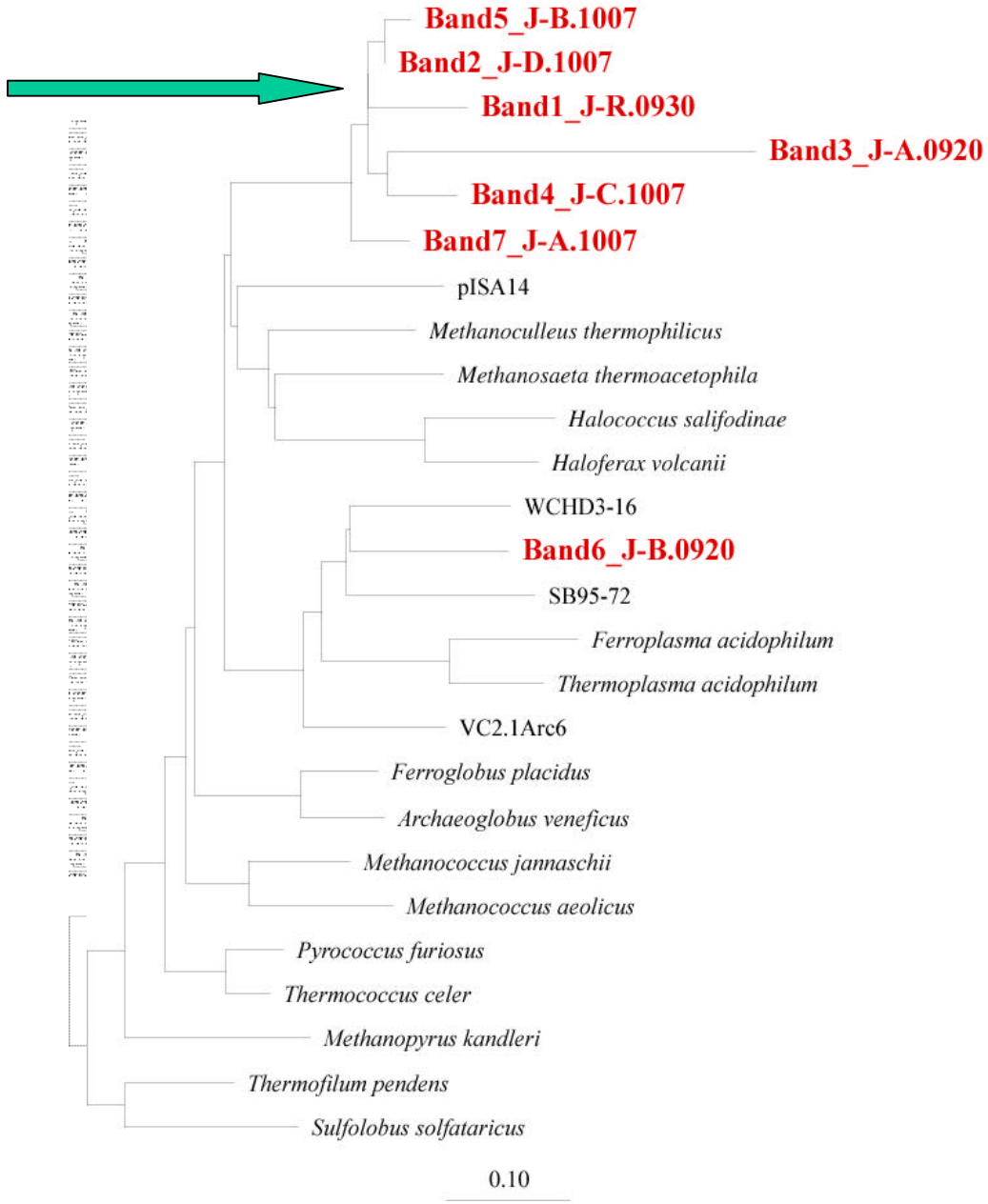
- Used molecular methods
  - >>>> diversity
  - Novel groups never reported from vents
  - Lab/vent rats not found
- Culturing methods
  - methanogens associated with FeS and pyrite
  - Novel isolates NEVER reported from terrestrial/deep-sea hydrothermal vents

What we thought we knew about thermophilic (*Archaea*) diversity at vents

- *Thermococcus* spp- lab rat of thermophiles?
- *Methanococcus jannaschii*
- Others-single isolates, *Archaeoglobus, Methanopyrus, Desulfurococcus* etc.

We were wrong!- Juan de Fuca

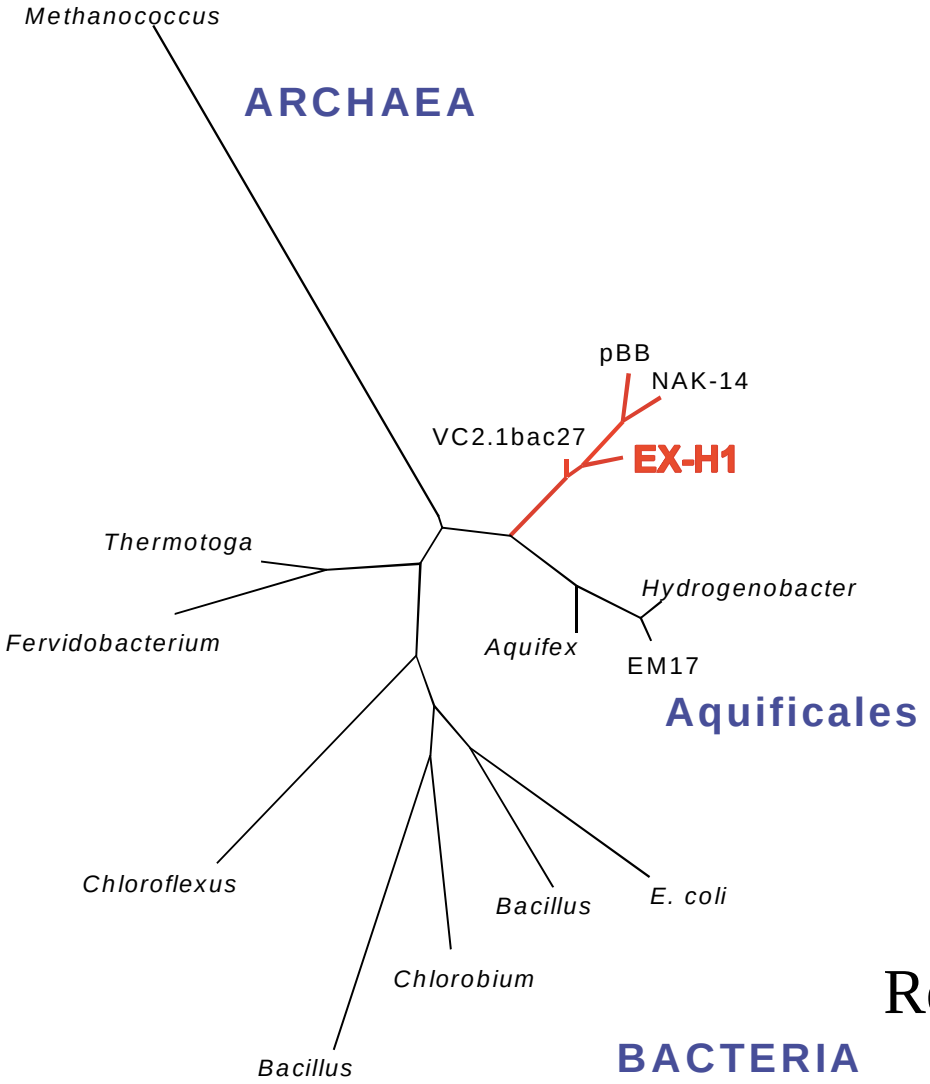
- 1 dive
- 1 flange
- Colwell et al, manuscript in prep.



We were wrong, twice!-Guaymas

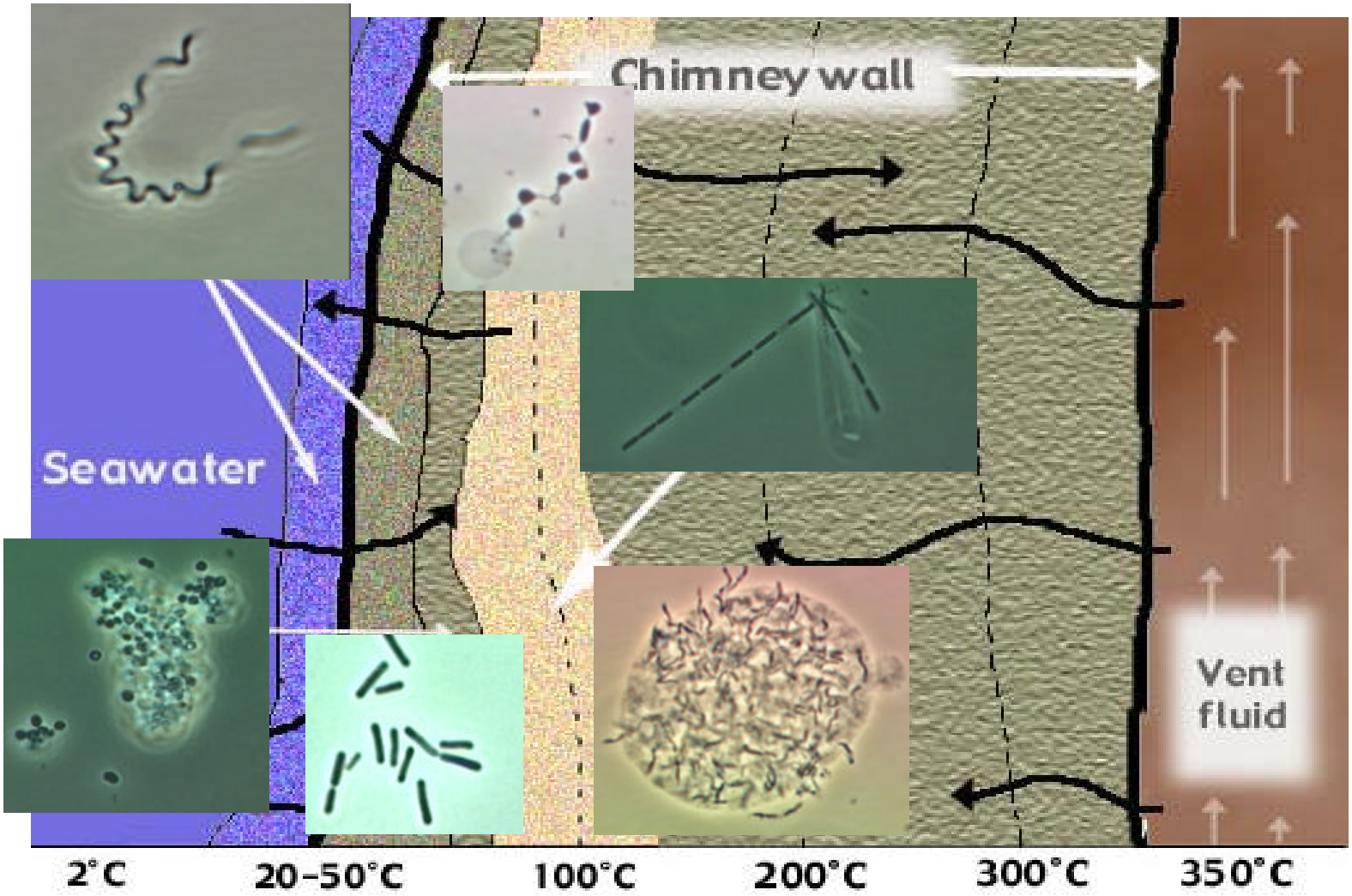
And how about cultures?

"*Persephonella* spp."



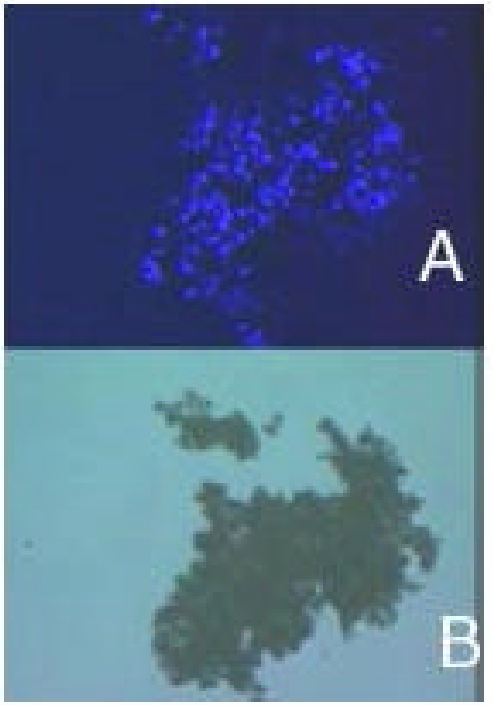
Reysenbach et al. 2000.Nature 404:835

And so many more…



After McCollom and Shock, 1997

Thanks



- NSF
- Alvin team
- Atlantis crew
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- Krista Longnecker, Dorothee Gotz, Amy Banta