Observer program update: *Chionoecetes* hybrids

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Review: legal vs biological definitions

- **Legally,** hybrids do not exist: *Chionoetetes* crab are either *bairdi* or *opilio*
  - 2 red eyes and an “M” shaped mouth = *bairdi*
  - Everything else is an *opilio*

- **Biologically,** hybrids exist, and physical traits occur across a spectrum
  - Variations in “mouth” shape, eye color, carapace morphology, spination
    - “bairdi-like” vs “opilio-like” hybrids

Epistome (“mouth”) shape

Bairdi

Opilio

Epistome (“mouth”) shape

Bairdi

Opilio

Observer program

- Has and is recording *Chionoecetes* hybrid data

Programmatic challenges:

- High observer turnover rates
  - Difficulties in training and IDing hybrids
- Inter-observer variability of hybrid data resolution (lumpers vs splitters)
- Observers work hard and want to do the right thing, but hybrid IDing creates a level of anxiety
  - Subjectivity involved in identifying physical characteristics that exist in a spectrum
- Observer hybrid data is not being used in management

- Recent internal conversations about the utility of observer hybrid data and the future of hybrid data collection

Why is Ben talking about this?

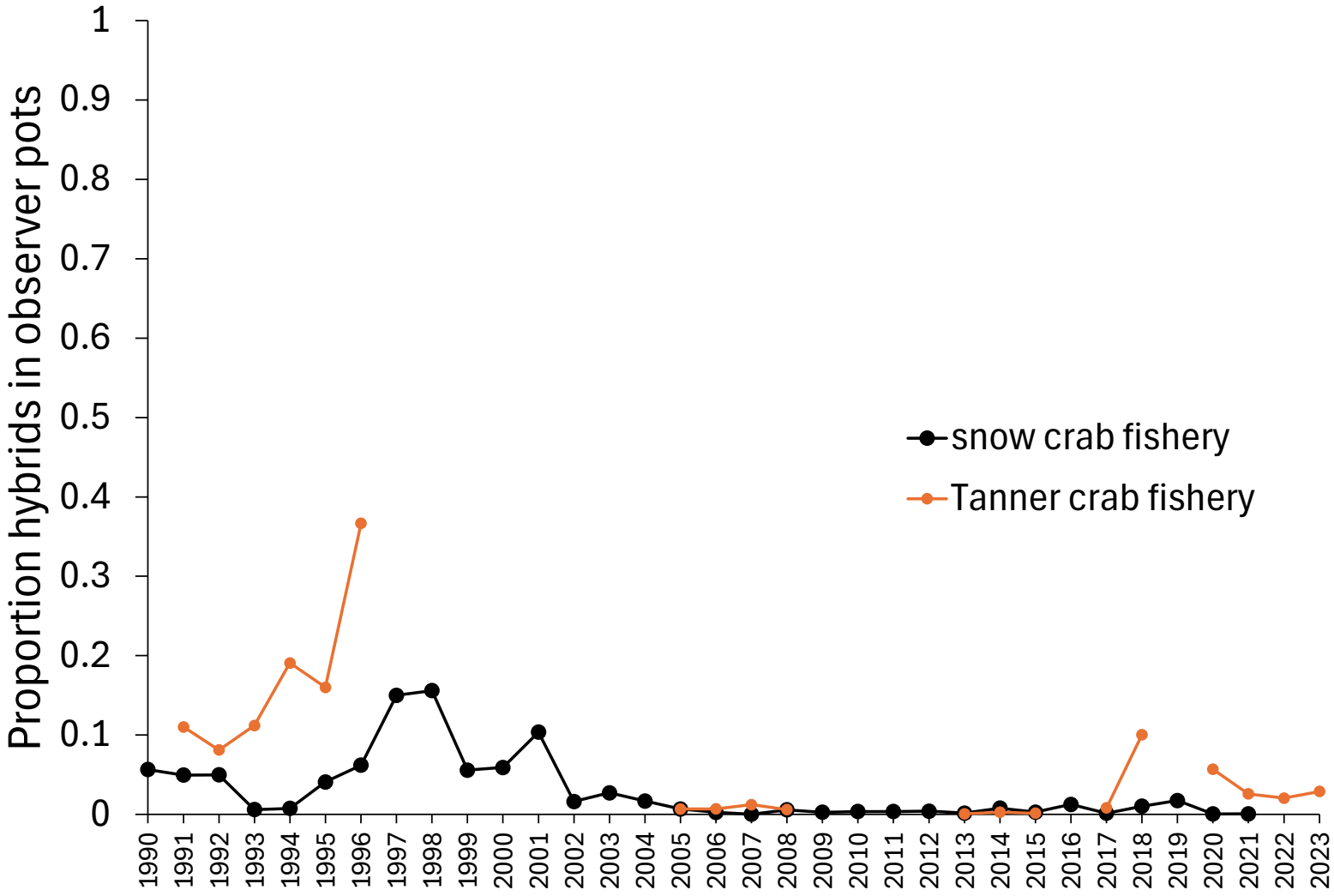
- Update CPT on observer hybrid data
- Provide space for CPT feedback on the utility of observer hybrid data
  - Value of hybrid data
  - Consequences of not collecting hybrid data

Utility of observer hybrid data

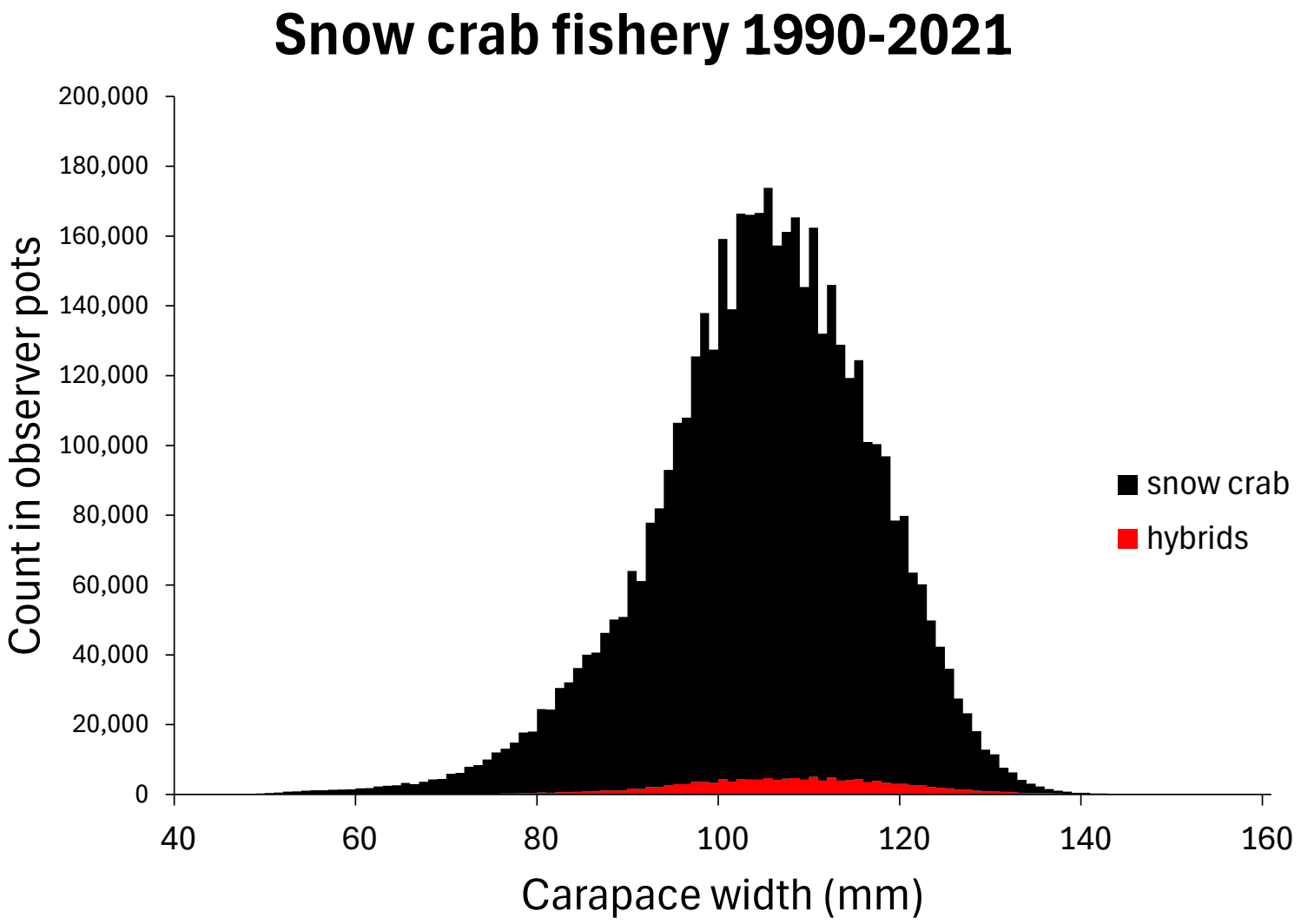
- Separates hybrids from opilio/bairdi observer data streams
- Timeseries of hybrid occurrence allows for future explorations of *Chionoecetes* biology/ecology

- Hypothetically, ceasing to collect hybrid data means that hybrids encountered would be lumped into bairdi/opilio data stream
  - Mostly lumped into opilio data, given legal definitions
  - Potentially skew size comps?

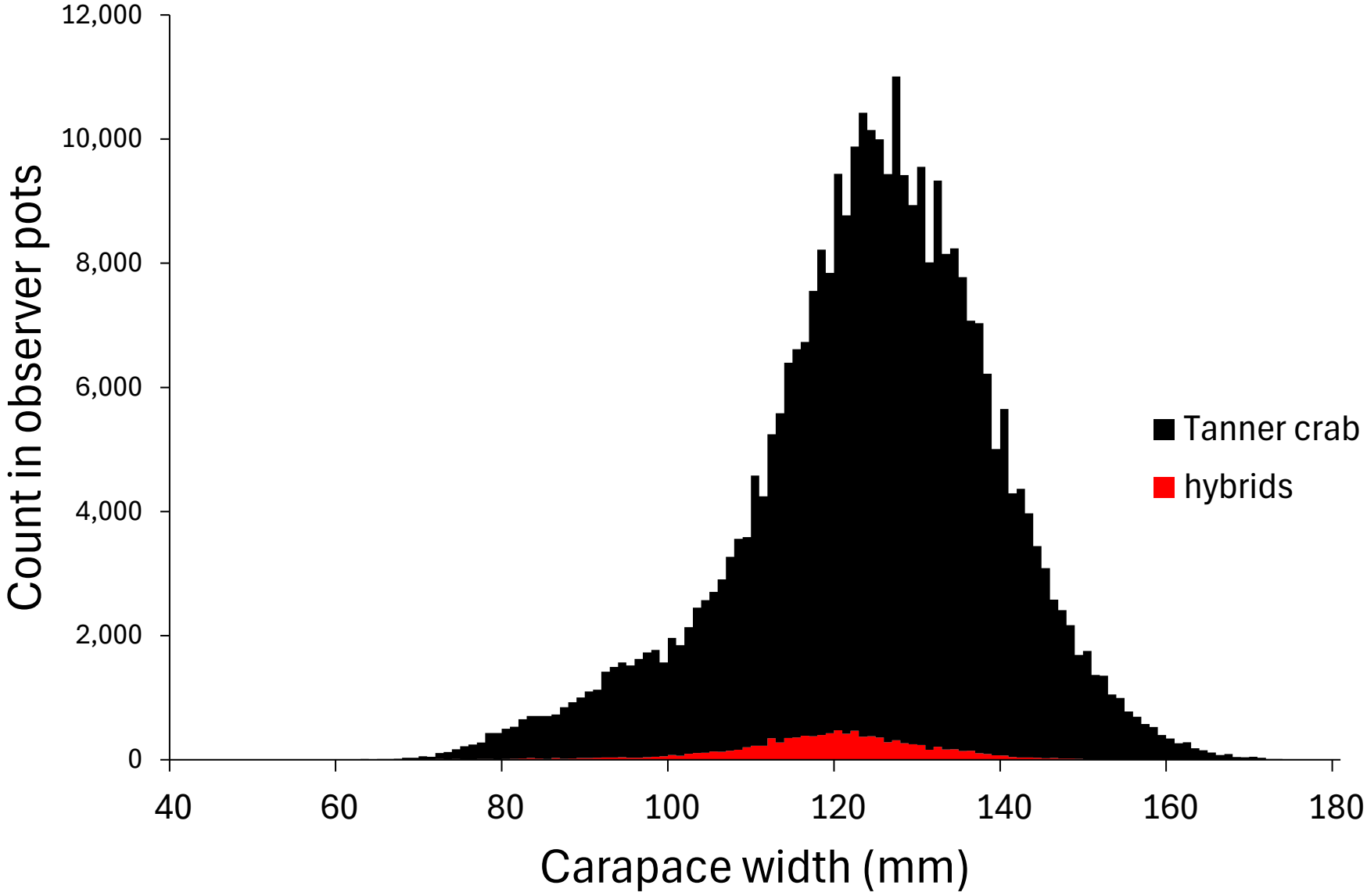
At-sea observer hybrid data



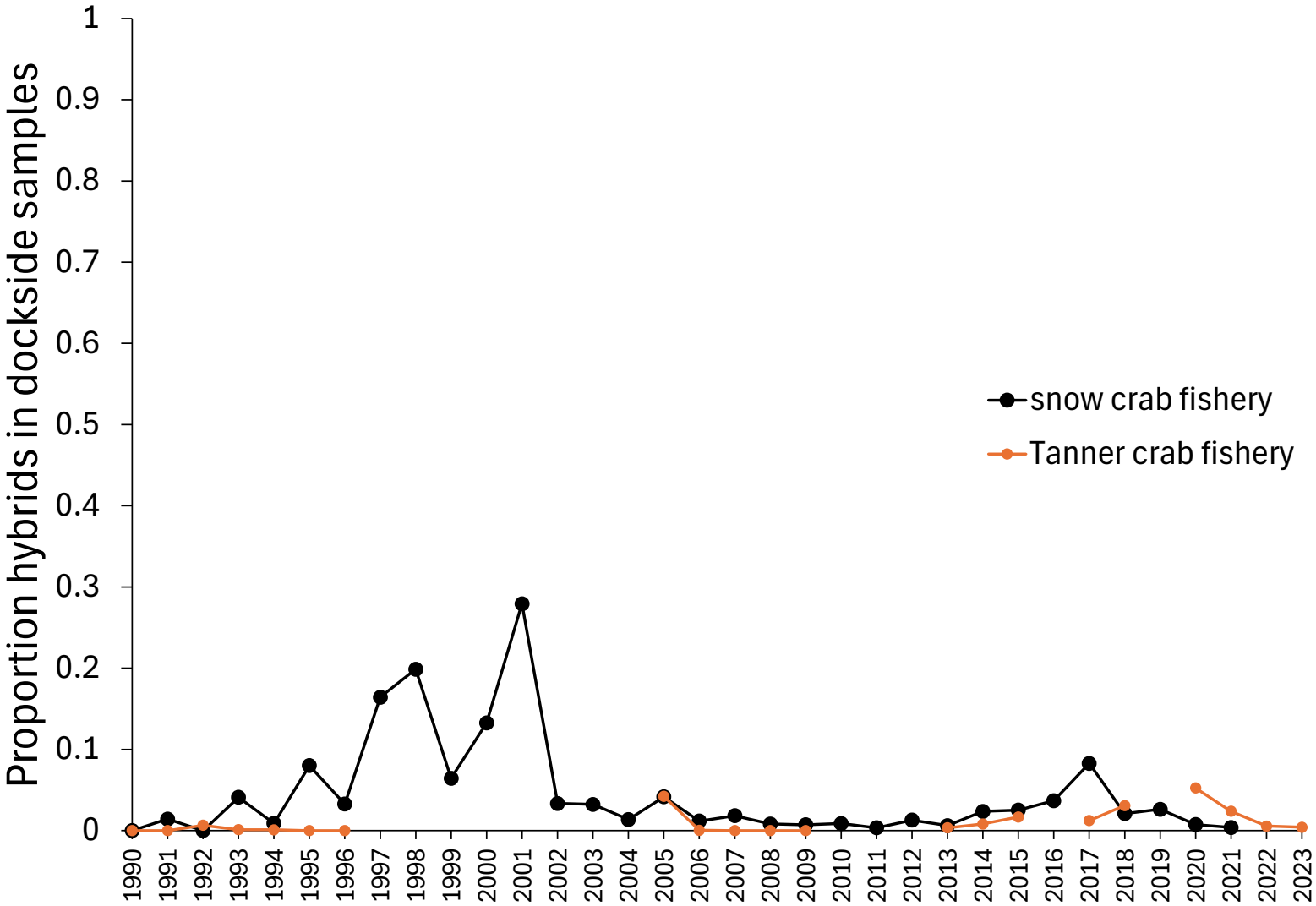
At-sea observer hybrid data

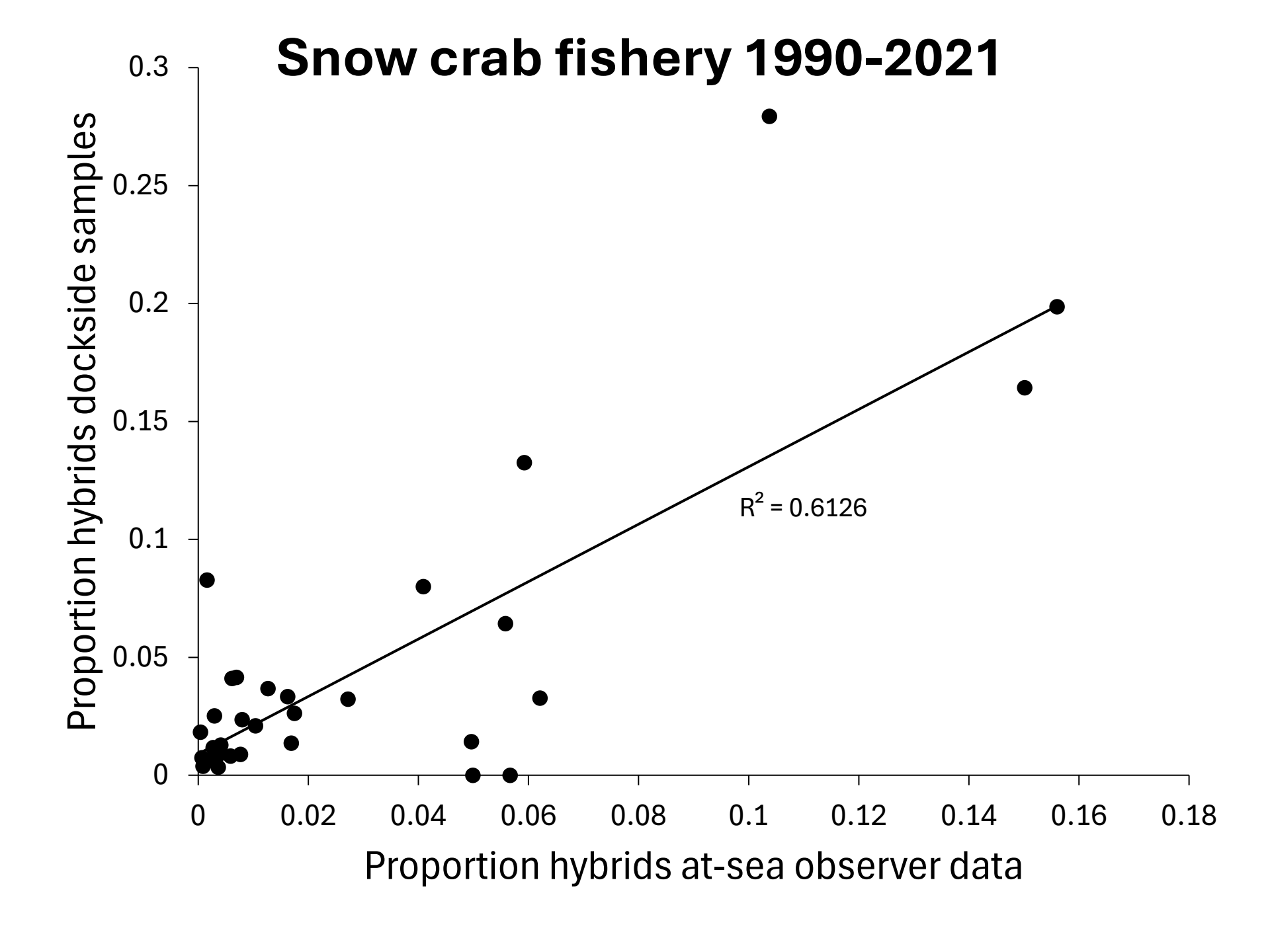


Tanner crab fishery 1990-2023



Dockside samples




Snow crab fishery 1990-2021
Proportion hybrids dockside samples
Proportion hybrids at-sea observer data
R2 = 0.6126
0.3
0.25
0.2
0.15
0.1
0.05
0
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18

At-sea observer hybrid data collection

- Cumbersome for observer program
  - Hybrid ID consumes a lot of time during short training/briefing windows
  - Questions about subjectivity and utility of hybrid data
- Value in separating from Tanner and snow crab datasets and allowing for future biological analyses
- Possible consequence of lumping hybrid data into legal definitions (skewing size comps)
- Looking for any feedback from CPT about the utility of continuing hybrid data collection……Thoughts?