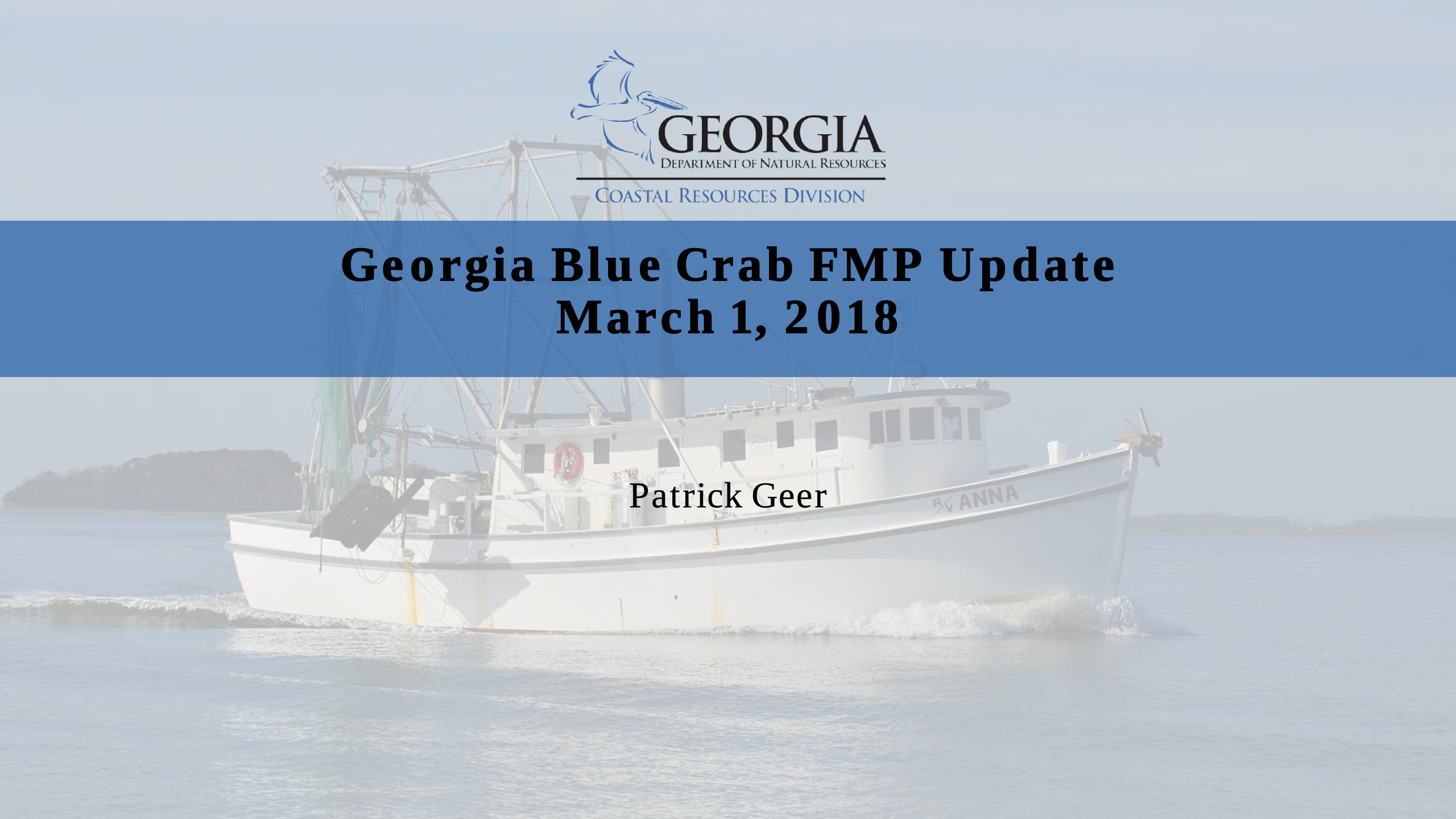
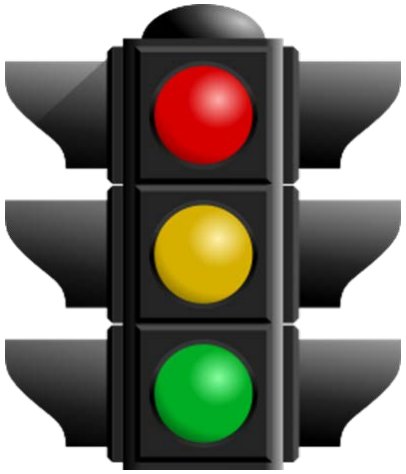
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION

Georgia Blue Crab FMP Update
March 1, 2018



Patrick Geer

Fishery Management Plan - 2008



"Traffic Light Analysis"

"Trigger Management"

"Adaptive Management"

"Threshold Management"

Present Blue Crab FMP (June 2008)

- Established as a result of a four year drought (1998-2003) and DOC/NMFS Fishery Failure Declaration (May 2003). Updated in June 2008.
- Threshold Management Approach
  - Data Sources:
    - GADNR EMS Trawl Survey - Spawning Stock
    - Commercial Trip Tickets CPUE (Catch per Trip)
  - Recommendations:
    - Thresholds were set at upper 95%, lower 81% and 95% confidence intervals
    - If a threshold is exceeded for 6 consecutive months a management action can be implemented
    - Implementation will remain until the threshold is NOT exceeded for three consecutive months.

Georgia Blue Crab Management
Criteria for a Threshold "Trigger" Action

- 6 consecutive months must be beyond the threshold value.
- Both Trawl and Commercial CPUE's must agree.
- Other datasets will be incorporated as time series increases.
- Action can remain in effect up to 90 days (3 months) or until catches fall **WITHIN** acceptable values (recover).
- Actions will be reviewed by DNR Biologists and this advisory panel before implementation.

Georgia Blue Crab Management

What Happens When a Trigger is "Fired"

- Steps to Take
  1. Update all datasets
  2. Monitor closely beginning in the 4th consecutive month
  3. Convene a meeting of the Blue Crab AP
     a. Consider the options
     b. Make a recommendation based on the options
  4. Create an administrative order for Commissioner's approval.

- Time Frame: 30 days to implement.

- Duration of Action: Up to 90 days (3 months) but can be continued if circumstances persist.

Georgia Blue Crab Management

Recommended Management Options for each Trigger*

Threshold Value 1: (> 81 % Upper C.I.)

- Relax regulations on harvest of sponge crabs.

Threshold Value 2: (≤ 81% Lower C.I.)

- Seasonal restrictions on female harvest.
- Can be adults, peelers, or both.
- Does not need to be immediately after the the threshold is reached – Can be timed to allow for biological considerations.

Threshold Value 3: (≤ 95% Lower C.I.)

- A prohibition on ALL female harvest (hard & peelers)
- Complete harvest moratorium

*: As written in 2008 Georgia Blue Crab Fishery Management Plan

Georgia Blue Crab Management

What Happens When a Trigger is "Fired"

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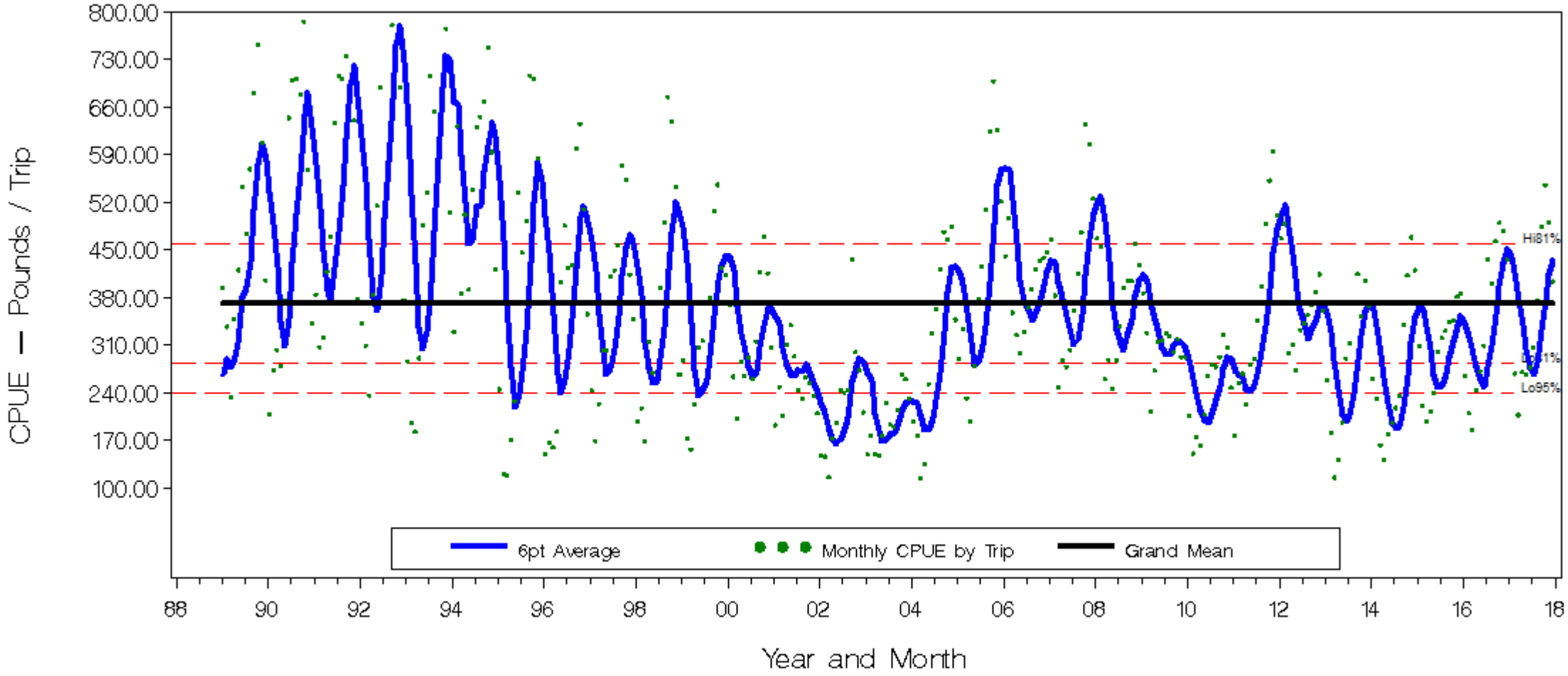
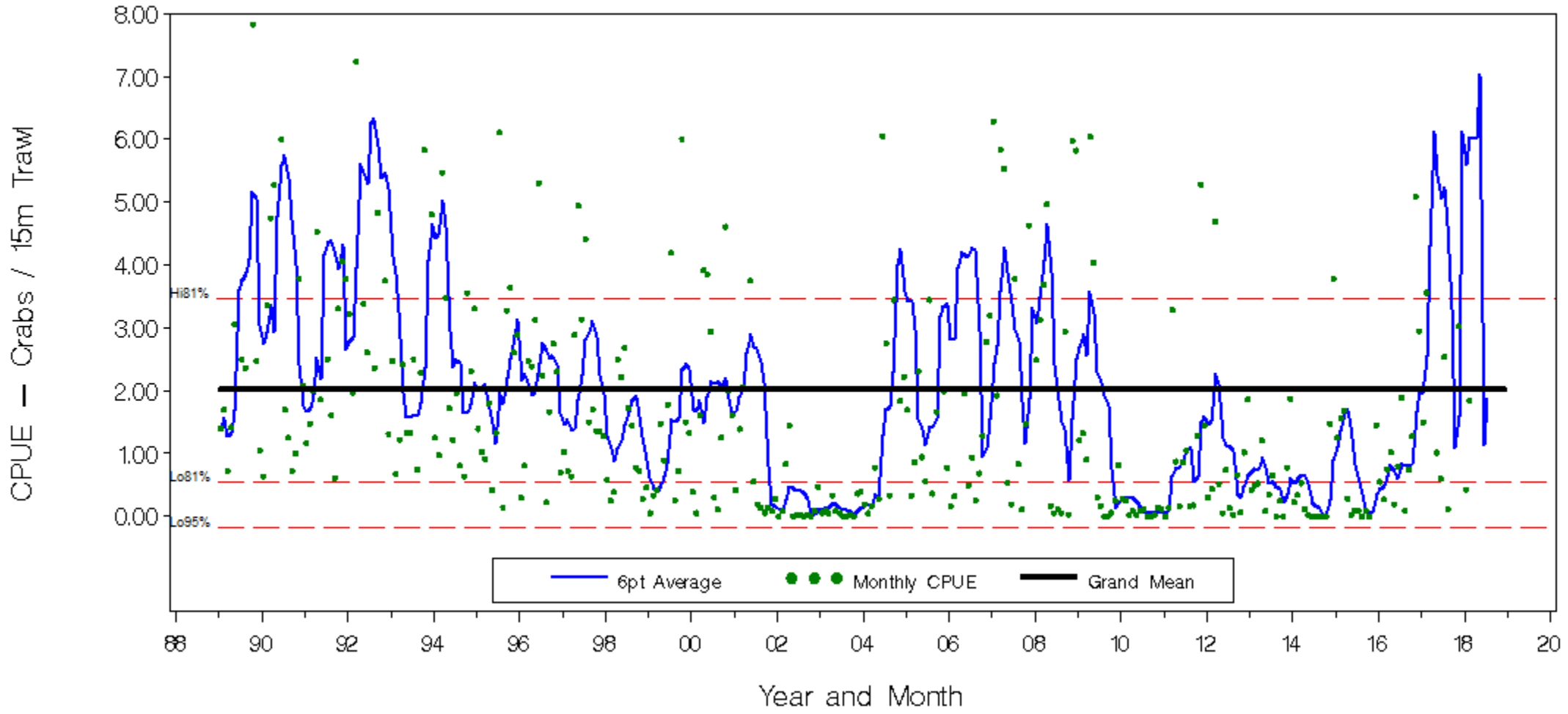
Commercial CPUE (lbs/trip)



Trigger Values (in lbs/trip): Hi81%: 459 Lo81%: 284 Lo95%: 240. Grand Mean: 371

No triggers have been met in almost 10 years

EMTS Spawning Stock

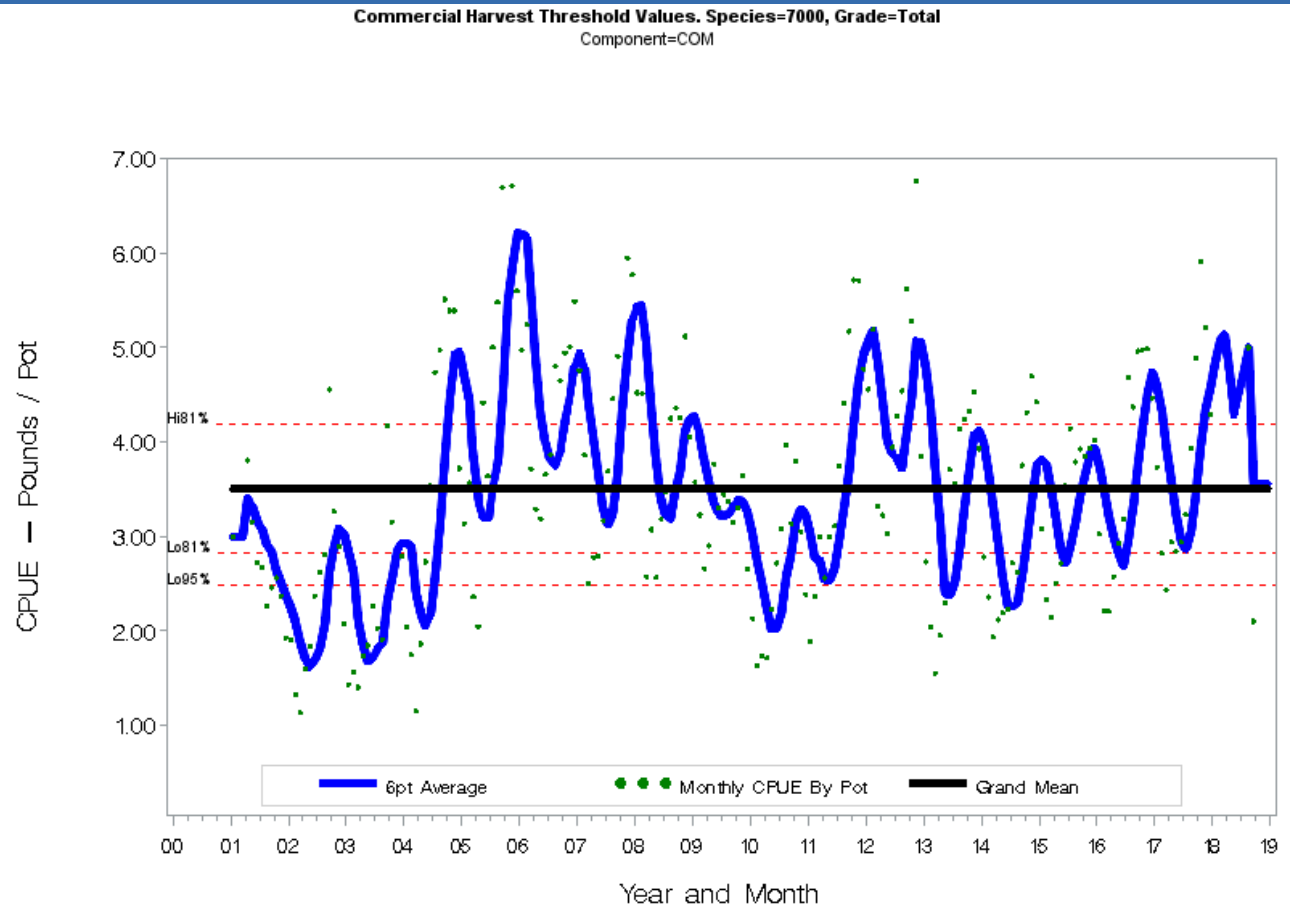


Trigger Values (in #/trawl): Hi81%: 3.47 Lo81%: 0.54 Lo95%: 0.01. Grand Mean: 2.01

Presently: 3 months (Dec-Feb) above the Hi 81% CI

2017: 6 months (Mar-Aug) above the Hi 81% CI - Trigger met

Commercial Catch and Effort (pounds per trap)**



Trigger Values (in lbs/pot): Hi81%: 4.18 Lo81%: 2.82 Lo95%: 2.48. Grand Mean: 3.50

Presently: 2 months (Nov-Dec) above the Hi 81% CI

2017: 5 months (Oct 16 – Feb 17) above the Hi 81% CI - Trigger NOT met

**: Not considered in 2008 FMP due to the short time series

Proposed Changes to the Plan

- Data Sets
  - Continue with EMTS Spawning Stock – Abundance Characteristic
  - Replace Commercial lbs/trip with lbs per pot – Harvest Characteristic
  - Develop an estimate of juveniles (recruits) from the EMTS

- Time Series
  - Should be consistent for all datasets – Start with 2002
    - EMTS: 1976-present
    - Commercial lbs per trip: 1989-present
    - Commercial lbs per pot: 2002-present
    - Eliminates older data that may not be representative of the present fishery
    - Month to Month Comparison replaces Month to Grand Mean Comparison

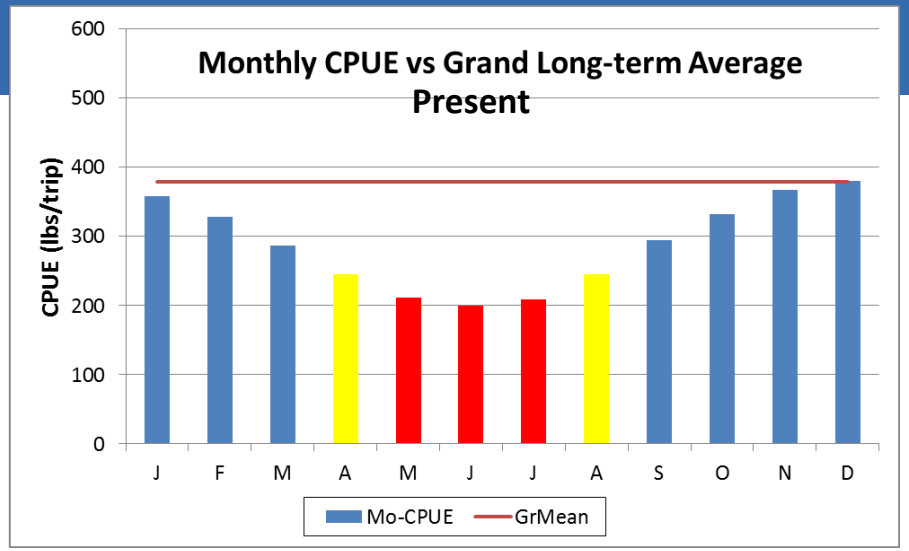
Issues to Consider

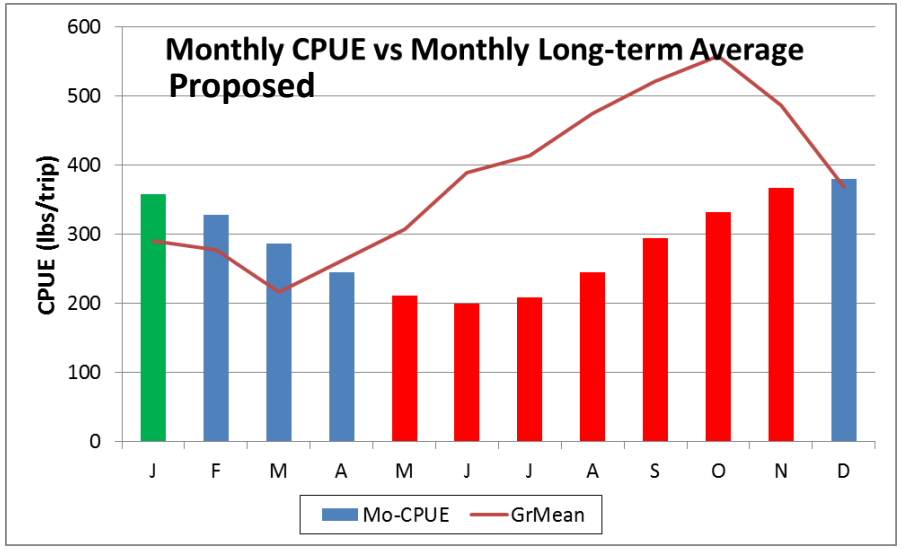
Previously Presented to BCAP

2013 Commercial Crab Harvest

- Same Data – 2013 Commercial CPUE
- Using Long-term mean (top) vs monthly long-term mean (bottom)
- Bar color indicates status

Month	2013 CPUE	Long-term Average (89-14)	
		By Month	Overall
J	357.68	290.80	378.54
F	328.87	277.90	
M	286.55	216.59	
A	245.50	262.53	
M	210.97	307.17	
J	199.90	388.85	
J	209.14	413.66	
A	245.36	474.97	
S	295.16	521.56	
O	332.66	558.04	
N	366.73	486.99	
D	380.63	367.94	

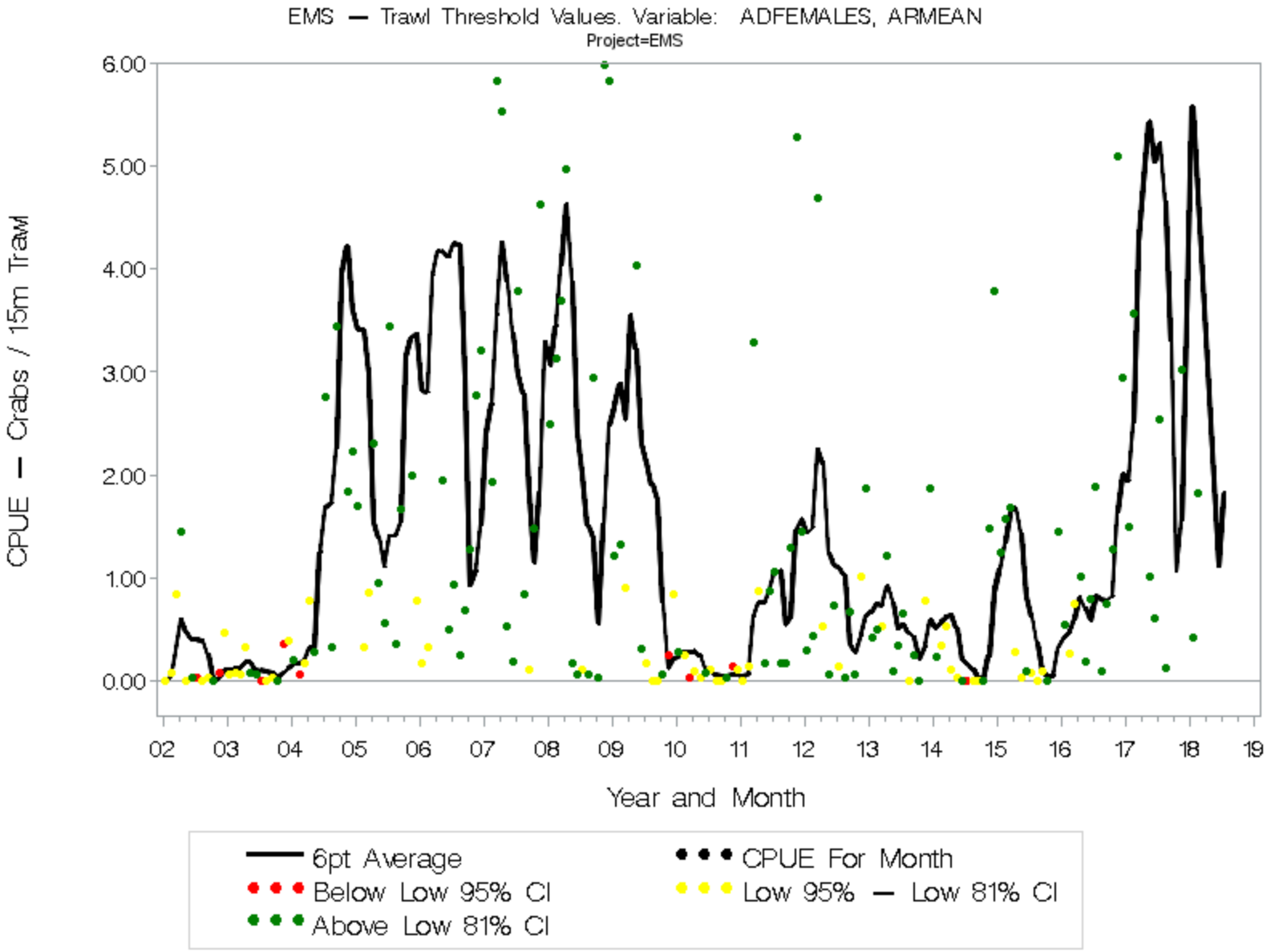




	Within Acceptable Ranges
	Below the lower 95% Confidence Interval
	Below the lower 81% Confidence Interval
	Above the upper 81% Confidence Interval

Alternative Method – Monthly Comparison

EMTS – Adult Females



Trigger Values: Vary by Month

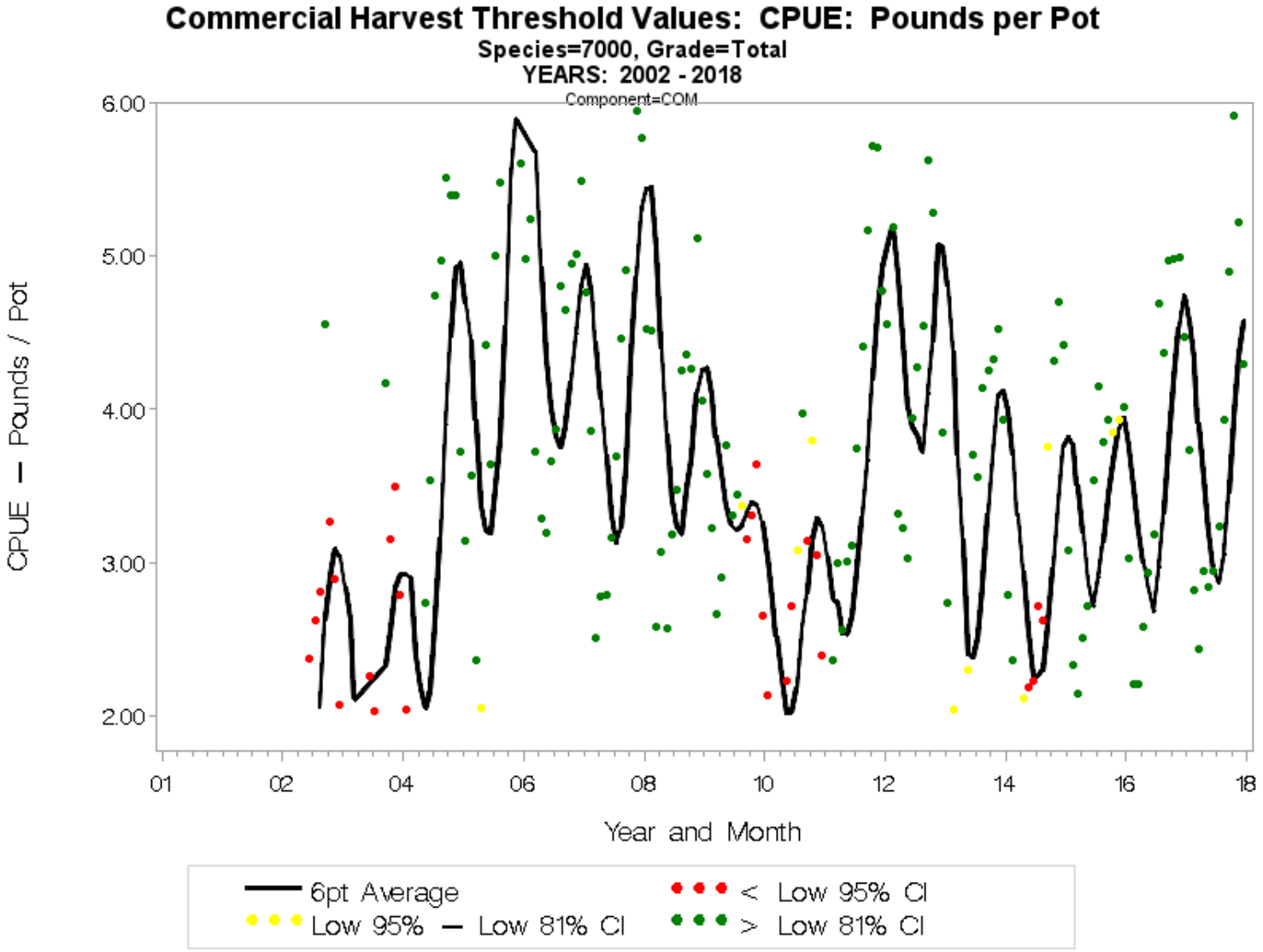
Presently: 3 months (Dec17 – Feb 18) above the Hi 81% CI

2017: 5 months (May-Sep) above the Hi 81% CI

Trigger NOT met

Alternative Method – Monthly Comparison

Commercial CPUE – Pounds per Pot



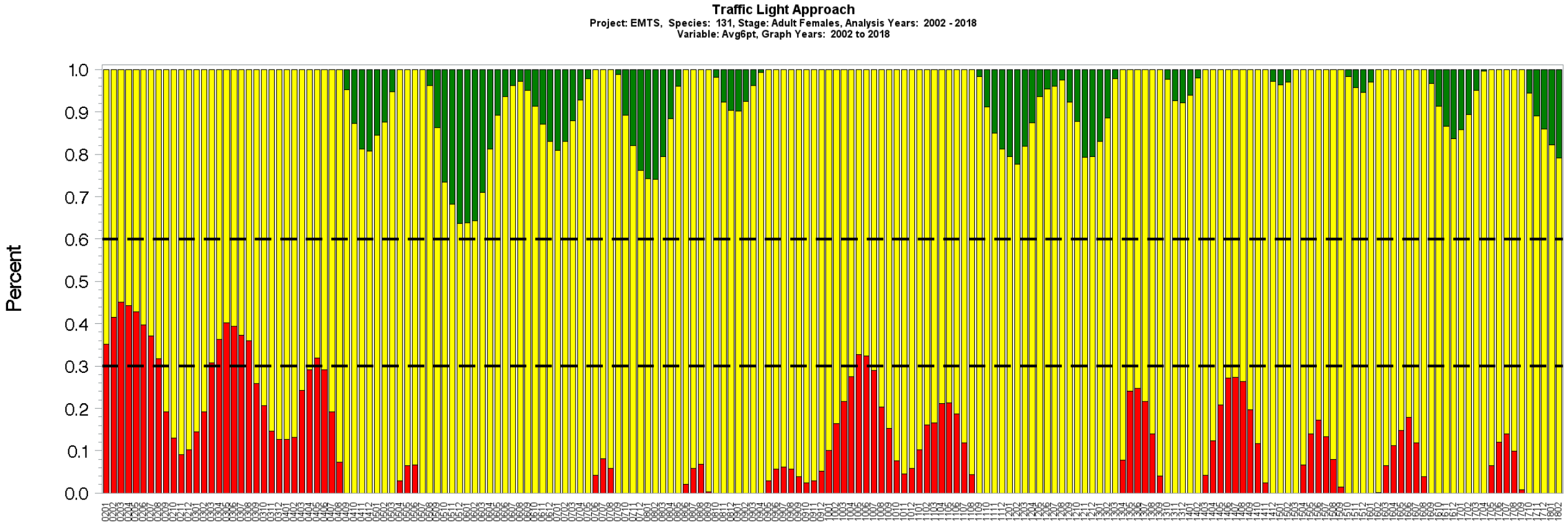
Trigger Values: Vary by Month

Presently: Trigger NOT met (as of Dec17)

2017: 6 months (Dec-May) above the Hi 81% CI
Trigger Met through Aug 2017

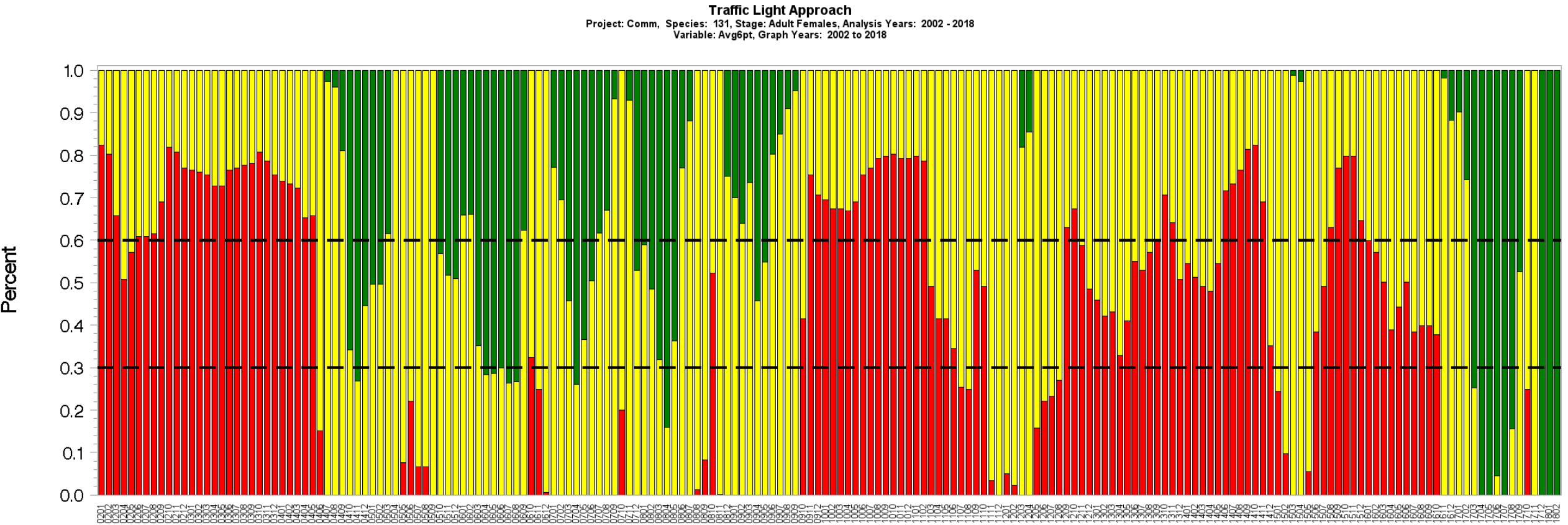
TLA – Harvest Characteristic 2002-2017

Pounds per Pot



TLA – Abundance Characteristic 2002-Feb 2018

Adult Female Crabs per 15 Minute Trawl



Proposed Changes to the Plan

- Data Sets
  - Continue with EMTS Spawning Stock – Abundance Characteristic
  - Replace Commercial lbs/trip with lbs per pot – Harvest Characteristic
  - Develop an estimate of juveniles from EMS – Recruit Characteristic

- Time Series
  - Should be consistent for all datasets – Start with 2002
  - Continue with Monthly Analysis
  - Continue with 6 consecutives months to trigger
  - Begin using Traffic Light Analysis/Approach

- FMP Update: Complete by ??