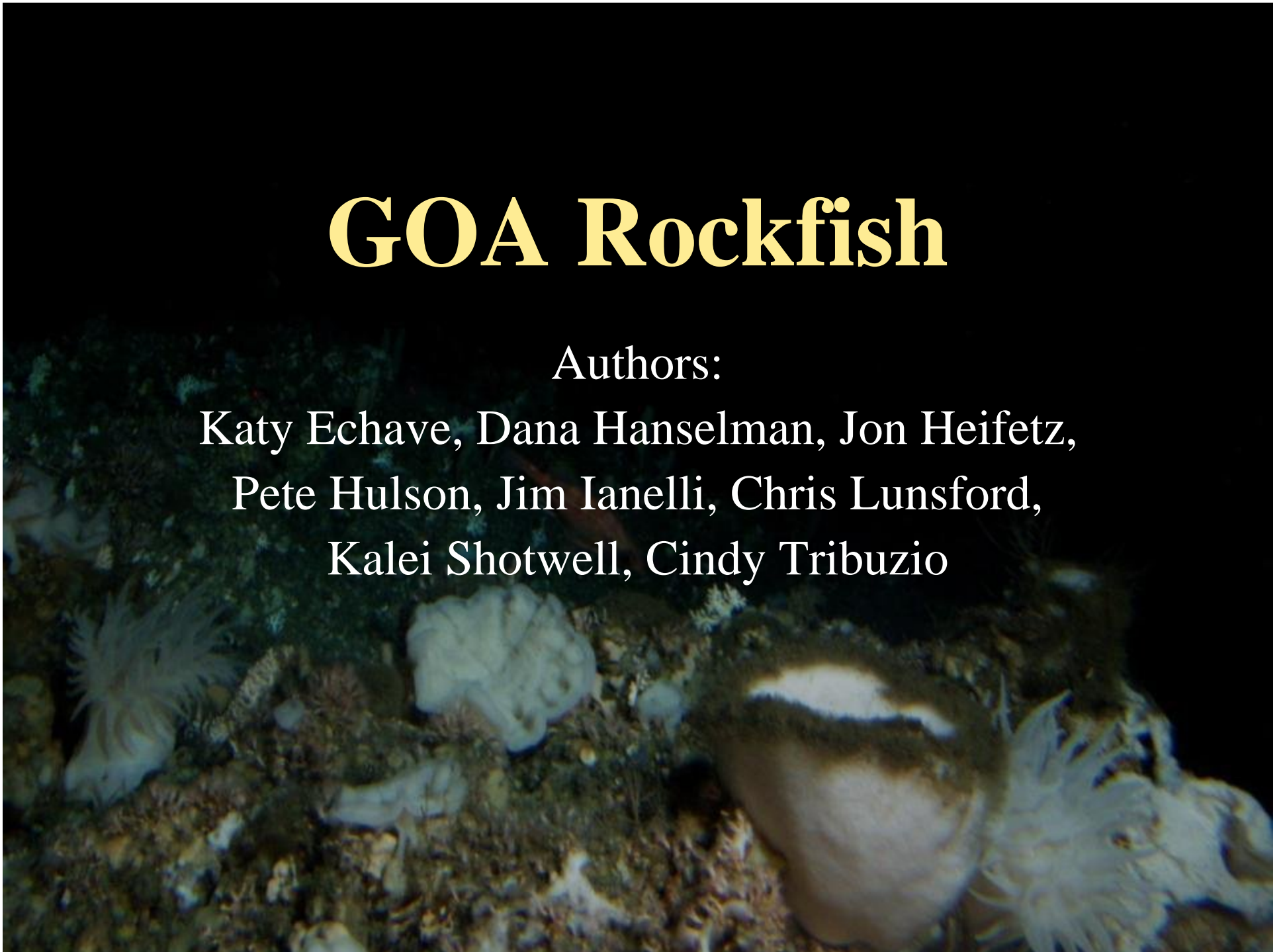


GOA Rockfish

Authors:

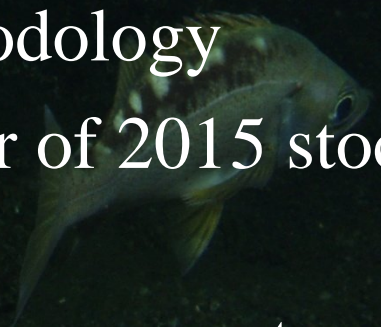
Katy Echave, Dana Hanselman, Jon Heifetz,
Pete Hulson, Jim Ianelli, Chris Lunsford,
Kalei Shotwell, Cindy Tribuzio



Outline

- Executive Summaries
- Age-Structured – Tier 3a
 - Pacific ocean perch, Northern rockfish, Dusky rockfish, Rougheyeye and Blackspotted rockfish
- Non Age-Structured – Tiers 4,5
 - Other rockfish, Shortraker rockfish, Thornyheads
- Appendices: Shortraker stock structure and Shortspine Thornyhead tagging summary

Executive Summaries

- Assessed on biennial schedule to coincide with new GOA bottom trawl survey data
 - Off cycle (even) year = Executive Summary
 - Age-structured: only updated catch estimates for 2015-2018 to be used in projection model, no changes in assessment methodology
 - Non age-structured: roll-over of 2015 stock assessment estimates
 - Limited response to PT/SSC comments
- 

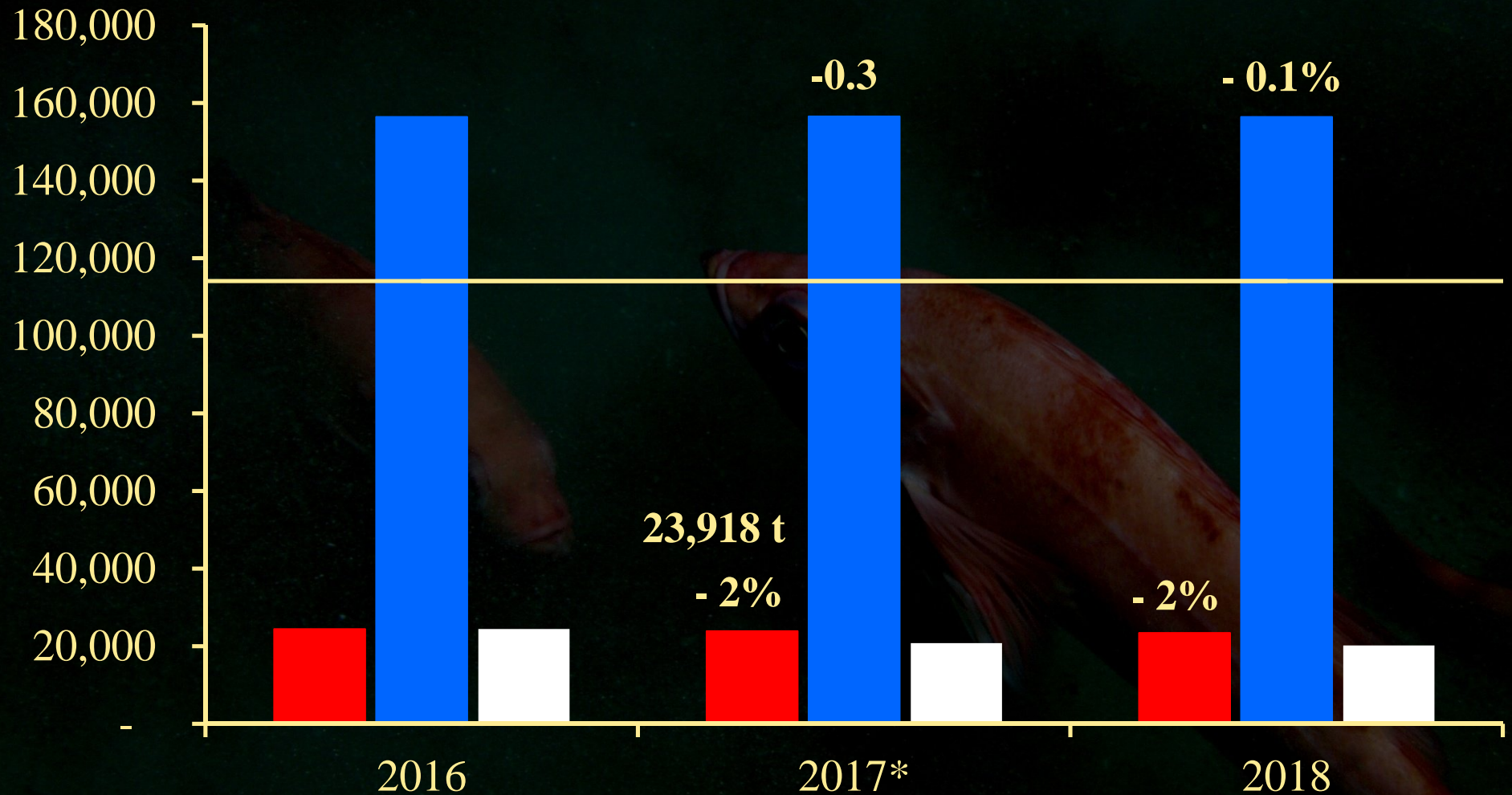
Pacific ocean perch



- Tier 3a species
 - Only update catches in the projection model
 - Updated 2015 and estimated 2016-18 catches
- Catch Update
 - Issue with 2016 catch: since fishery in WG OA in 2014 didn't start until after Oct 15 it inflates expansion factor. 2016 catch estimated to exceed GOA wide TAC by over 1,700 t – set 2016 catch at TAC in projection (still ~1,100 t left in TAC as of Oct 22)
- Recommended 2017 ABC: **23,918 t**
 - Down ~2% from 2016 ABC of **24,437 t**

Pacific ocean perch

■ ABC ■ SSB (t) ■ Projected Catch (t) — B_{40%}



Apportionment – ABC

	Western	Central	Eastern	Total
2016 ABC	2,737	17,033	4,667	24,437
2017 ABC	2,679	16,671	4,568	23,918

	WYAK (61%)	EYAK/SE (39%)	Total
2016 ABC	2,847	1,820	4,667
2017 ABC	2,786	1,782	4,568

Apportionment - OFL

	W/C/WYAK	EYAK/SE	Total
2016 OFL	26,313	2,118	28,431
2017 OFL	25,753	2,073	27,826

Pacific ocean perch



- Notables
 - Projected spawning biomass stable
- 2016-2017, plan to investigate:
 - Effect of different plus-group specification for length comp data
 - Alternative length bin designation
 - Different data weighting methods
 - Application of geostatistical GLMM approach to bottom trawl survey biomass
 - WYAK harvest rates compared to F_{ABC}

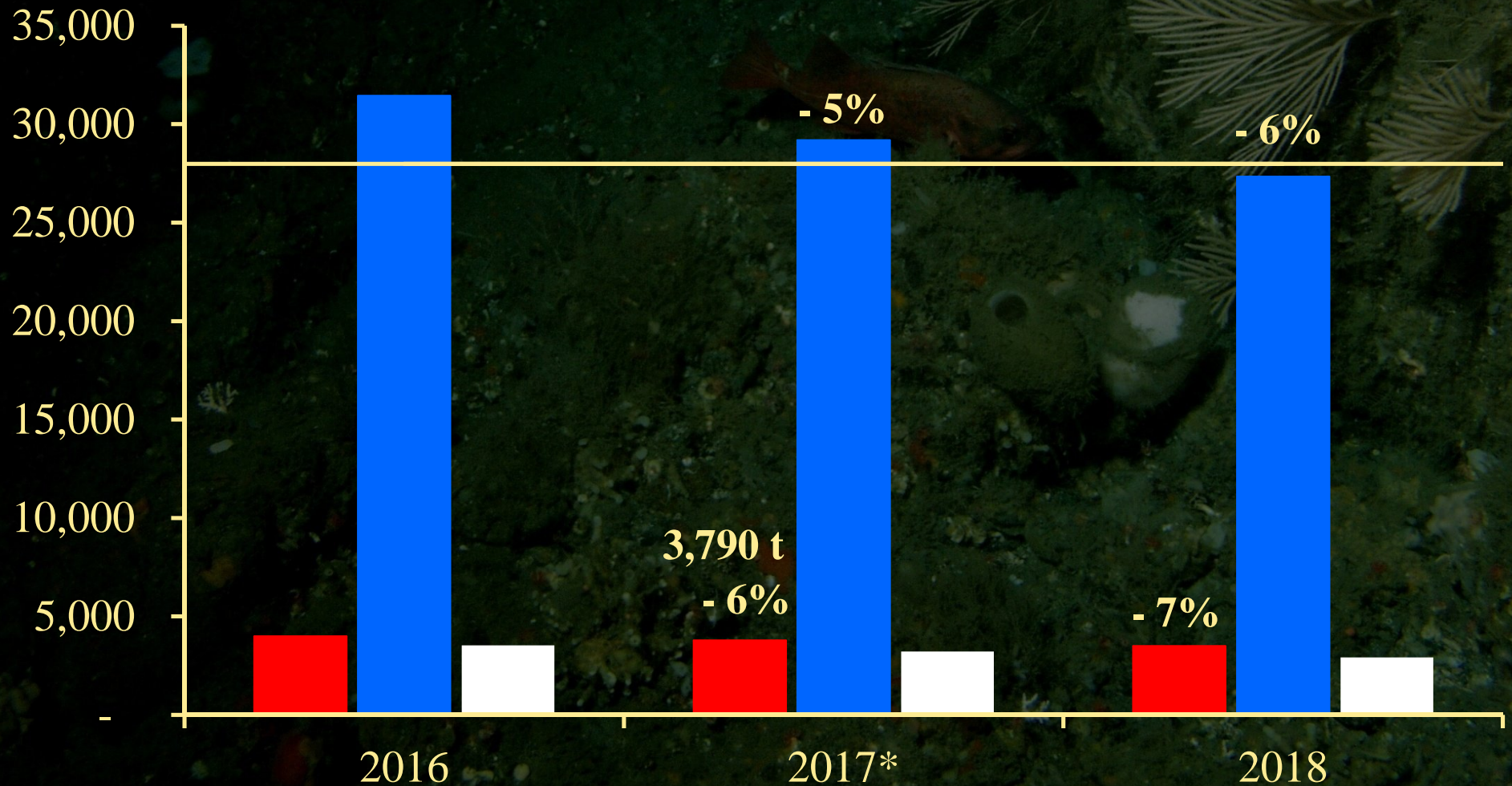
Northern rockfish



- Tier 3a species
 - Only update catches in the projection model
 - Updated 2015 and estimated 2016-2018 catches
- Catch Update:
 - Updated 2015 catch (4,225 t predicted last year, 3,944 t realized), estimated 2016 catch (3,533 t)
- Recommended 2017 ABC: **3,790 t**
 - ~5% smaller than last year's ABC of **4,008 t**

Northern rockfish

■ ABC ■ SSB (t) ■ Projected Catch (t) — B_40%



Northern – Apportionment

	Western	Central	Eastern	Total
2016 ABC	457	3,547	4*	4,008
2017 ABC	432	3,354	4*	3,790
2016 OFL				4,783
2017 OFL				4,522

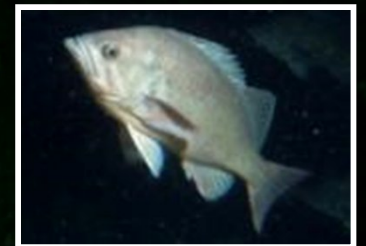
Northern rockfish



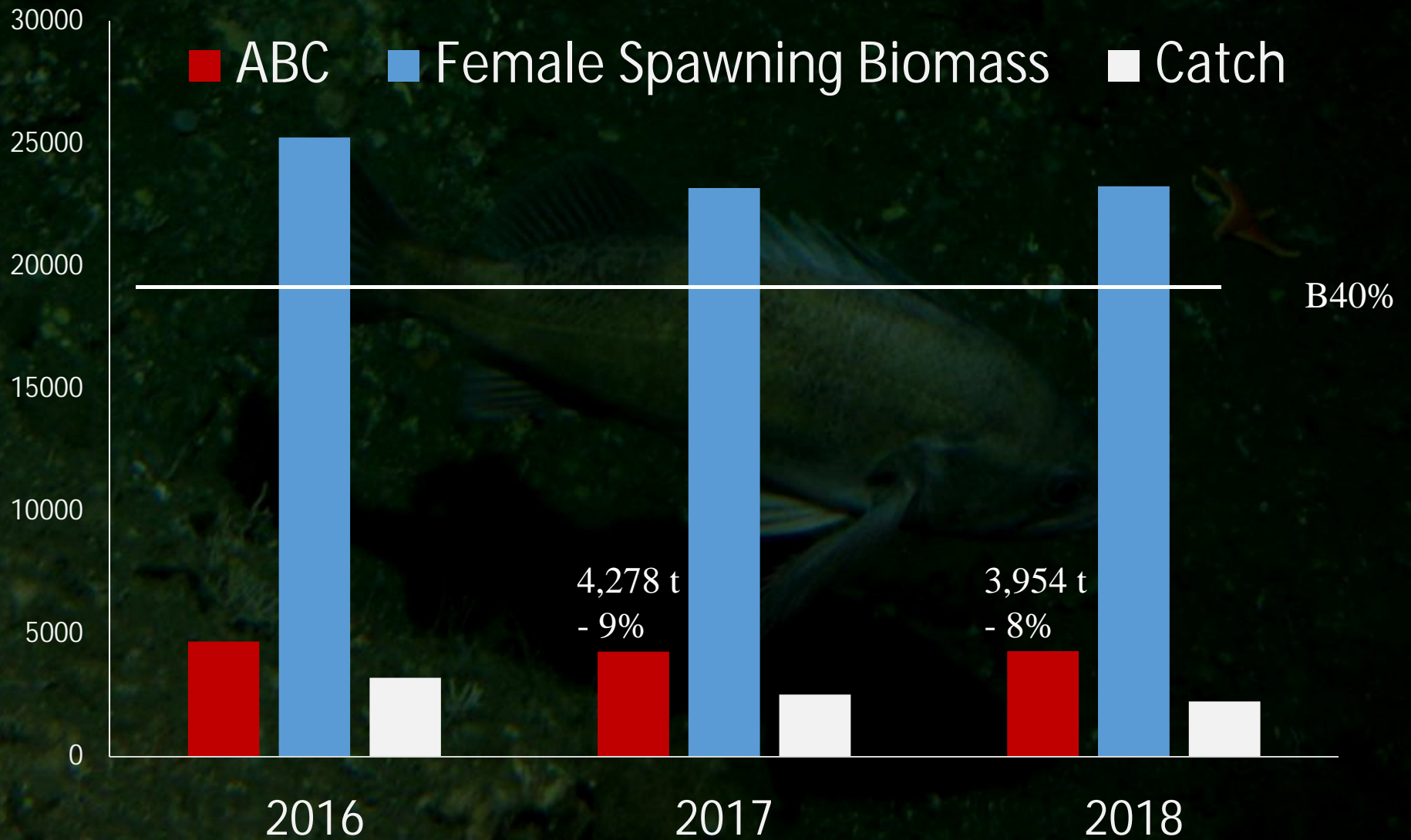
- Notables
 - Projecting a decrease in ABC through 2018 (2018 SSB dips below $B_{40\%}$, will keep an eye on this)
- 2016-2017, plan to investigate (similar to POP and for all GOA Rx):
 - Effect of different plus-group specification for length comp data
 - Alternative length bin designation
 - Different data weighting methods
 - Application of geostatistical GLMM approach to bottom trawl survey biomass

Dusky Rockfish

- Tier 3a species
 - Only update catches in projection model
 - Updated 2015 and estimated 2016-2018 catches
- Catch update:
 - Updated 2015 catch 2,781 t
- Recommended 2017 ABC: **4,278 t**
 - 9% lower than 2016 ABC (4,686 t)
 - Nearly identical to last year's projected 2017 ABC (4,284 t)



Dusky rockfish



Dusky rockfish - Apportionment

	Western	Central	Eastern	Total
2016 ABC	173	4,147	366	4,686
2017 ABC	158	3,786	334	4,278
2016 OFL				5,733
2017 OFL				5,233

Dusky rockfish - Summary

- Projecting a decrease in ABC through 2018
- Expect a new 2017 GOA bottom trawl survey
- Expect to investigate the geospatial alternative survey biomass estimator (Plan Team Working Group)

An underwater photograph showing a group of reddish-brown fish, likely Blackspotted Rockfish, swimming near a large, green, branching coral structure. The background is dark, suggesting deep water. The text is overlaid in a yellow, serif font.

GOA Rougheye & Blackspotted Rockfish

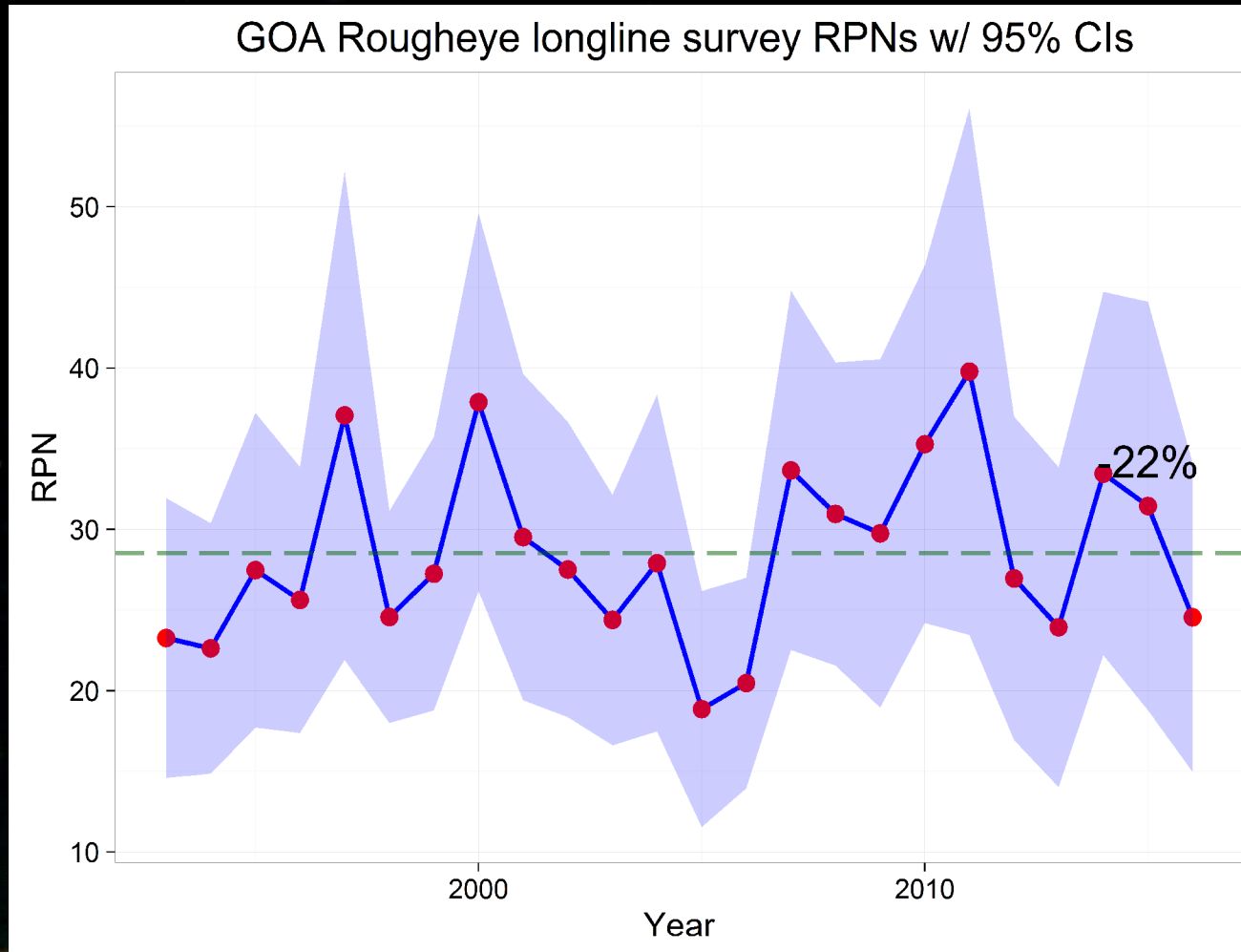
Shotwell, Hanselman, Heifetz, Hulson

RE/BS (Rougheye/Blackspotted)

- Tier 3a species – RE/BS rockfish
 - Only updated the catches in the projection model
 - Updated 2015 and estimated 2016-2018 catches
- Catch update:
 - 2015 catch = 550 t and 2016 catch estimate = 628 t
 - Catches below 50% of ABC with no overages
- Recommended 2017 ABC: **1,327 t**
 - Nearly identical to 2016 ABC of 1,328 t
 - Slightly higher than last year's projected 2017 ABC of 1,325 t



Longline Survey Update

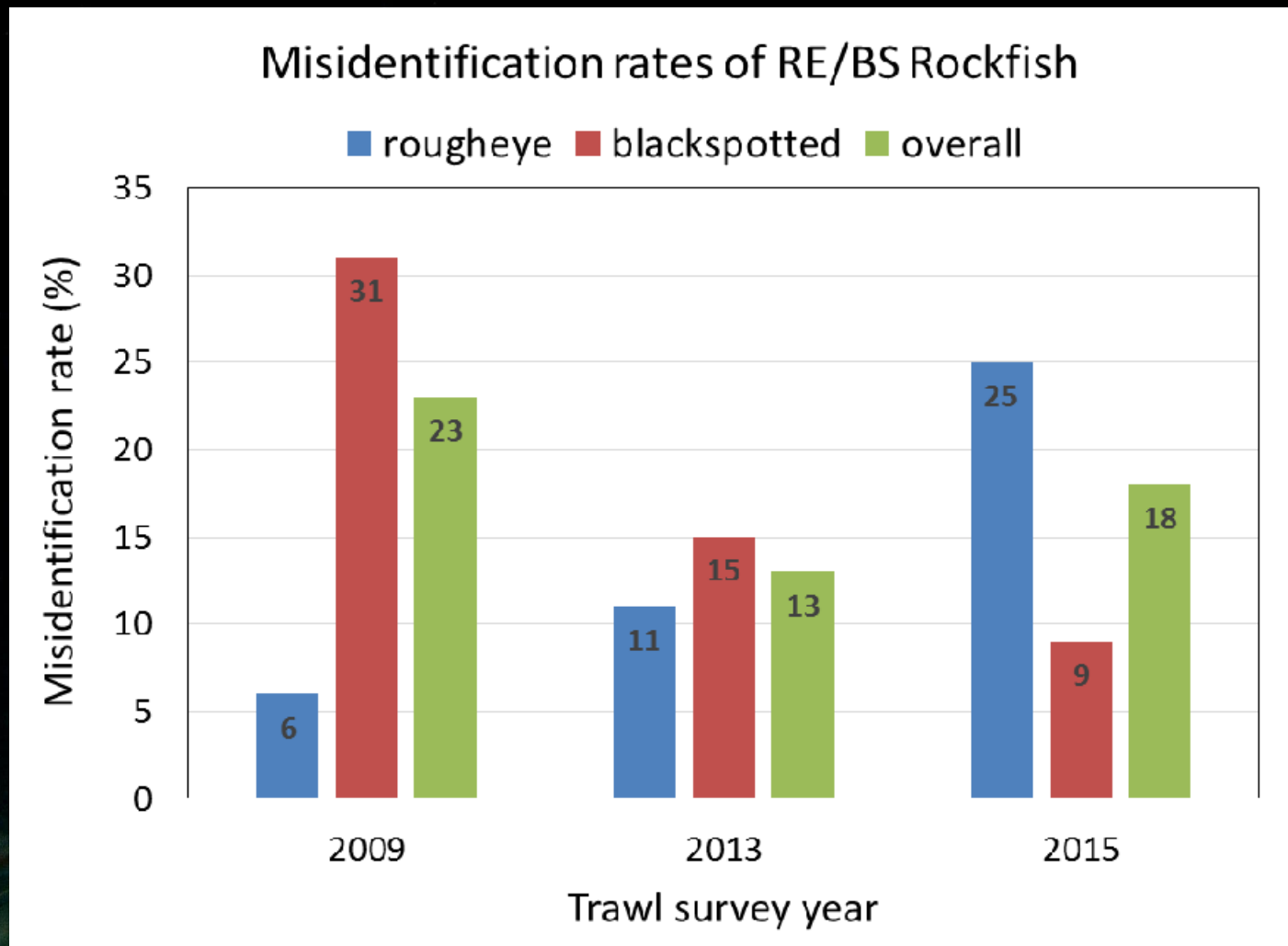


- 2016 longline survey RPN down by 22%.
- Estimates by area all consistently down.
- Data not used for updating 2016 projection since off-cycle year.

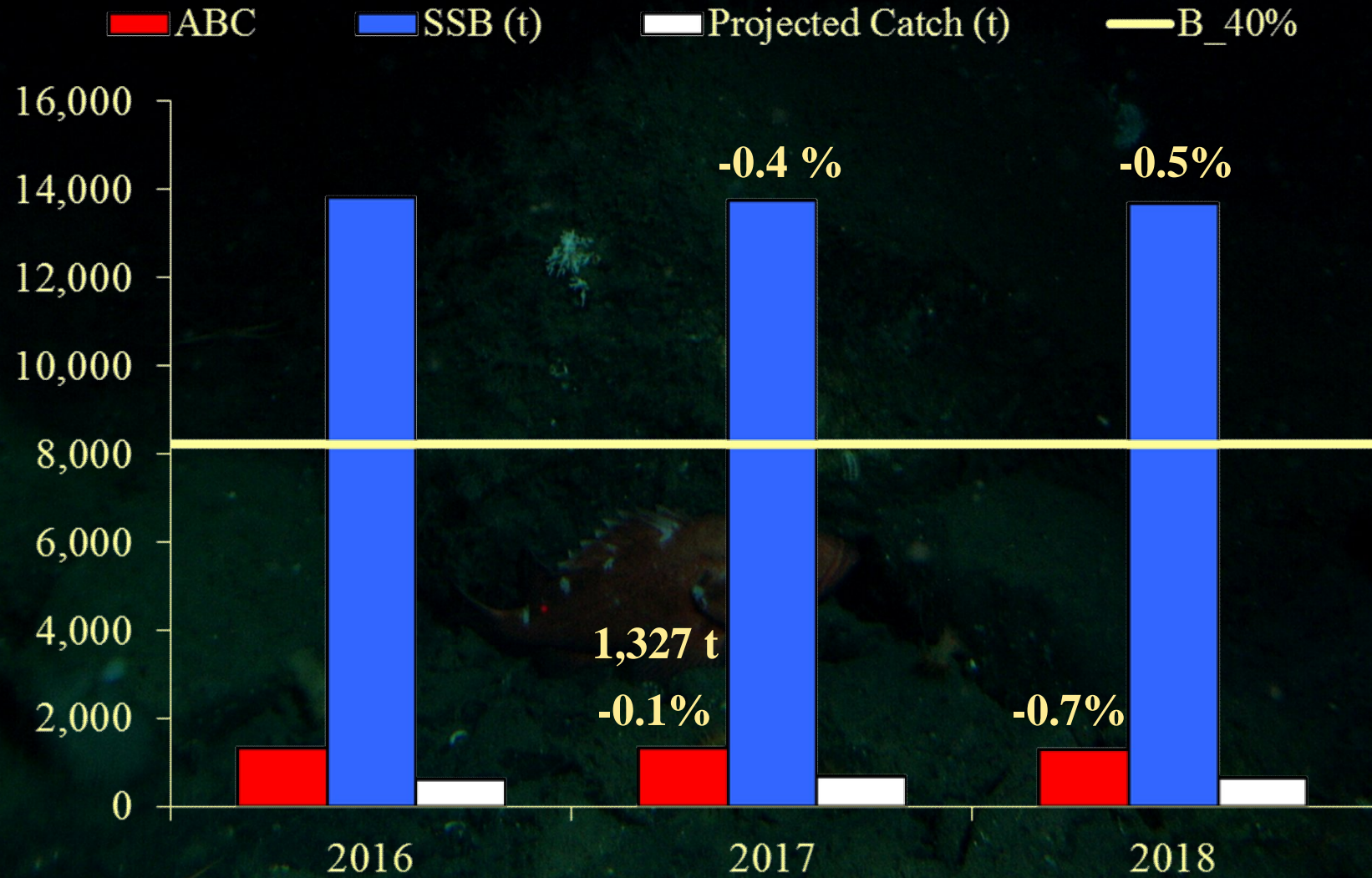
RE/BS Genetic Study Update

- Project during 2009, 2013 and 2015 trawl surveys
 - Collected length, weight, muscle tissue or fin clip for most RE/BS samples for otoliths
 - Goals to improve at-sea ID, adjust biomass estimates by species, examine species-specific growth
- Results update
 - Comparison of mis-ID for three year
 - Continued improvement for correctly identifying blackspotted rockfish
 - Opposite occurring for roughey rockfish with increases mis-identification rates

RE/BS Genetic Identification



RE/BS Summary



RE/BS Apportionment

	Western	Central	Eastern	Total
2016 ABC	105	707	516	1,328
2017 ABC	105	706	516	1,327
2016 OFL				1,596
2017 OFL				1,594

RE/BS Research Priorities

- PT working group to investigate geostatistical GLMM and consideration of application to RE/BS rockfish
- Evaluate life history characteristics of RE versus BS in genetic study (2009, 2013, 2015)
- Evaluate retrospective pattern and data weighting alternatives
- When available incorporate new SPEC format for ecosystem consideration section