

California Scorpionfish 2017 Stock Assessment

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Background

Catch

Indices of Abundance

Composition Data

2017 assessment

Appendix

Background
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Catch

Indices of Abundance

Composition Data
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2017 assessment
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Appendix



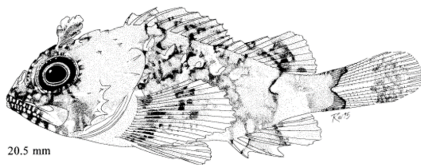
California scorpionfish (*Scorpaena guttata*)

- Most common species of *Scorpaena* on the U.S. West Coast, more species in Mexico
- Venomous dorsal, anal and pelvic spines
- Demersal, found over both hard and soft bottom (prefer *new* structure)
- Exhibit aggregating behavior (spawning and non-spawning aggregations)



Early Life History

- Migration to spawning grounds, exhibit explosive breeding behavior just before dawn
- External fertilization, females produce hollow gelatinous single-layer floating egg matrix
- Eggs hatch after about 5 days
- Juveniles settle at less than 2cm



⁰Line drawing from CalCOFI Atlas 33, pg. 789 Figure 26

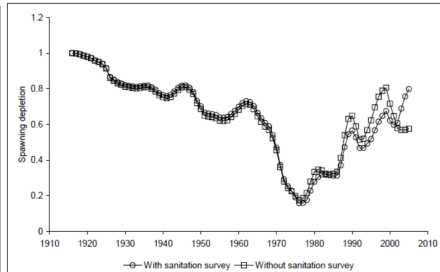
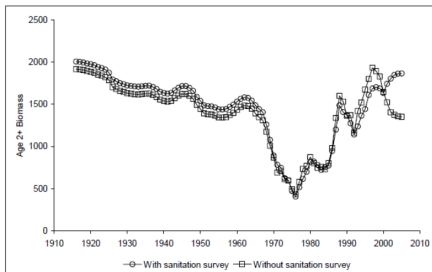
Distribution

- Distributed from central California to Punta Eugenia, Baja California Sur, Mexico
- Rarely observed north of Pt. Conception
- Observed from the intertidal to 600 ft, prefer 20-450 ft
- Proportion of the stock in Mexican waters unknown

Distribution

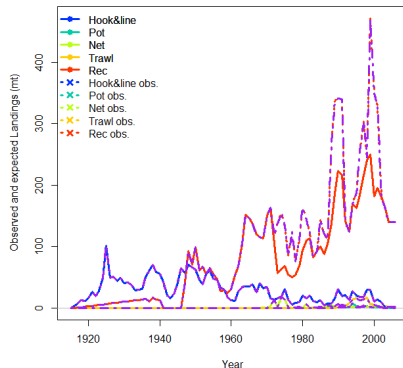
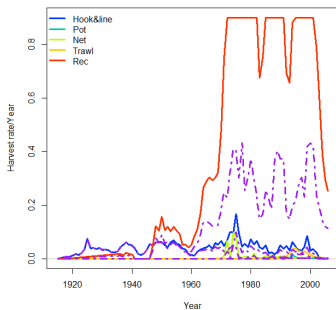
2005 Stock Assessment

- Stock first assessed in 2005
- South of Pt. Conception
- M fixed at 0.25
- h 0.7

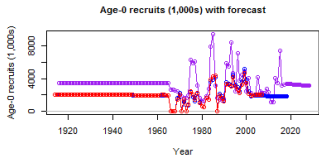
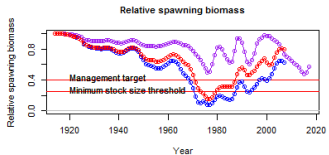
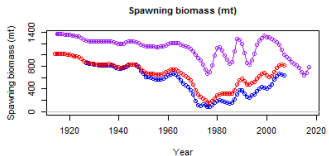


2005 Stock Assessment

- Transitioning from the 2005 assessment, an error was found
- Harvest rate hit the bounds for the recreational fleet
- Not all of the recreational catch was removed
- Input vs. estimated catch was not standard output in SS v.1.8



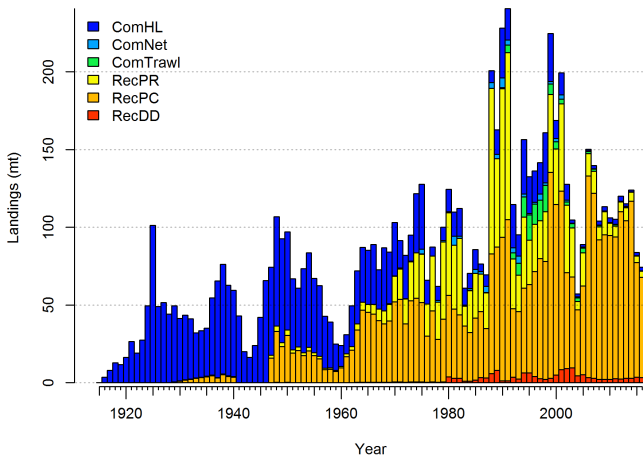
2005 Stock Assessment



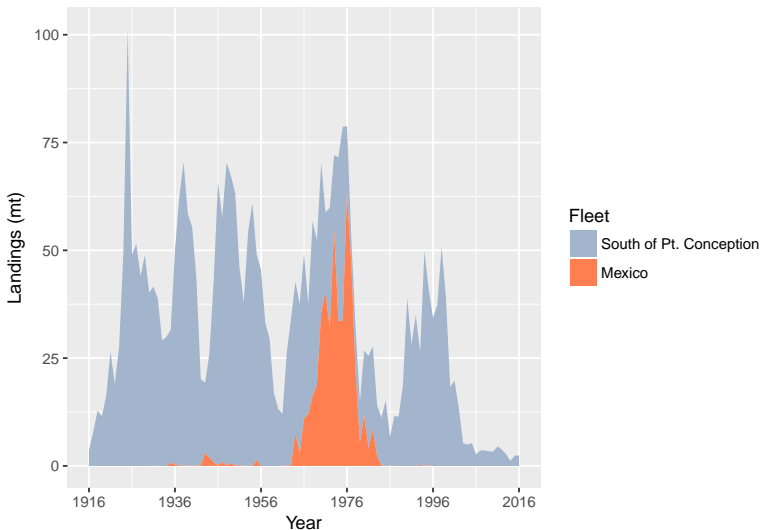
2017 Stock Assessment

- One area south of Pt. Conception (all catches from Mexican waters excluded as in 2005)
- Steepness fixed at 0.718
- Sex-specific M fixed for females, male M estimated as offset
- Re-evaluated fleet definition
- Ages now available from the NWFSC trawl survey

Catches by Fleet

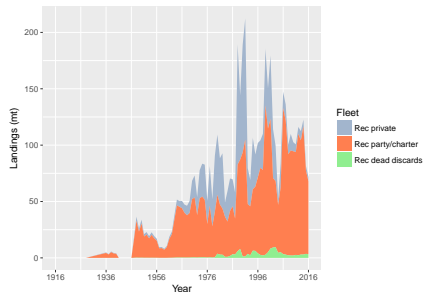


U.S. and Mexico Catch



Recreational Catch

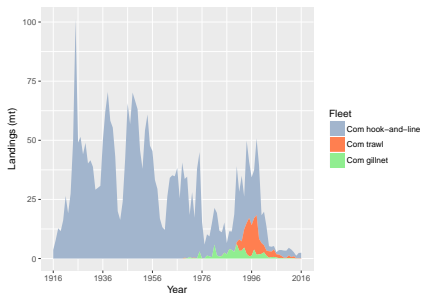
- 2005 assessment used number of fish for recreational catches
- Cannot compare with biomass
- 2017 assessment also accounts for discards



Recreational Catch

Commercial Catch

- Historical catches same as the 2005 assessment
- California Fisheries Information System landings data used to update catches from 2005-2016
- Discards assumed negligible



Commercial Catch

Summary of Data Sources

All of the methods used to standardize indices have been endorsed by the SSC

Name	Years	Fishery ind.	Method
Recreational PR dockside CPUE	2004-2016	No	delta-GLM (bin-lognormal)
CPFV logbook CPUE	1980-2016	No	negative binomial
Onboard observer discard catch CPUE	2002-2016	No	delta-GLM (bin-lognormal)
Sanitation district CPUE	1970-2016	Yes	delta-GLM (bin-lognormal)
NWFSC trawl survey CPUE	2003-2016	Yes	VAST
CSUN/VRG Gillnet survey CPUE	1995-2008	Yes	delta-GLM (bin-lognormal)
Southern California Bight trawl survey CPUE	'94, '98, '03, '08, '13	Yes	delta-GLM (bin-lognormal)
Onboard observer retained catch CPUE	2002-2016	No	delta-GLM (bin-lognormal)

Recreational Private Boat Index

Recreational Party/Charter Boat Index (Logbook)

Recreational Dead Discard Index

Recreational Party/Charter Retained Catch Index

Sanitation Districts Survey Index

Program	0-24 m	25-49 m	50-74m	100+ m	Total
City of Los Angeles	120	0	1372	0	1492
Los Angeles County	687	0	5879	450	7016
Orange County	161	669	2157	48	3035
City of San Diego	0	404	333	829	1566

Sanitation Districts Survey Index

Sanitation Districts Survey Index

NWFSC Trawl Survey Index

Gillnet Survey Index

Southern California Bight Trawl Survey Index

Length compositions were provided from the following sources:

CDFW market category study (*commercial dead fish*, 1996-2003)

CALCOM (*commercial dead fish*, 2013-2016)

CDFW onboard observer (*recreational charter discards*, 2003-2016)

Ally onboard observer study (*recreational charter discards*, 1984-1989)

California recreational sources combined (*recreational charter retained catch*)

CDFW and Ally onboard observer surveys (1984-1989)

Collins and Crooke onboard observer surveys (1975-1978)

MRFSS (1980-2003) and CRFS (2004-2014)

California recreational sources combined (*private mode retained catch*)

MRFSS (1980-2003) and CRFS (2004-2016)

POTW trawl surveys (*research*, 1970-2016)

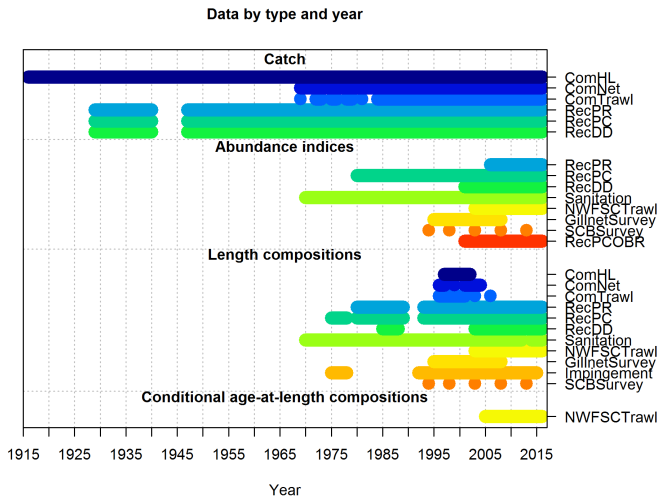
CSUN/VRG gillnet survey (*research*, 1995-2008)

Power plant impingement surveys (*research*, 1974-2016)

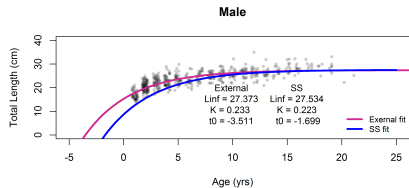
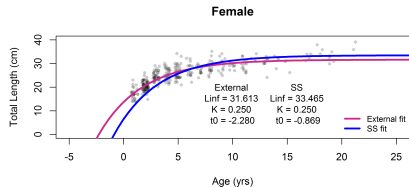
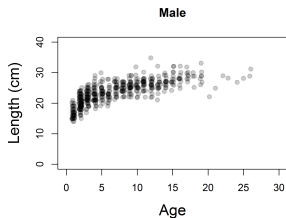
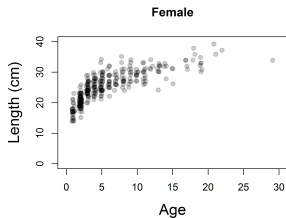
Southern California Bight trawl survey (*research*, 1994, 1998, 2003)



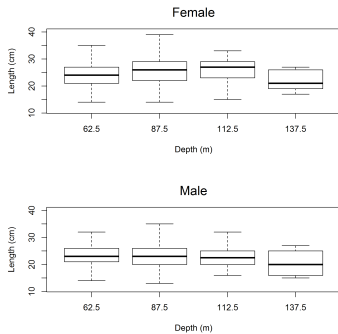
Summary of Data used in the 2017 Assessment



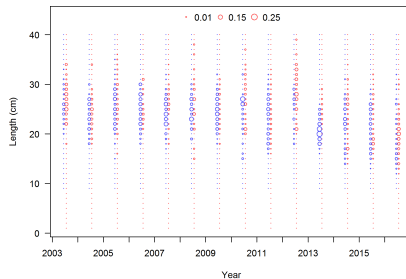
Length-at-age



Length-at-age

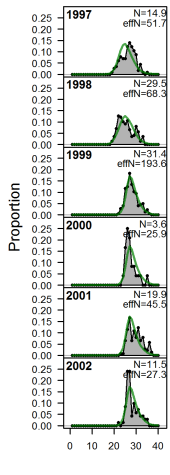


Length comp data, whole catch, NWFSTrawl (max=0.21)



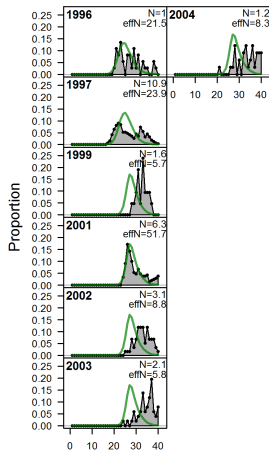
Length composition

Length comps, retained, ComHL



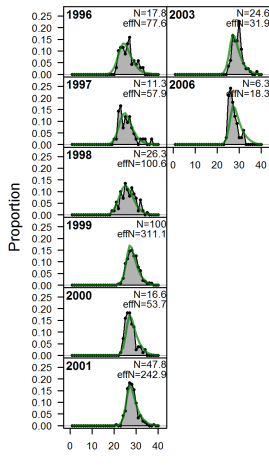
Length composition

Length comps, retained, ComNet



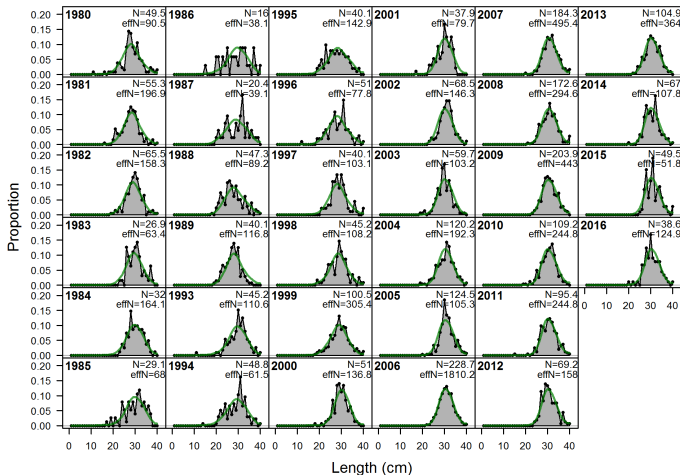
Length composition

Length comps, retained, ComTrawl



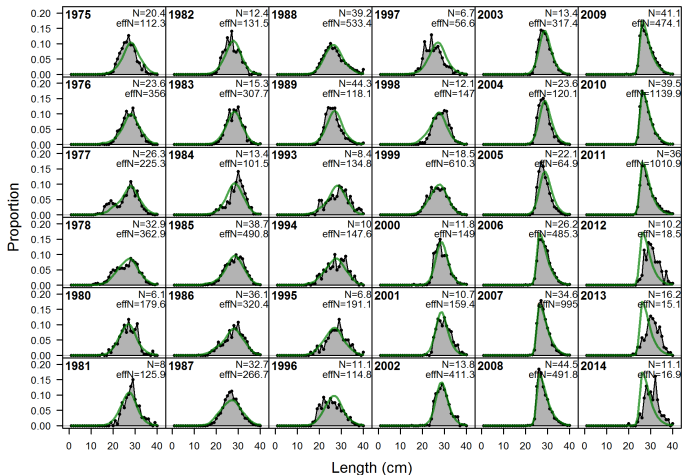
Length composition

Length comps, retained, RecPR



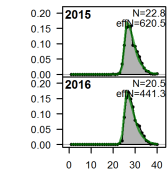
Length composition

Length comps, retained, RecPC



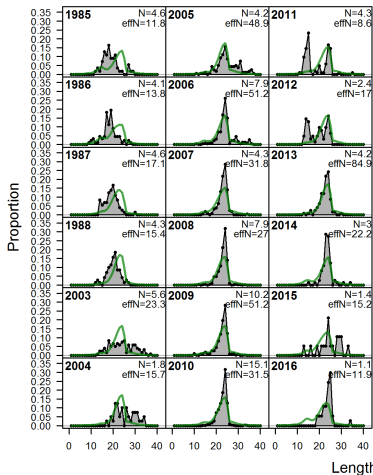
Length composition

Length comps, retained, RecPC



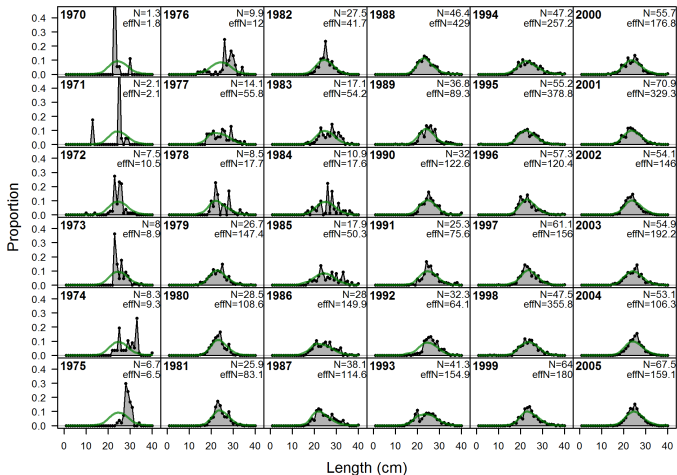
Length composition

Length comps, retained, RecDD



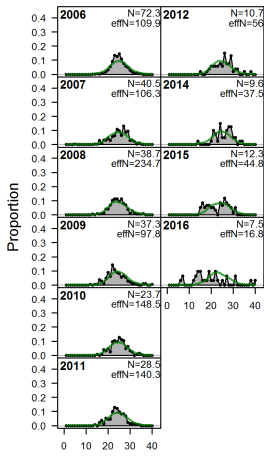
Length composition

Length comps, retained, Sanitation



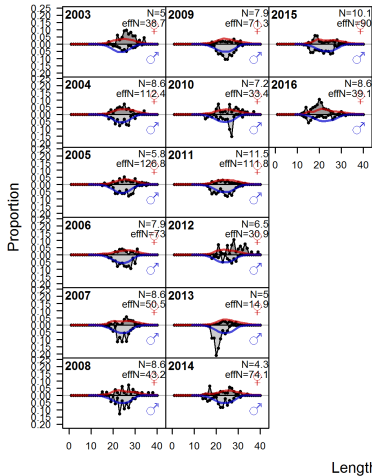
Length composition

Length comps, retained, Sanitation



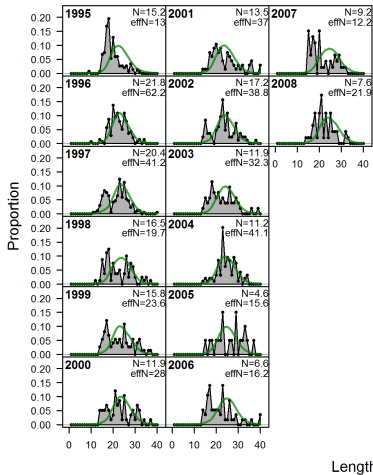
Length composition

Length comps, whole catch, NWFSTrawl



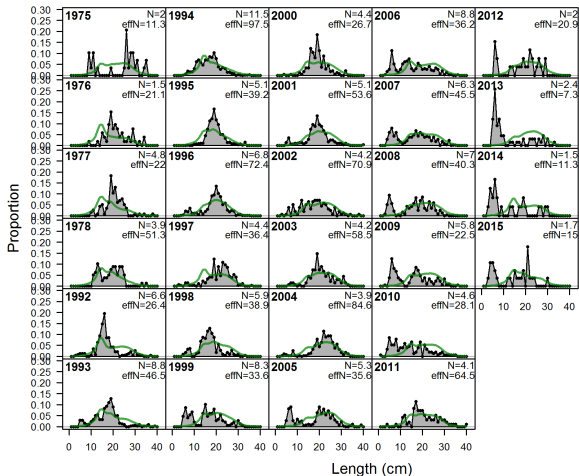
Length composition

Length comps, retained, GillnetSurvey



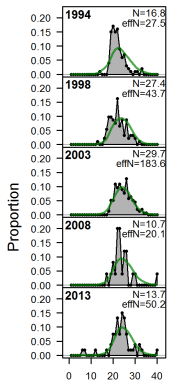
Length composition

Length comps, retained, Impingement



Length composition

Length comps, retained, SCBSurvey



Length (cm)