SARDINE

REBUILDING PLAN

CPSMT Report ~ Sardine Rebuilding

- We thank the Management Team for its hard work to highlight **key issues (and challenges**) re: sardine rebuilding plan. For example:
  - **CPS stocks are driven primarily by environmental forcing, even without fishing**
  - Under current HCR, **fishing mortality is unlikely to have a substantial effect** on the population
  - "**It is impossible** to develop a **rebuilding** program…**guaranteed to restore a stock to MSY** level in **10 years, even with no fishing**."
  - **Many restrictions** that might be considered …to modify fishing activities at low stock size **have already been implemented:**
    - (e.g. the directed fishery has been closed for 5 years, sharp reductions in incidental catch rate and TAC implemented in 2019)
  - ***A rebuilding program may be defined implicitly in current sardine* HCR**

Range of Alternatives

- **Alternative 1** {status quo} ~
  - **Allowing fishing** as under current HCR has negligible impact on stock but **keeps fisheries and industry alive**
  - Current HCR is a **de-facto rebuilding plan**
- **Alternative 2** ~ **zero harvest** scenario
  - "*i.e. complete closure of live bait industry [targeting sardine], elimination of incidental landings in other fisheries such as Pacific mackerel, market squid, northern anchovy and Pacific whiting, and closure of the small scale fishery*".
- **Alt. 2 would precipitate economic crisis ~ But would NOT GUARANTEE sardine recovery**
- **5% harvest rate (e.g. 1,000 mt for all uses) = death by a thousand cuts**

Analytical approaches:
Evidence of Recruitment & Abundance

- Thanks to Council support for our "directed fishing" EFP, NMFS approved it and we are producing new evidence:

Sample from 32 ton landing in Monterey on 6/8/20

Smallest = YOY

70-90g = 1yr

90-110g = 2 yr

122g = 4 yr

200g+ = 5-6 yr

Based on
Butler et al 1993
CalCOFI
&
R.Parrish model

April 2020 testimony

Conflict is between what fishermen say is out there, based on what they see, and what biologists say, based on insufficient science

6,000 tons sardine observed in 60 ft. water near Seal Beach – 61 deg. Water
2019 Spring Aerial EFP

April 2020 testimony

30-60 gram Sardines

- Captured 3/26/19 as part of 30-ton point set near Gaviota, above Santa Barbara ~

Many large sardine schools

- More evidence of recruitment

Re: the Rebuilding Analysis

- **We have serious concerns re: uncertainty**:
  - Rebuilding projections based on 2020 sardine assessment
    - No evidence of recruitment
    - No new fishery age data since 2015
    - "**Historic**" recruitment only from 2005-2018, including
      - 4 years of declining productivity and 8 years of reproductive failure **~12 of 18 of years in model (2/3) had low recruitment**
  - Rebuilder model cannot incorporate environmental effects
    - Current HCR (i.e. temp. fraction and 150,000 mt cutoff) not applied
  - **How can the Council consider evidence of recruitment not currently included in the stock assessment or rebuilding models?**
    - SSC recommendation: use a stock-recruitment relationship to generate future recruitment
      - (rather than sampling recruitments from model time series)
  - **Without recruitment, rebuilding model and analysis would be negatively biased**

Re: Socio-Economic Impact Analysis

- Live Bait Fishery ~
  - Inability to land sardines (Alternative 2) would curtail almost 5,000 jobs, $602 million in sales impacts, $222 million in income and $309 million in gross domestic product (SAC public comment)
- **Commercial sardine fishery: We recommend socio-economic impacts of sardine fishery analyzed state by state extending back to 2007 (**before premature season closures**).**
- **Also include impacts to fisheries that catch sardines incidentally (i.e. squid, anchovy, whiting)**
- **Economic importance of Sardine fishery in CA ~**
  - **Average 2000-2007** (last year before premature season closures began) **sardines = 38.1% of total CPS catch (including squid)** ~ more than a third of CA's "3 legged stool" of sustainability (CWPA public comment ~ Source: Table 2.1.1-1 CPS FMP)
  - **CA wetfish industry needs sardines to survive!**

Importance of CA Wetfish Industry to CA

- Until recent years, CA's complex of of CPS fisheries produced **80+% of volume, 37% dockside value** of total statewide commercial fishery harvest

- Important to many harbor communities
  - Volume is essential to maintain infrastructure, jobs

Port	Wetfish % of Total Port Landings	Wetfish % of Total Port XV Value
Monterey Harbor	97.5%	76.3%
Moss Landing	96.2%	66.3%
Ventura	98.7%	82% (squid)
Port Hueneme	99.9%	99.9%
San Pedro	99.6%	93.4%
Terminal Island	97.7%	81.4%
Contribution to Statewide Landings	**82%**	**37%**

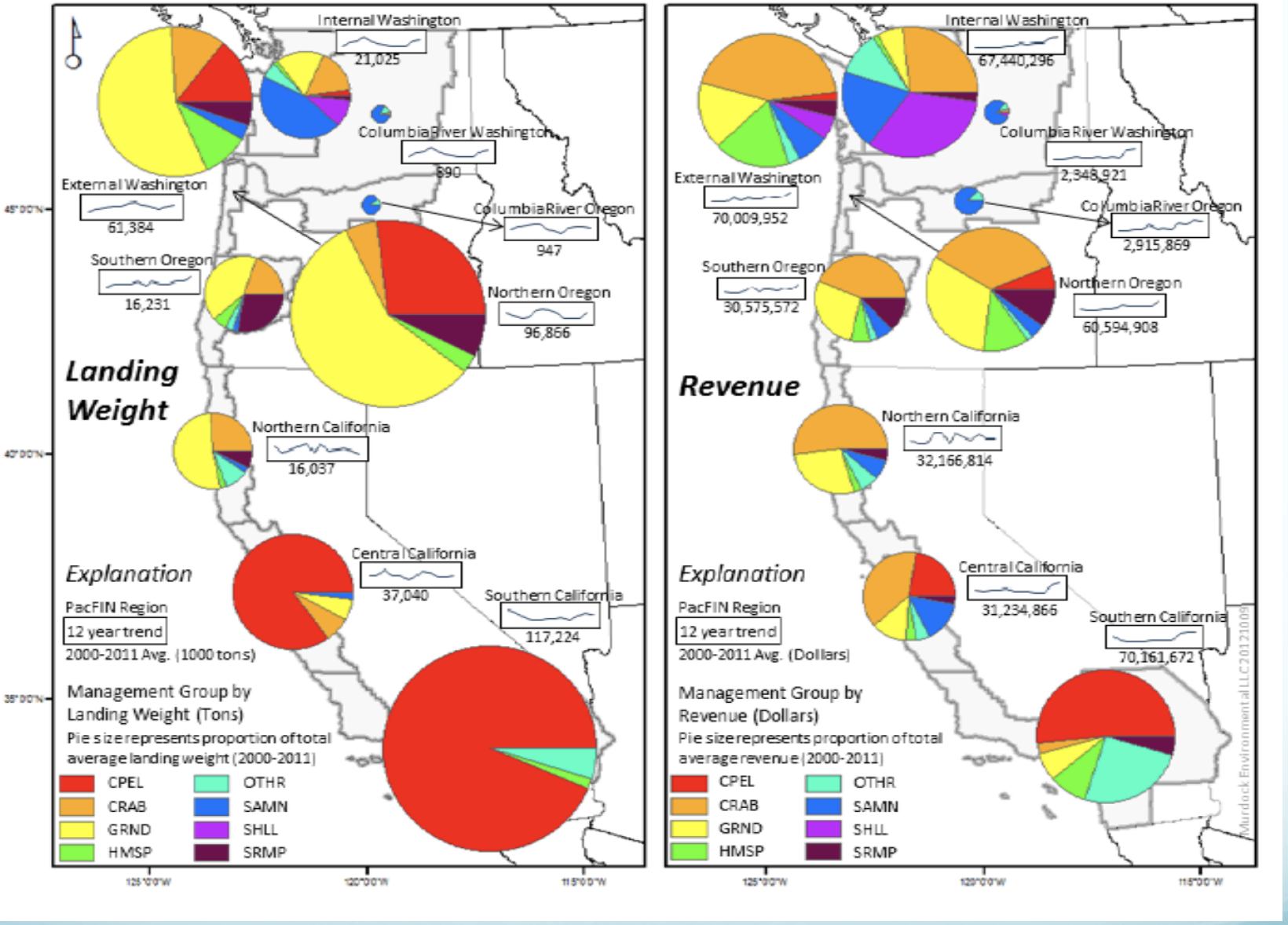

Figure 3.4.14. Regional landings by weight and value, with 12-year trends and average proportions for each major West Coast management group, 2000-2011. (Maps courtesy of Murdock Environmental, data source: PacFIN. Pacific Coast Fishery Ecosystem Plan p.72 2013

CA Socio-Economic Impacts ~ 2

- *"Pacific sardine is historically one of the top ten highest valued commercial fisheries in California. Statewide, the commercial Pacific Sardine closure in 2015 resulted in a total ex-vessel value of only $343,148, which is* ***90% less than the 2010-14 average of $3,504,098****. In 2016, the closure resulted in a total ex-vessel value of only $95,657, which is* ***96% less*** *than the 2011-15 average of $2,711,679." (Lt. Gov. Gavin Newsom)*

- The Secretary of Commerce approved California's request for disaster relief for the sardine fishery for 2015-16 and 2017-19.

- **Sardines are foundation of CA's wetfish industry**

CA Socio-Economic Impacts ~ 3

Year	Sardine Pounds landed in California Ports	Value of California Landings
2007	178,476,460 lbs (80,956.4 mt)	**$8,206,936 (peak)**
2010	74,203,757 lbs (33,658.6 mt)	$4,303,644
2011	61,097,986 lbs (27,713.7 mt)	$5,390,048
2012	50,802,762 lbs (23,044 mt)	$4,321,171
2013	15,594,475 lbs (7,073.6 mt)	$1,501,919
2014	17,125,439 lbs (7,768 mt)	$2,000,814
2015	3,751,035 lbs (1,701.5 mt)	$343,148
2016	954,217 lbs (432.8 mt)	$95,657
2017	952,891 lbs (432.2 mt)	$61,453
2018	720,480 lbs (326.8 mt)	$77,458

In Summary ~ Please consider:

- Sardine abundance is driven primarily by environmental forcing; no guaranteed timeline to rebuild
  - **Curtailing fishing unlikely to benefit recovery** (CPSMT Report)
- MSA allows flexibility in rebuilding plans: permits directed fishing to continue
- Further restrictions would precipitate socio-economic crisis
- CPSMT Report states: "*The combination of spawning biomass buffer and reduced harvest rates…means that a rebuilding plan for overfished [sardine] may be defined implicitly.*"
- **(We believe) the rebuilding plan already exists: embedded in the current HCR**
- **Please support Mod.Alternative 1 (ABC) or Alternative 1 (ACT ~ status quo) as the Preliminary Preferred Alternative.**

MSA Regulatory requirements:

- MSA requires end to overfishing "immediately" for overfished stocks… *BUT*
- **MSA also provides flexibility** to consider biological quirks (i.e. stocks with unusual life history traits)
  - sardine "boom & bust" cycles are an **exception to the (10-year) rule**
- MSA **does not require instant recovery**
  - OY is long-term goal
- MSA **does allow directed fishing** during rebuilding
- MSA also **requires Council to consider fishing communities, not only biology, when developing rebuilding plan**
- **Please be creative**

Questions?