Agenda Item D.2.a
Supplemental EWG PPT
March 2016

Fishery Ecosystem Plan Initiative 2: Coordinated Ecosystem Indicators and Annual Report Review

CALIFORNIA CURRENT INTEGRATED ECOSYSTEM ASSESSMENT (CCIEA) STATE OF THE CALIFORNIA CURRENT REPORT, 2016

A report of the NOAA CCIEA Team to the Pacific Fishery Management Council, March 9, 2016.
Editors: Dr. Toby Garfield (SWFSC) and Dr. Chris Harvey (NWFSC)

1 INTRODUCTION

Section 1.4 of the 2013 Fishery Ecosystem Plan (FEP) outlines a reporting process wherein NOAA provides the Council with a yearly update on the state of the California Current Ecosystem (CCE), as derived from environmental, biological and socio-economic indicators. NOAA's California Current Integrated Ecosystem Assessment (CCIEA) team is responsible for this report. This marks our 4th such report, with prior reports in 2012, 2014 and 2015.

The highlights of this report are summarized in Box 1.1. Sections below provide greater detail. In addition, a list of supplemental materials is provided at the end of this document, in response to previous requests from Council members or the Scientific and Statistical Committee (SSC) to provide additional information, or to clarify details within this short report.

Box 1.1: Highlights of this report

- Due to the record high sea surface temperature anomalies in both the northeast Pacific and the region off Baja California and the development of the third largest El Niño this century, for the 2014 – 2015 period the California Current Ecosystem can be classified as lower productivity at almost every trophic level. Oceanographic conditions, represented by MEI, PDO and NPGO indices, indicated warmer conditions throughout.

ECOSYSTEM WORKGROUP REPORT ON FISHERY ECOSYSTEM PLAN INITIATIVE 2: COORDINATED ECOSYSTEM INDICATOR REVIEW FOR THE ANNUAL CALIFORNIA CURRENT ECOSYSTEM STATUS REPORT

1.0 Introduction

At its September 2015 meeting, the Council decided to move forward with its second Fishery Ecosystem Plan (FEP) initiative, a coordinated review of the ecosystem indicators in the annual California Current Ecosystem (CCE) Status Report. Inspiration for this initiative came from the FEP's objectives for improving ecosystem information in the Council process and from the December 2014 meeting of the Ecosystem-Based Management Subcommittee of the Council's Scientific and Statistical Committee (SSC). At that meeting, the SubCommittee provided the first scientific review of the information and analyses supporting the indicators chosen for and used in the ecosystem status report. In the SubCommittee's report to the Council on its review, they suggested that "A workshop or series of workshops could solicit input from management teams and advisory subpanels on indicators that represent the ecosystem objectives expressed in the Council's fishery management plans (FMPs) and FEP, and are relevant to Council decision-making" (March 2015, SSCES Report at E.1.c).

To launch this initiative, the Ecosystem Workgroup hosted the following webinar series featuring speakers from the National Marine Fisheries Service's (NMFS's) Integrated Ecosystem Assessment (IEA) team:

- January 12: Contents of the Annual California Current Ecosystem Status Report; physical oceanography indicators (lead presenter, Dr. Toby Garfield, SWFSC)
- January 14: Biological indicators (lead presenter, Dr. Chris Harvey, NWFSC)
- January 26: Human dimensions indicators (lead presenter, Dr. Karma Norman, NWFSC)
- January 28: Freshwater, estuarine and marine habitat indicators (lead presenter, Dr. Correigh Greene, NWFSC)
- February 2: Risk assessments and applications of indicators to decision making (Dr. Jameal Samhouri, NWFSC, and Dr. Elliott Hazen, SWFSC, presenting)


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3.4 HYDROLOGIC INDICATORS

Freshwater habitats are critical for salmon populations and also relate to marine fisheries for certain estuarine-dependent flatfish stocks. The freshwater habitat indicators that the CCIEA team has examined to date (snow-water equivalent, maximum streamflow and minimum streamflow) are influenced strongl
ecoregions of the CCE, t
or spent the summer i
indicators in the Supple

Snow-water equivalent
SWE, is a measure of
total water available
snowpack. Measureme
on April 1st are conside
the best indicator
maximum extent
snowpack. Over the
five years, the CCE a
whole experienced
strong decline in SWE,
2015 was the lowest y
on record (Fig. 3.4
Strongly negative rec
slopes and record lows
2015 were also observe
Columbia Unglaciated,
which Figure 3.4.1 was

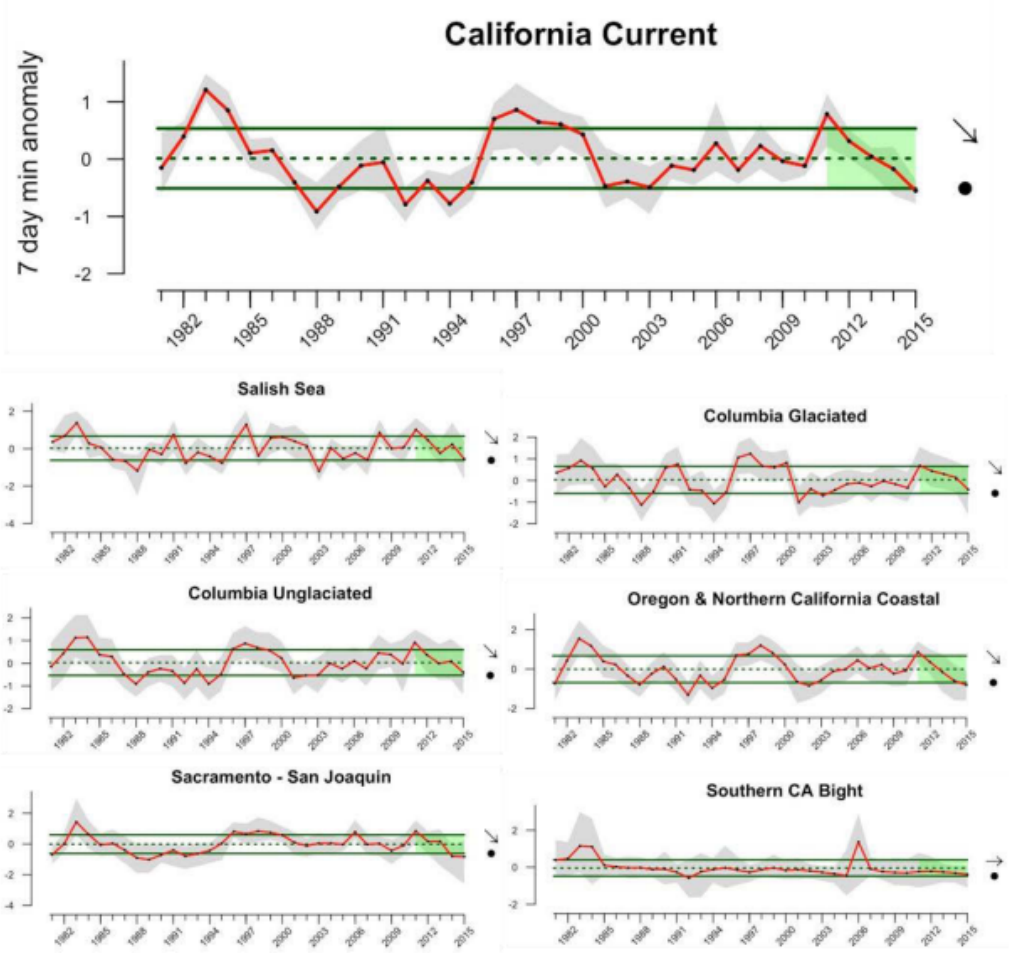

Figure E3. Anomaly of 7-day minimum streamflow measured at 213 gages in six ecoregions (small figures). The large graph shows the summary anomaly for the California Current, calculated as a weighted average of ecoregional data using ecoregion area as the weighting factor. Gages include both regulated (subject to hydropower operations) and unregulated systems, although trends were similar when these systems were examined separately.

3.0 Upcoming Work on this Initiative

- Total and FMP-specific fishery removals within the U.S. portion of the CCE, and the ecosystem effects of those fishery removals;
- Stock status of Council-managed fisheries
- Total and FMP-specific discard levels;
- U.S. West Coast fisheries' landings, by both volume and value;
- Metrics to assess fisheries' effects on essential fish habitat, and essential fish habitat effects on fisheries;
- Efficiency, profitability, and employment in FMP fisheries and fishing community stability;
- Metrics to assess the potential effects of near-term climate shift and long-term climate change on managed species and West Coast fisheries;
- Metrics to assess effects of major weather events on fisheries activity;
- Available forage base levels for FMP-managed, marine

For those images where sources are not shown directly on image, :

Slide 2: Glittering metropolis of stars, National Aeronautics and Space Administration, repeated at subsequent slides
Slide 3, Steller sea lions, USFWS; oarfish dissection, NMFS SWFSC
Slide 4: Sacramento, City of Sacramento
Slides 5: Slide excerpt from Toby Garfield and Chris Harvey 01/12/16 webinar presentation
Slide 6: Slide excerpts from Chris Harvey and Gregg Williams 01/14/16 webinar presentation; thresher shark, NMFS SWFSC; jack mackerel, Adam Obaza, NMFS WCR
Slide 7: Slide excerpts from Karma Norman and Dan Holland 01/26/16 webinar presentation; Fan of $100 bills, U.S. Department of Energy, Southern California sportfishing, CDFW
Slide 8: Slide excerpts from Correigh Greene 01/28/16 webinar presentation
Slide 9: Slide excerpts from Jameal Samhouri and Elliott Hazen 02/02/16 webinar presentation
Slide 10: Rockfish recruits, Cordell Bank NMS
Slide 11: Pink salmon, bluefin tuna, jack mackerel and rosy rockfish, NMFS; Wegman with rockfish, ODFW; Walkenhauer and Troxel sampling kayak catch, CDFW
Slide 12: Opah eye, NMFS SWFSC