CDFW-CWPA Aerial Survey - 2017
CDFW-CWPA CPS Aerial Survey

- Surveys began Summer 2012 for Sardine
- Spring and Summer Surveys in Southern CA
- Anchovy added Summer 2013
- April 2017 Methodology review
  - Variance Estimator
  - Observer Validation
  - Minimum nearshore estimates – complement offshore ATM estimates
- Summer 2017 survey
  - North of Point Conception
  - Coordinated with ATM survey
Northern California Summer 2017 Survey Observations
CDFW-CWPA Aerial Survey and NOAA Acoustic-Trawl Survey

Aerial Survey Area Boundaries

<table>
<thead>
<tr>
<th>CDFW-CWPA</th>
<th>NOAA</th>
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<tbody>
<tr>
<td>Pacific Sardine</td>
<td></td>
</tr>
<tr>
<td>1 - 500 mt</td>
<td>Positive Trawl</td>
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<tr>
<td>501 - 2100 mt</td>
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<tr>
<td>2101 - 4350 mt</td>
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<tr>
<td>4351 - 12000 mt</td>
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<tr>
<td>Northern Anchovy</td>
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<tr>
<td>1 - 500 mt</td>
<td>Positive Trawl</td>
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<td>501 - 2100 mt</td>
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<tr>
<td>2101 - 4350 mt</td>
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<tr>
<td>4351 - 12000 mt</td>
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<tr>
<td>Mixed Sardine and Anchovy</td>
<td></td>
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<tr>
<td>1 - 500 mt</td>
<td>Positive Trawl</td>
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<tr>
<td>501 - 2100 mt</td>
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<tr>
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<td></td>
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<tr>
<td>4351 - 12000 mt</td>
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</tr>
<tr>
<td>12001 - 30000 mt</td>
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</tbody>
</table>

Point Arena
Drake’s Bay
San Francisco
Half Moon Bay
Monterey Bay
Morro Bay
CPS Observations

Anchovy – Half Moon Bay

Sardine – Point Reyes
Anchovy – Half Moon Bay

Sardine – Point Reyes
Sampled Anchovy School - HMB

- 9 August, 2017
- Set F/V Trionfo
- Samples collected and processed:
  - Length avg. 126 mm
  - Weight avg. 24 g
  - Age avg. 3.2 yrs
Aerial Survey Estimates

- Minimum Estimates of CPS
  - Visual Depth Limit
  - Portion of Stock Range
- Outside ATM Survey Area
  - Shoreward of Vessel
  - Upper Water Depths
- Aerial and ATM Biomass Estimates
  - Sardine – 18.1k mt (ATM – 36k)
  - Anchovy – 67.7k
2018 Aerial Survey Research

- EFP – August 2018
  - Variance Estimator
  - Observer Validation and Precision
- 2019 Research
- 2018 CPS Surveys
  - Spring – Southern California
  - Fall – Northern California (TBD)
• Summer 2017 Aerial Survey in N CA
• Sardine and Anchovy observed
• Anchovy Samples taken from HMB
• Research ongoing
  – Variance and Observer Validation
  – Additional Surveys
• Aerial Surveys provide information on nearshore CPS abundance
Acknowledgements

• California Wetfish Producers Association
• Captain Neal Guglielmo and crew of F/V Trionfo
• NMFS – SWFSC staff: Emmanis Dorval, David Demer, Juan Zwolinski
• CDFW Staff
Thank You

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