



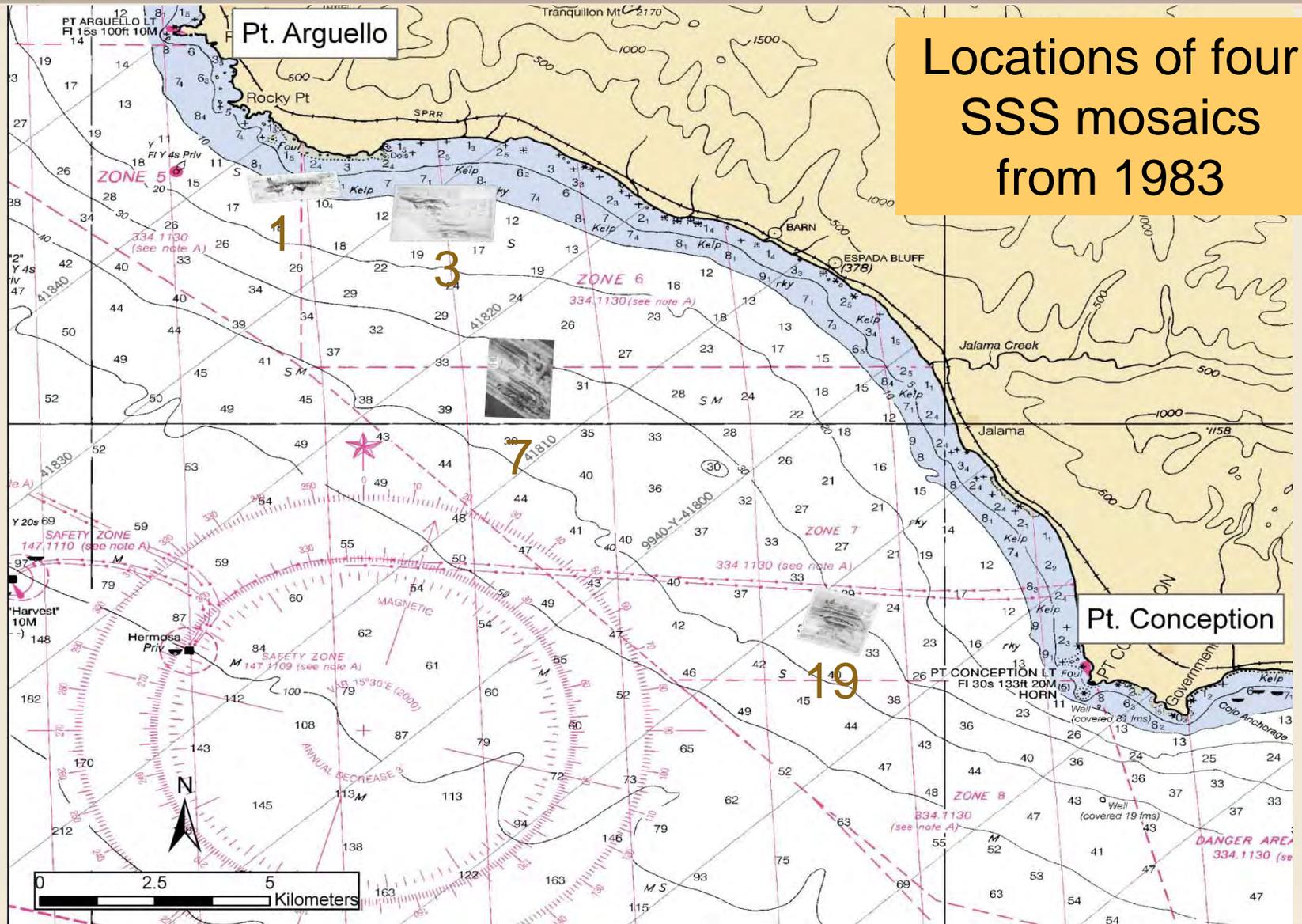
Coastal changes: Observation of seafloor change in Santa Barbara Channel after 25 Years

Jerry Wilson, Ed Saade
Fugro Pelagos San Diego, California, USA



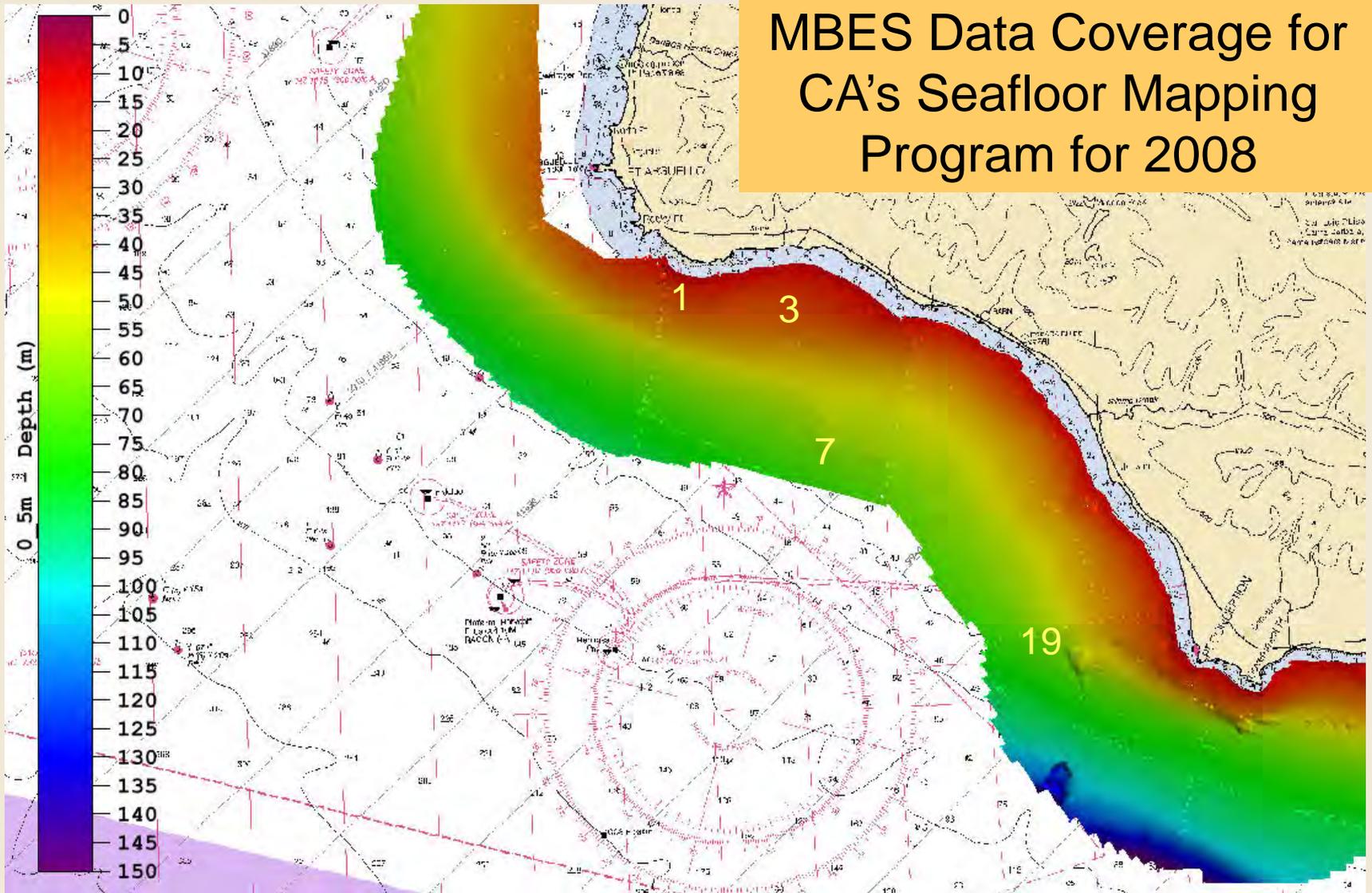
GeoTools 2009: Observation of seafloor change in Santa Barbara Channel

Locations of four SSS mosaics from 1983



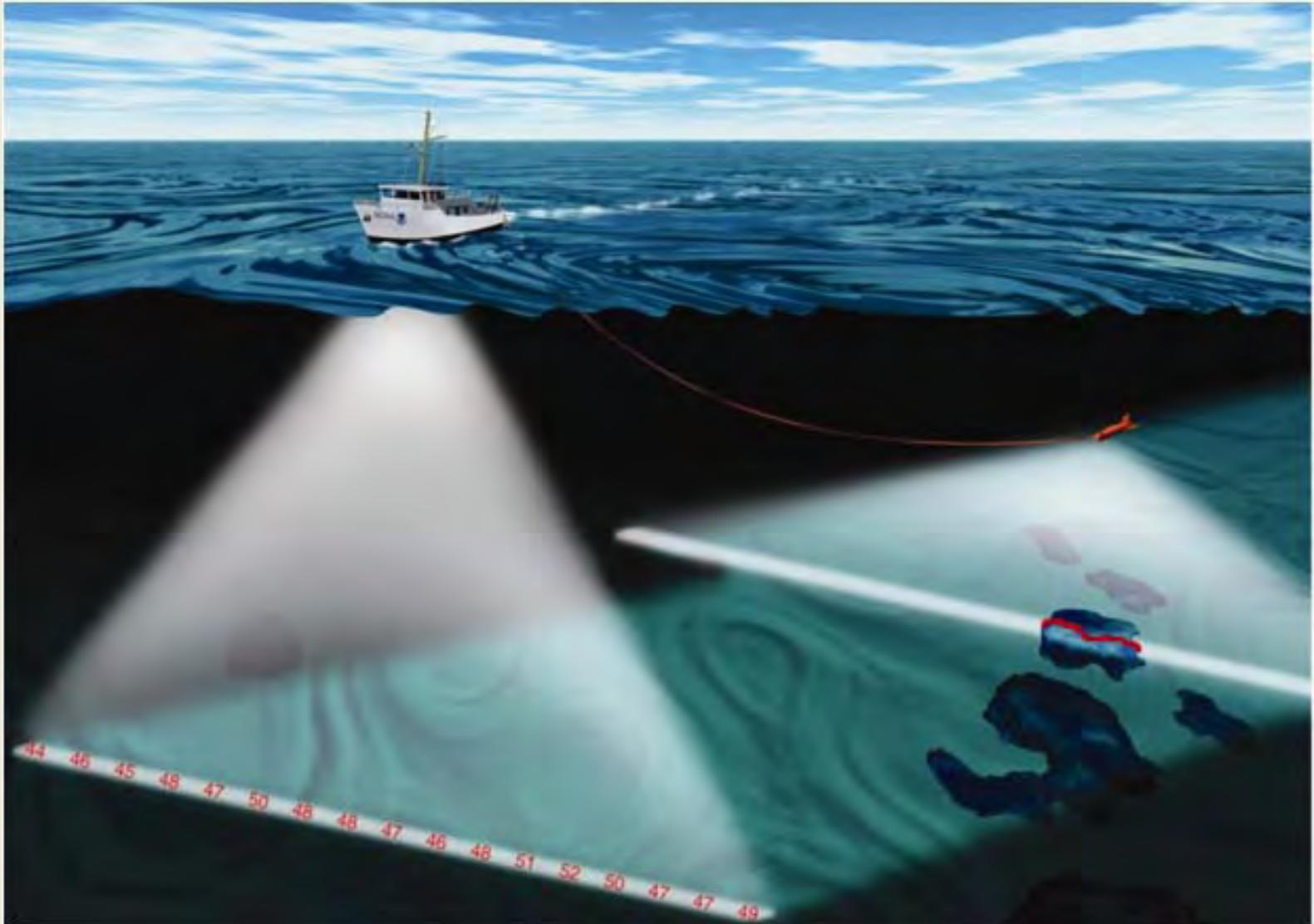


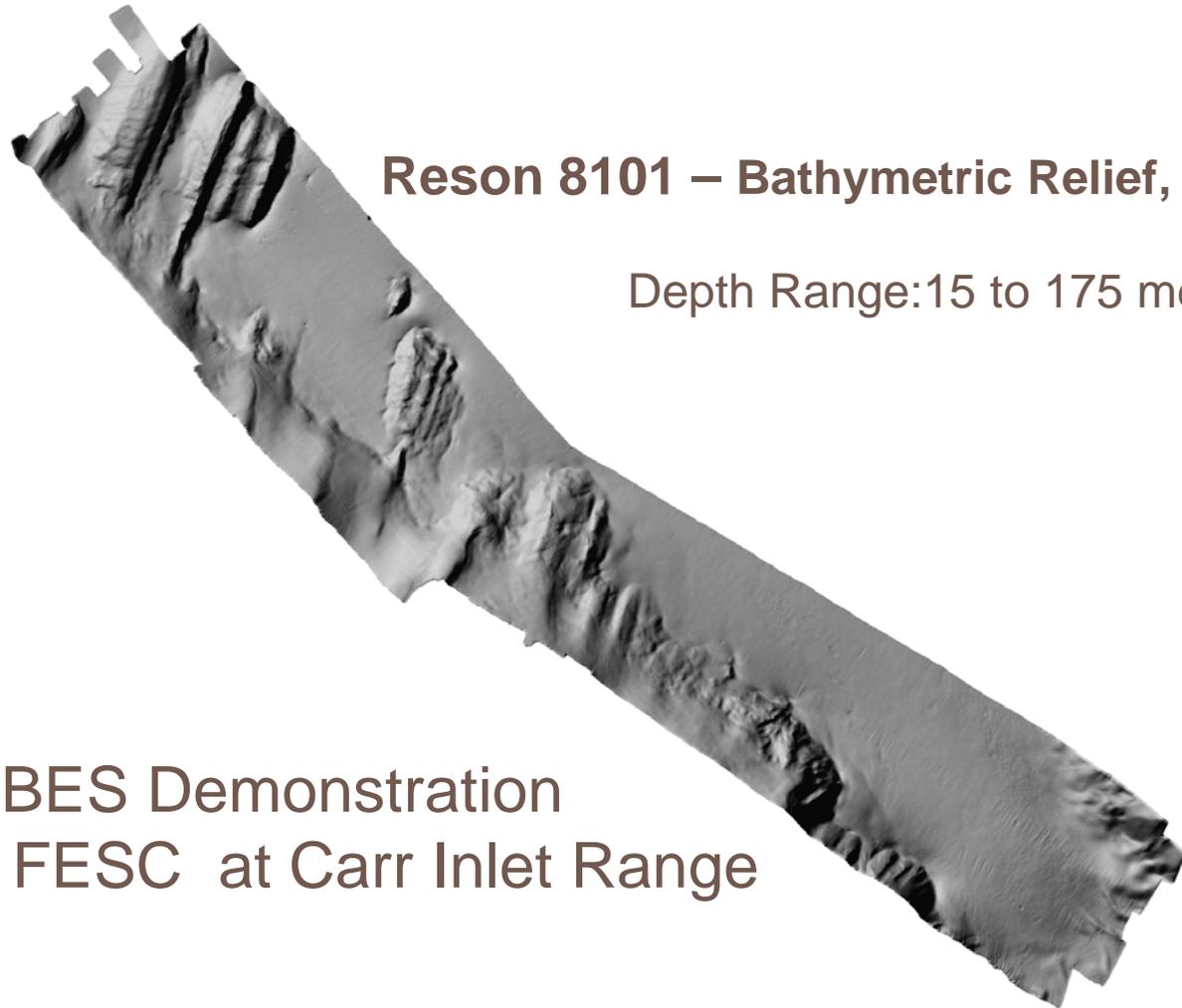
MBES Data Coverage for CA's Seafloor Mapping Program for 2008





GeoTools 2009: Observation of seafloor change in Santa Barbara Channel





Reson 8101 – Bathymetric Relief, Shaded

Depth Range: 15 to 175 meters

SSS & MBES Demonstration
US Navy FESC at Carr Inlet Range



Reson 8101 - Multibeam Backscatter

Mosaicked 100 kHz Side Scan Sonar

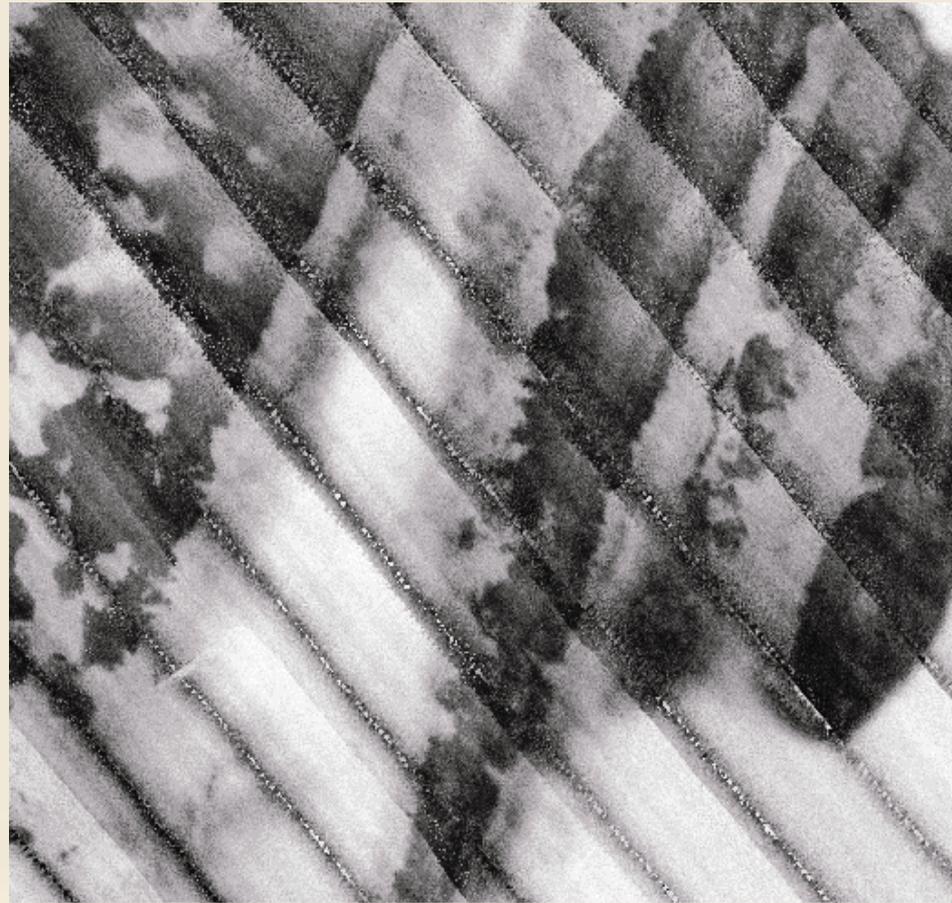
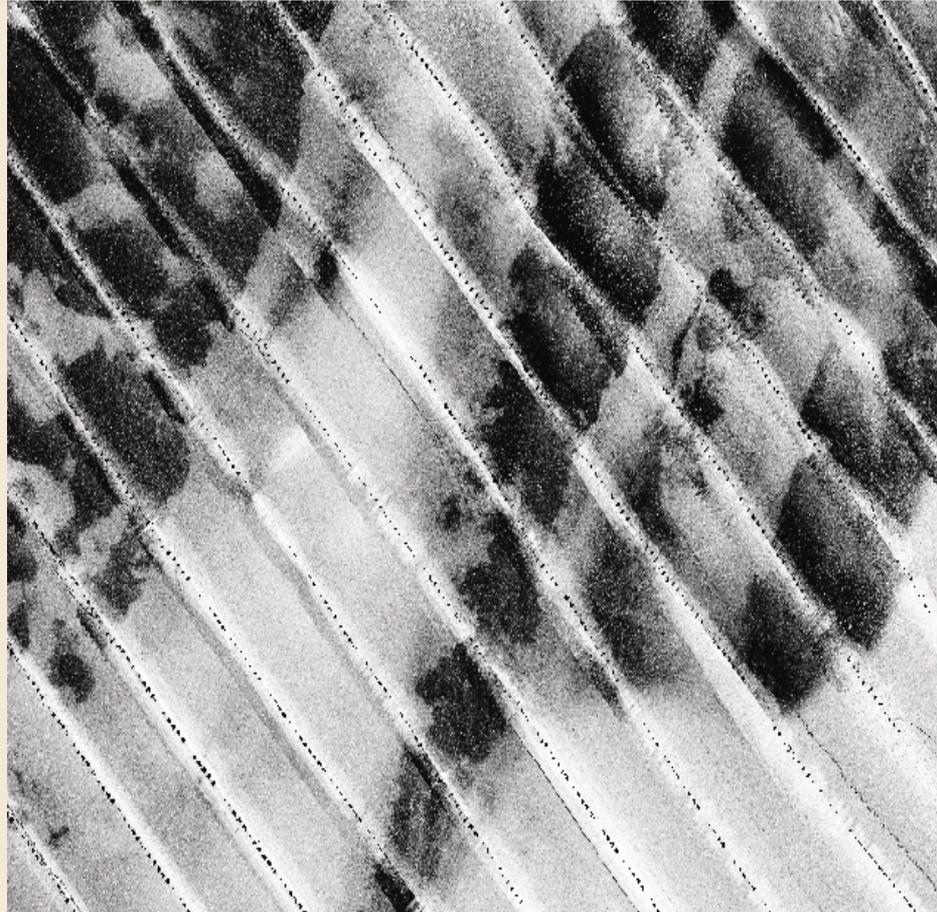


Positioning and Shapes of Seafloor Features

SSS & Reson 8101 at 40m depth

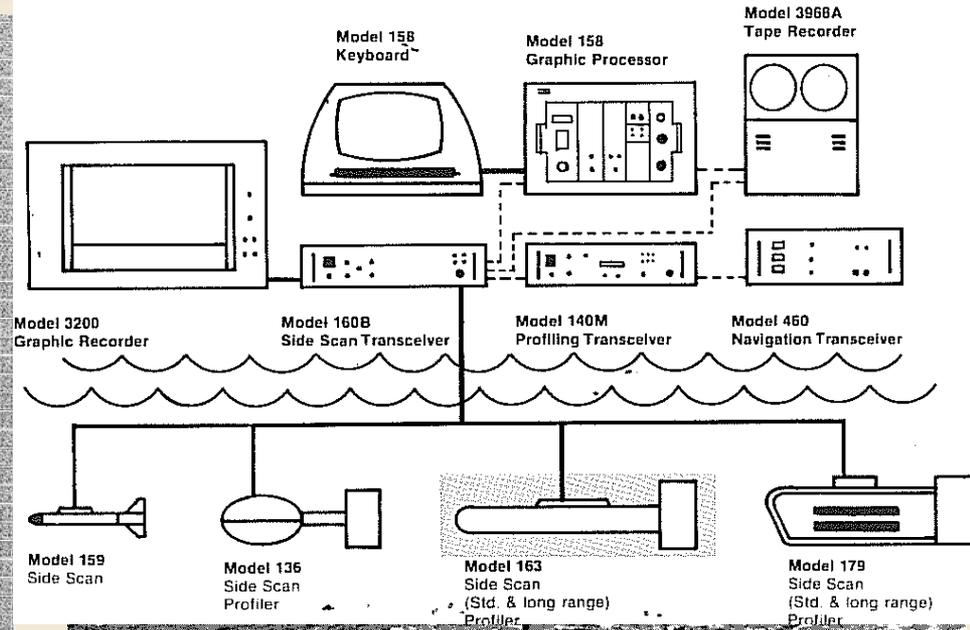
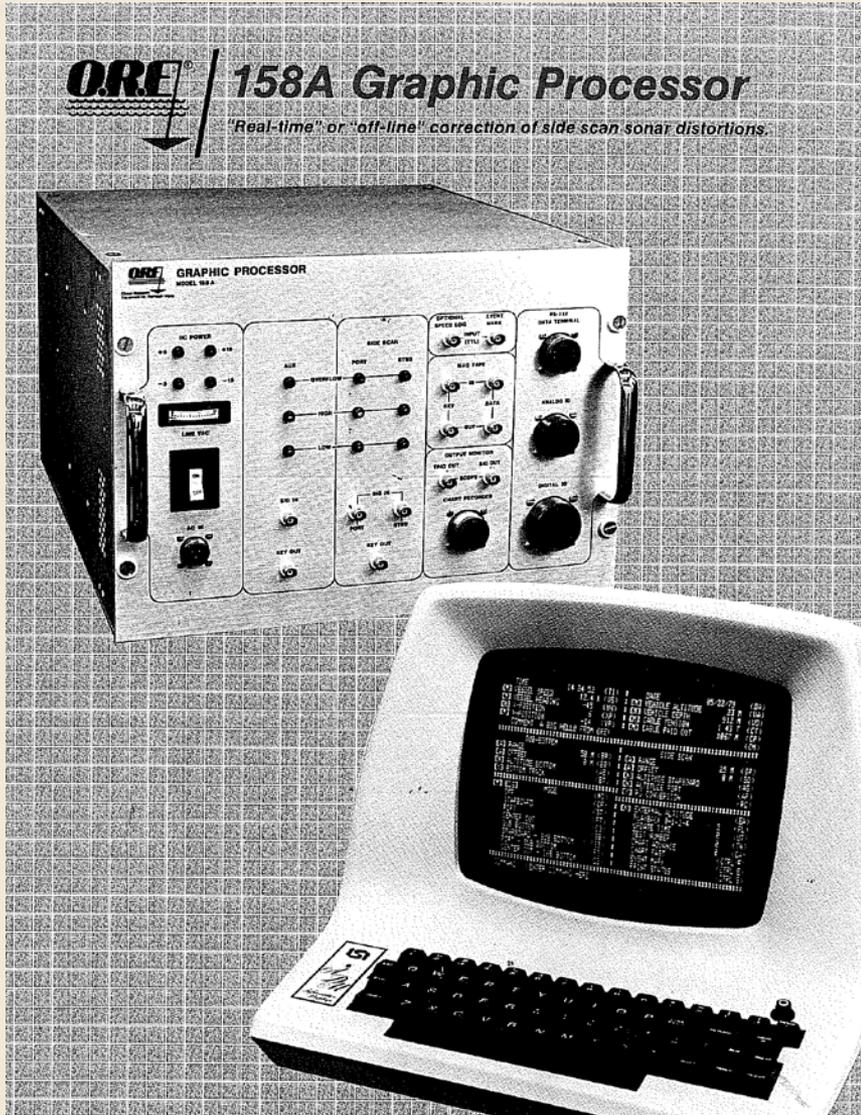
Side Scan Sonar Mosaic

Multibeam Backscatter Mosaic





GeoTools 2009: Observation of seafloor change in Santa Barbara Channel





GeoTools 2009: Observation of seafloor change in Santa Barbara Channel



**Fugro Pelagos' fleet for
California mapping:
Mother ship: Pacific Star
Survey Launches: R2 & D2
with Reson 7125 MBES**

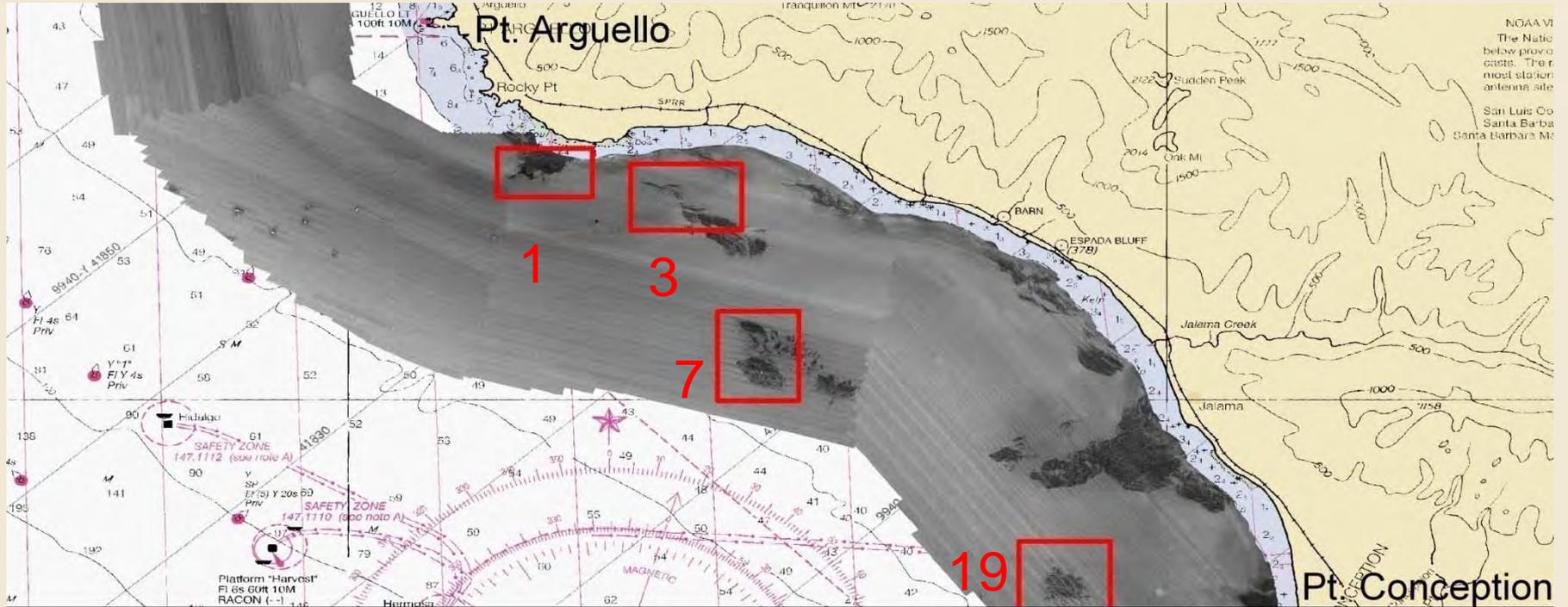


GeoTools 2009: Observation of seafloor change in Santa Barbara Channel

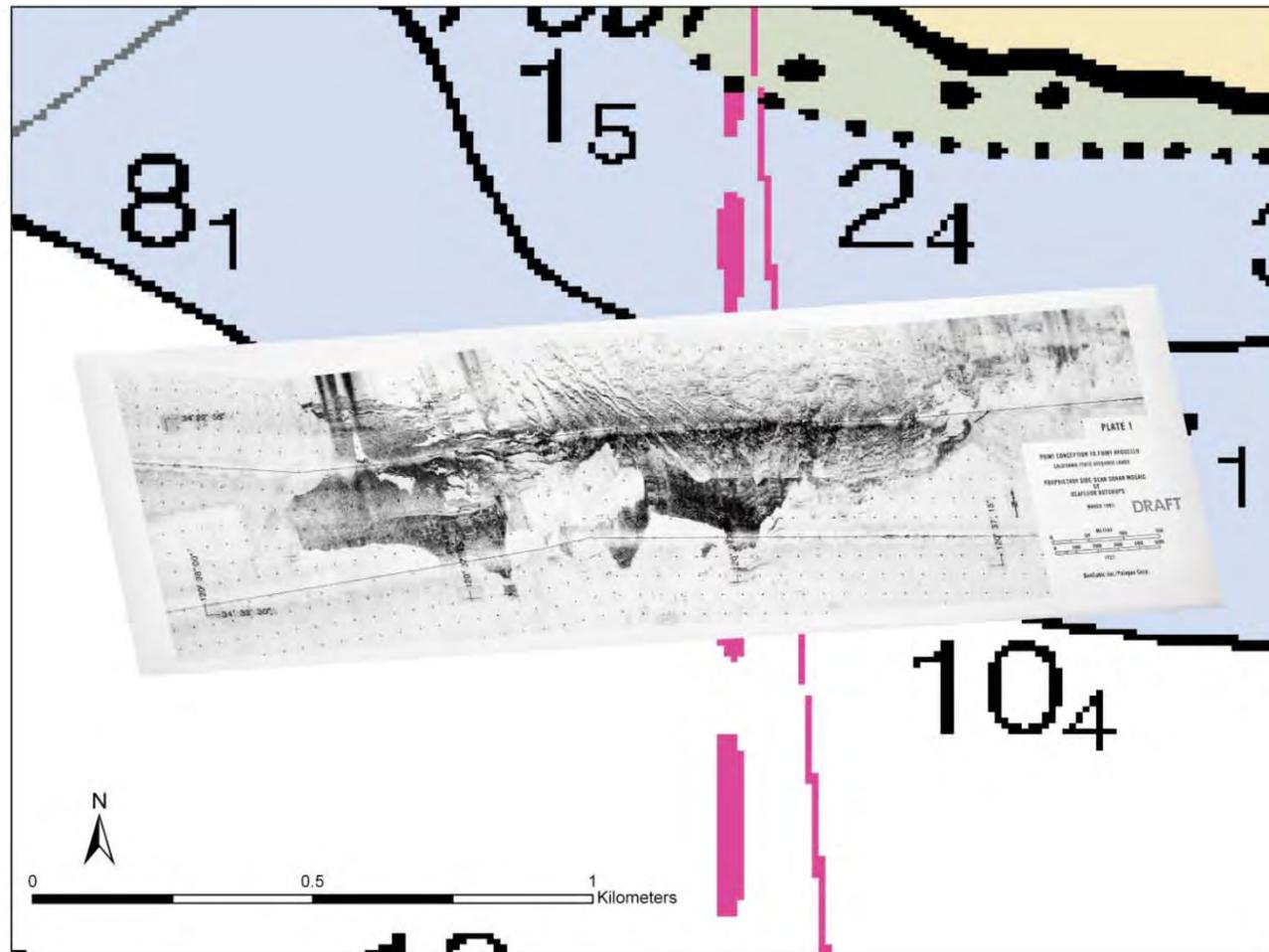




GeoTools 2009: Observation of seafloor change in Santa Barbara Channel

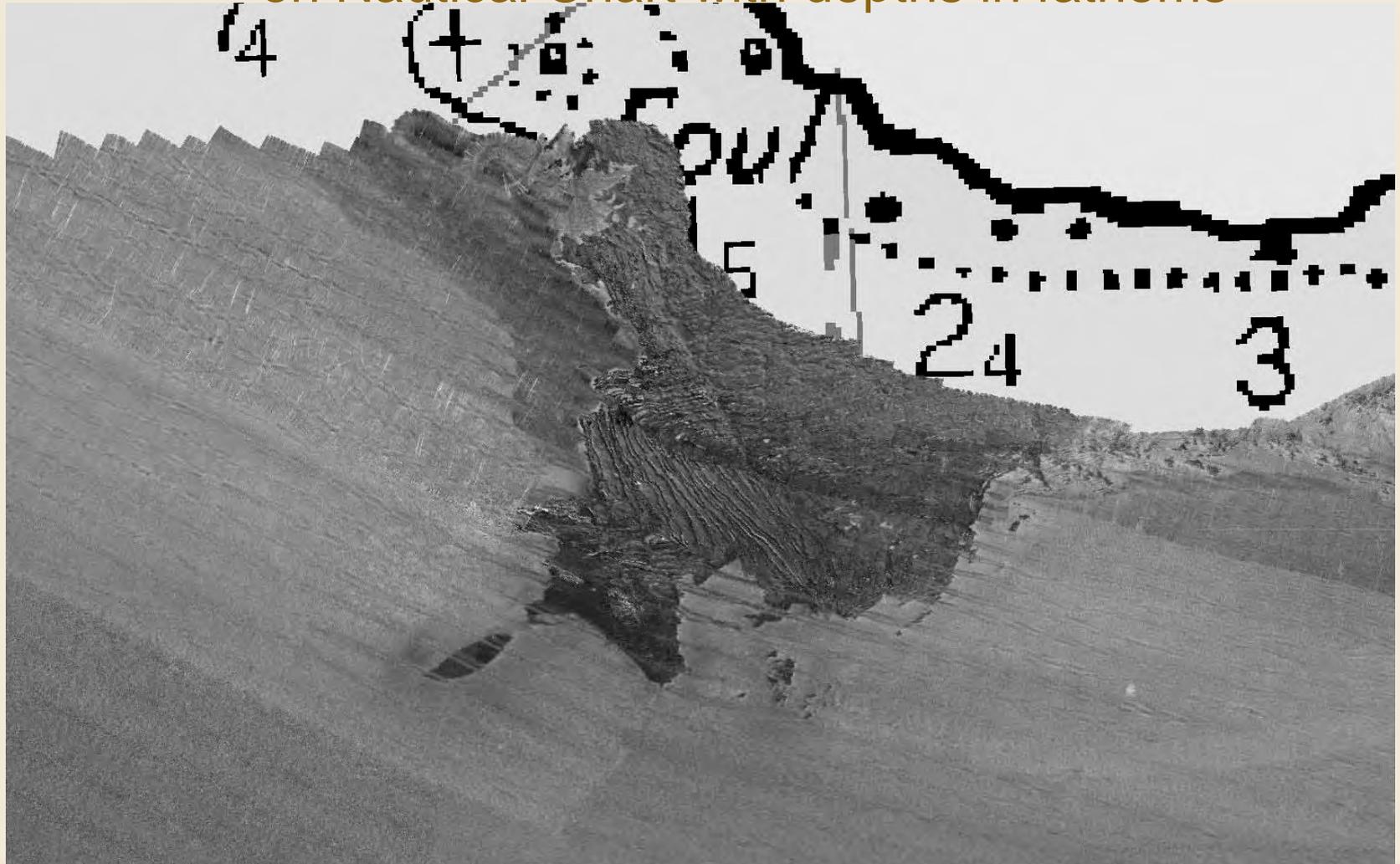


AREA 1 – Geo-referenced 1983 SSS Mosaic on Nautical Chart with depths in fathoms



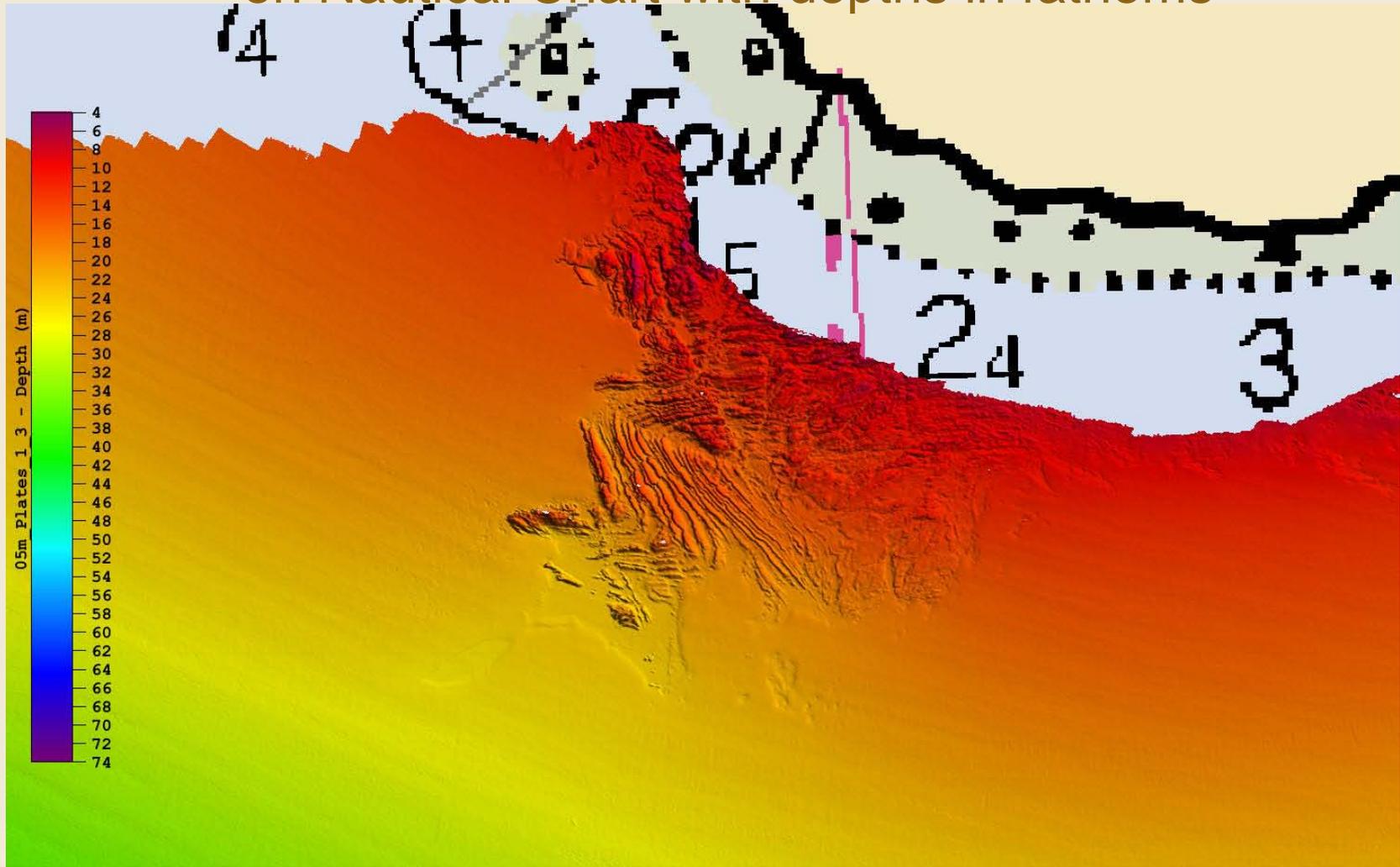


AREA 1 – 2008 MBES Acoustic Backscatter Mosaic on Nautical Chart with depths in fathoms



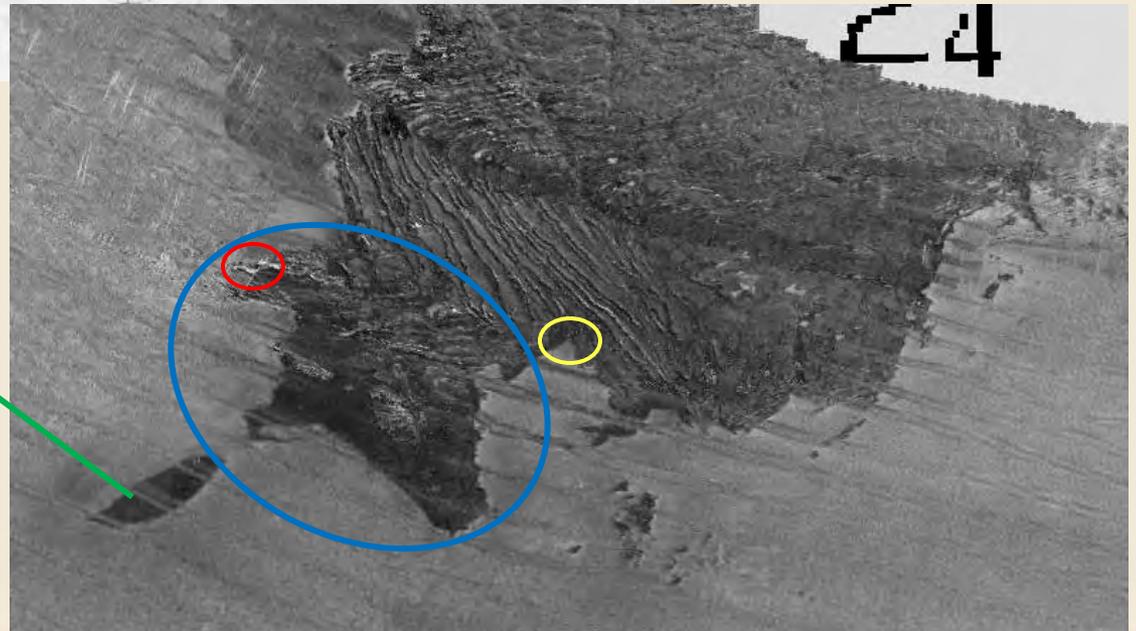
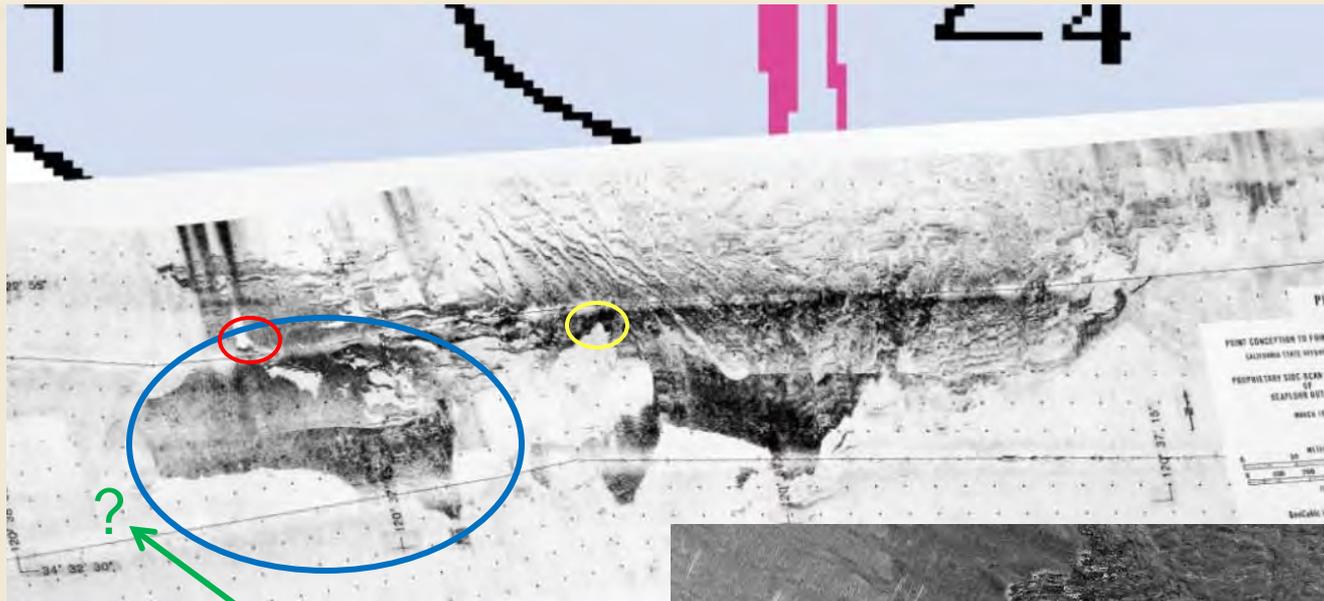


AREA 1 – 2008 Multibeam Echosounder Bathymetry on Nautical Chart with depths in fathoms





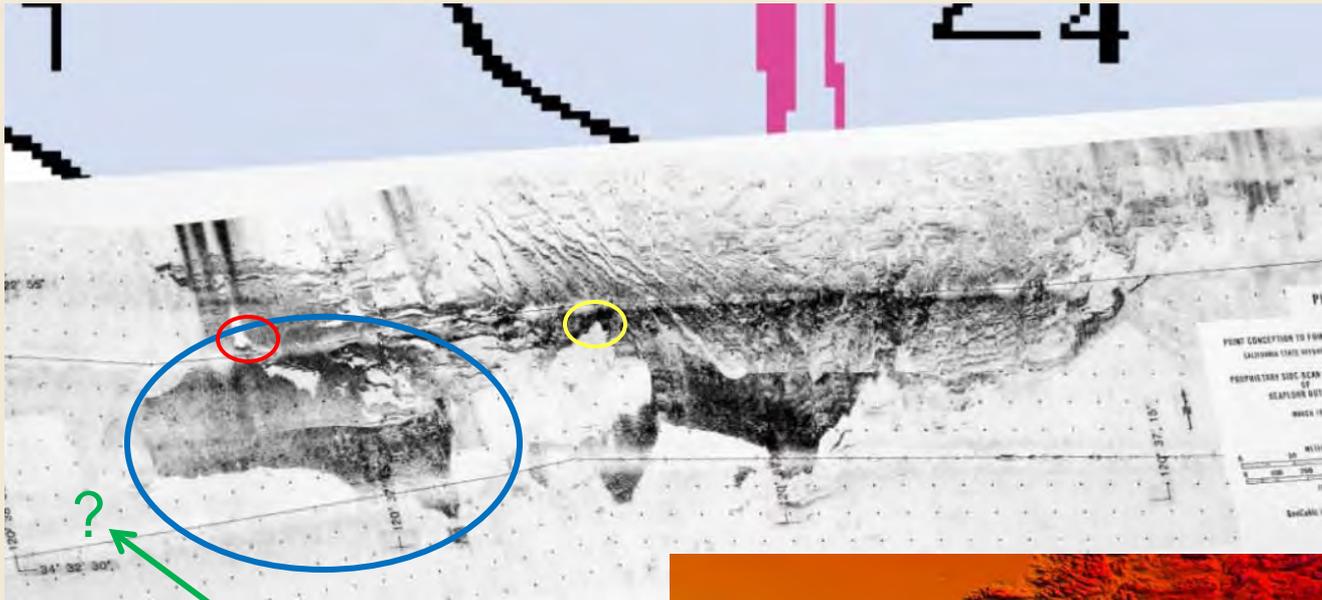
GeoTools 2009: Observation of seafloor change in Santa Barbara Channel



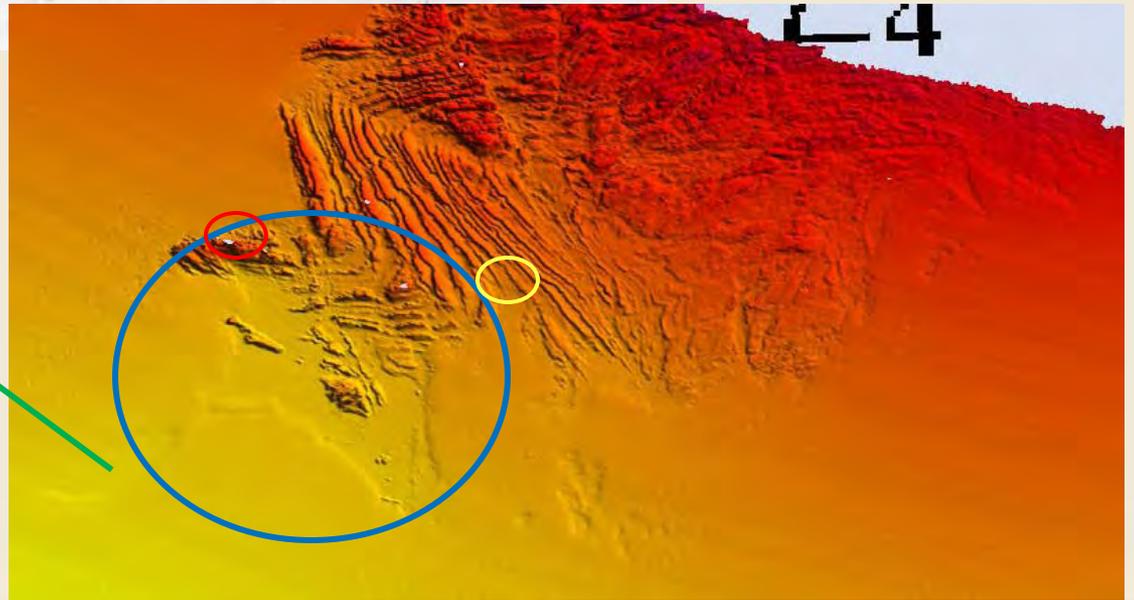
Filled in?



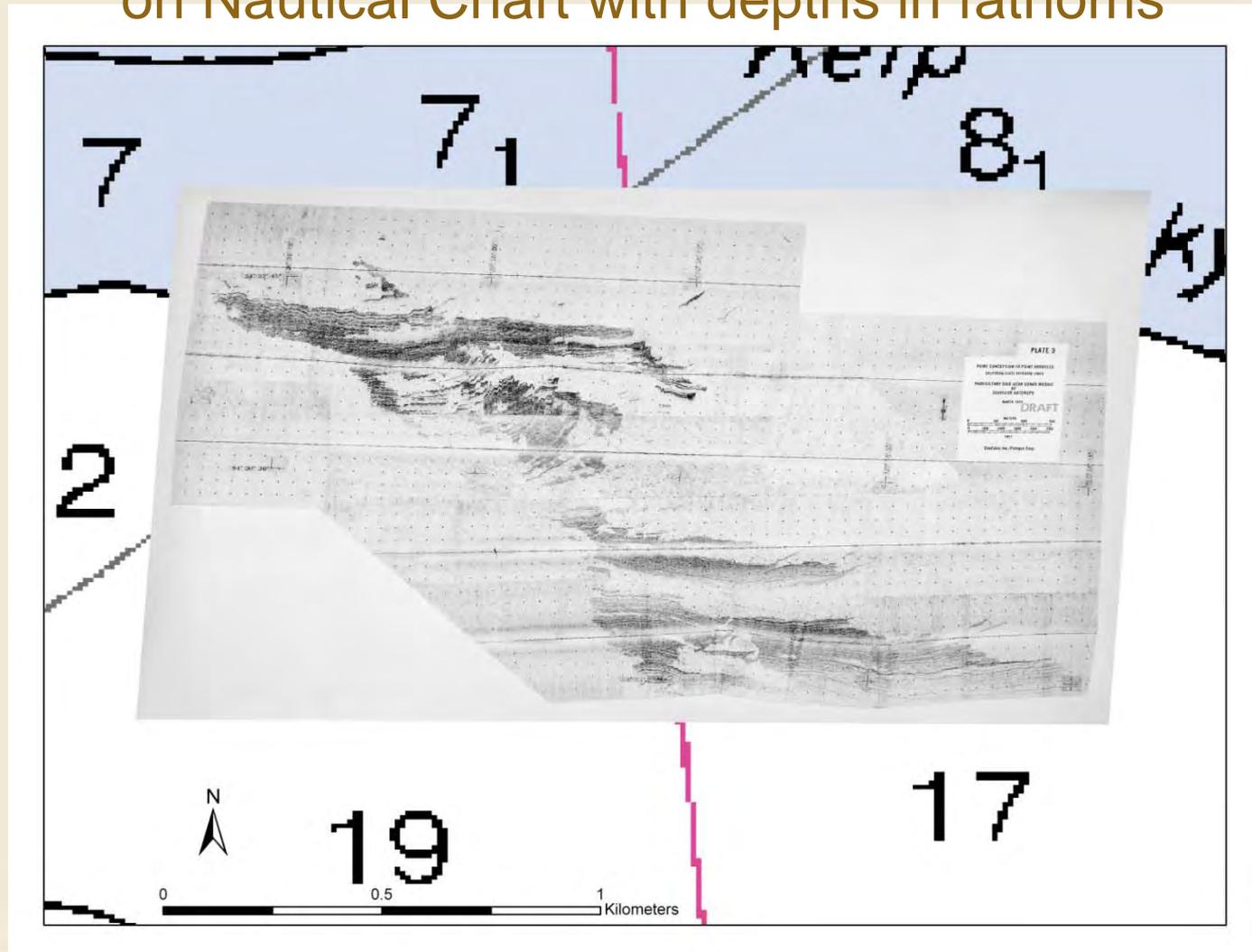
GeoTools 2009: Observation of seafloor change in Santa Barbara Channel



Filled in?



AREA 3 – Geo-referenced 1983 SSS Mosaic on Nautical Chart with depths in fathoms



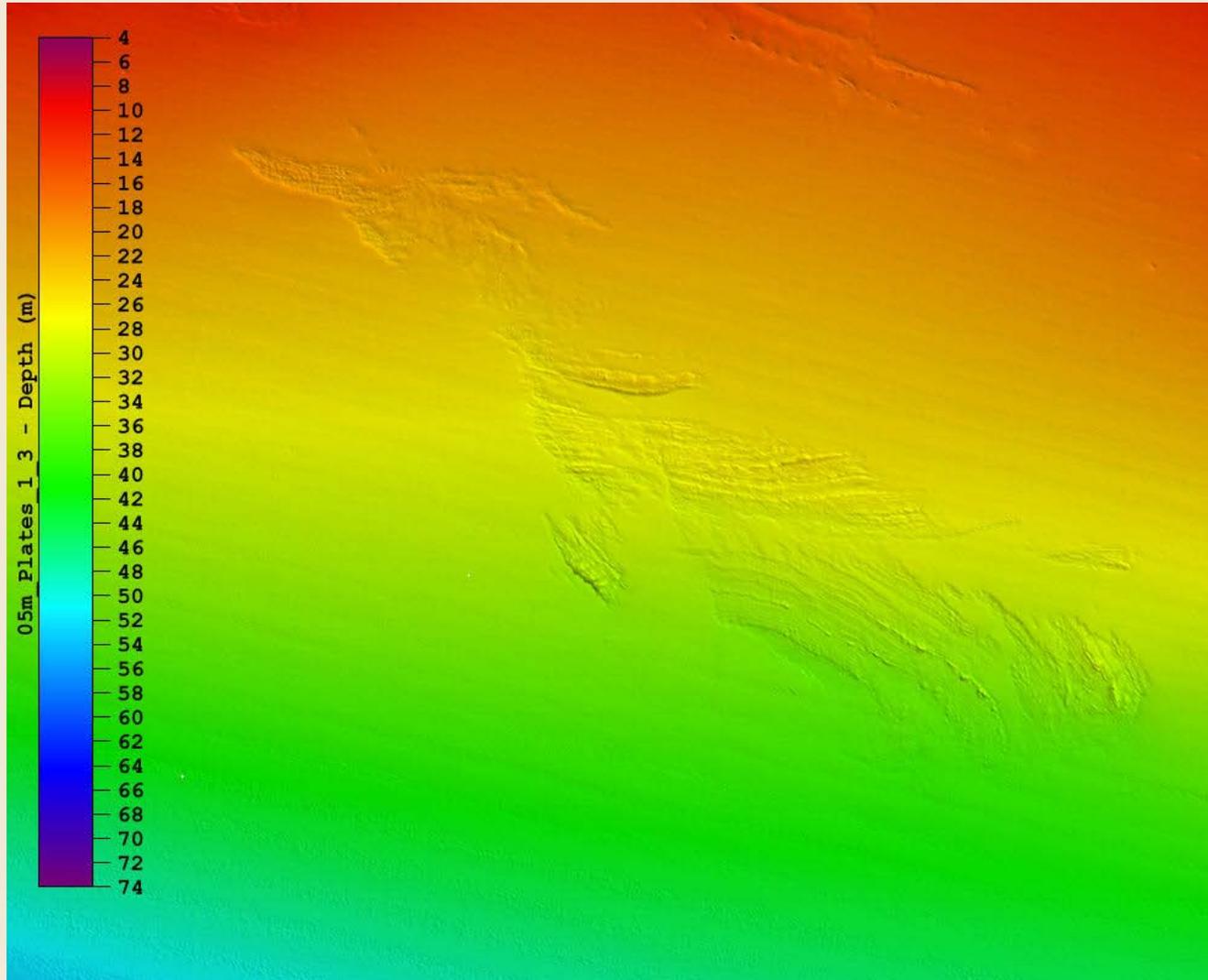


AREA 3 – 2008 MBES Acoustic Backscatter Mosaic





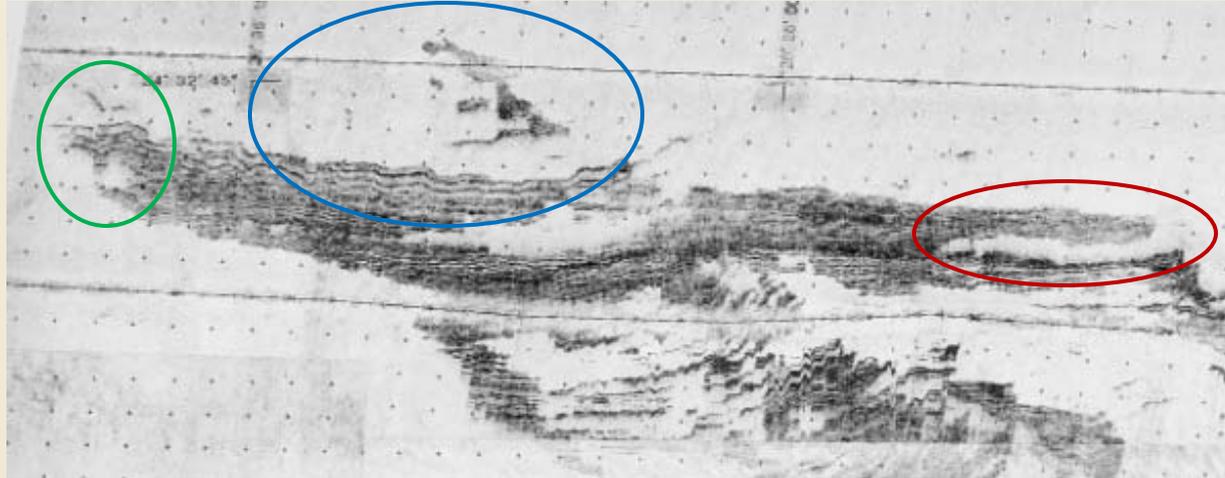
AREA 3 – 2008 Multibeam Echosounder Bathymetry



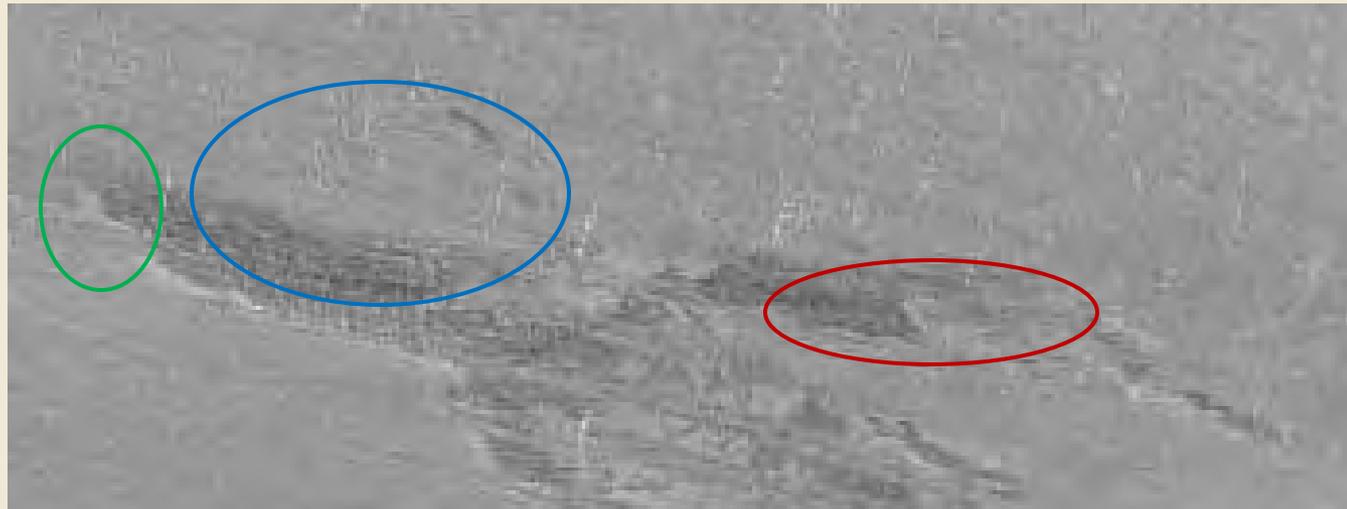


AREA 3

1983 SSS



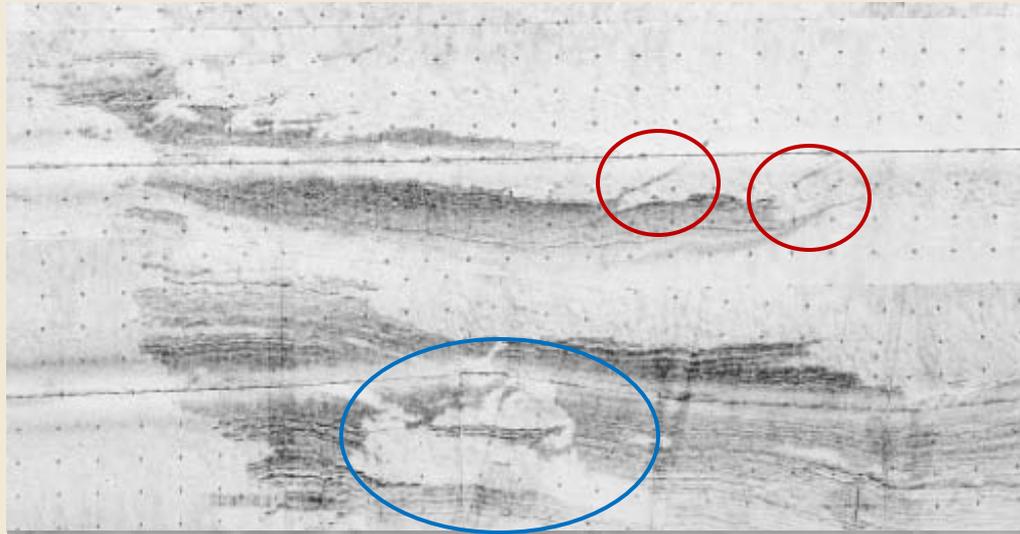
2008 MBES





AREA 3

1983 SSS



2008 MBES



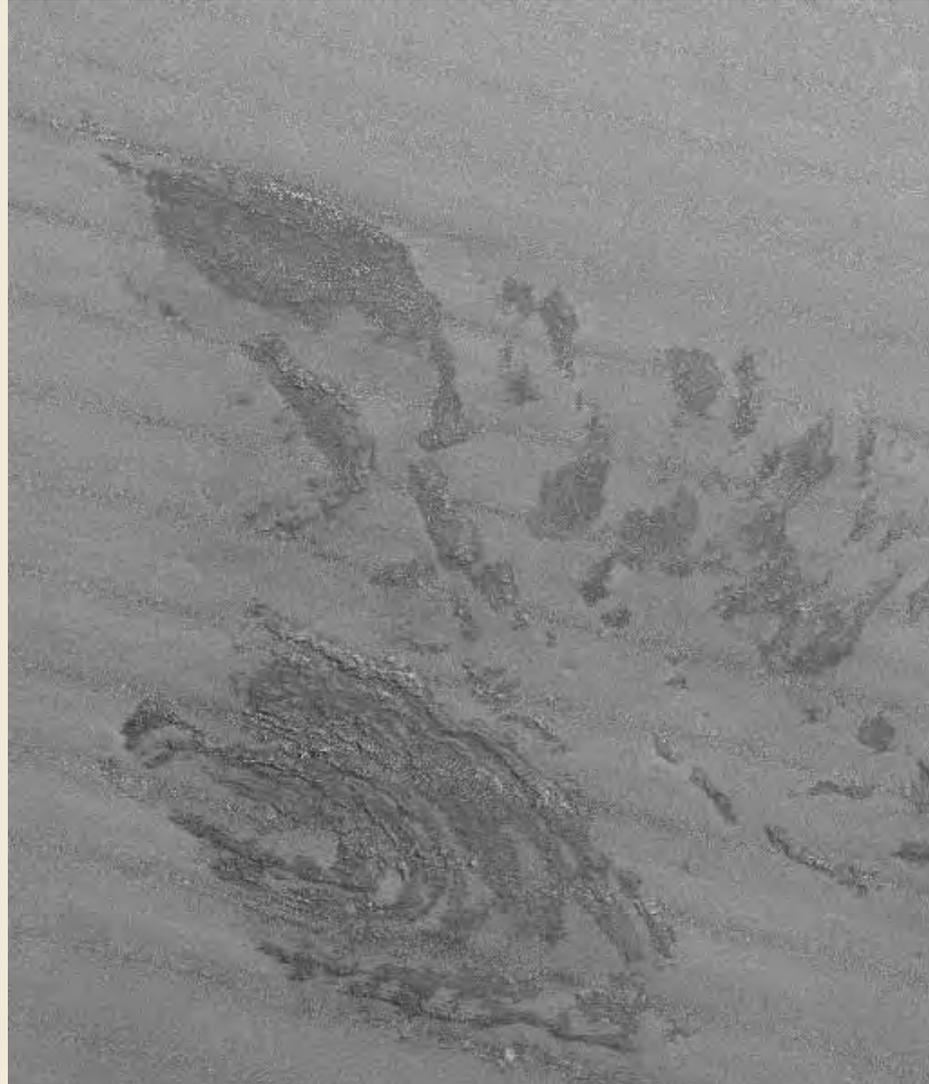


AREA 7 – Geo-referenced 1983 SSS Mosaic on Nautical Chart with depths in meters (C-MAP ENC)



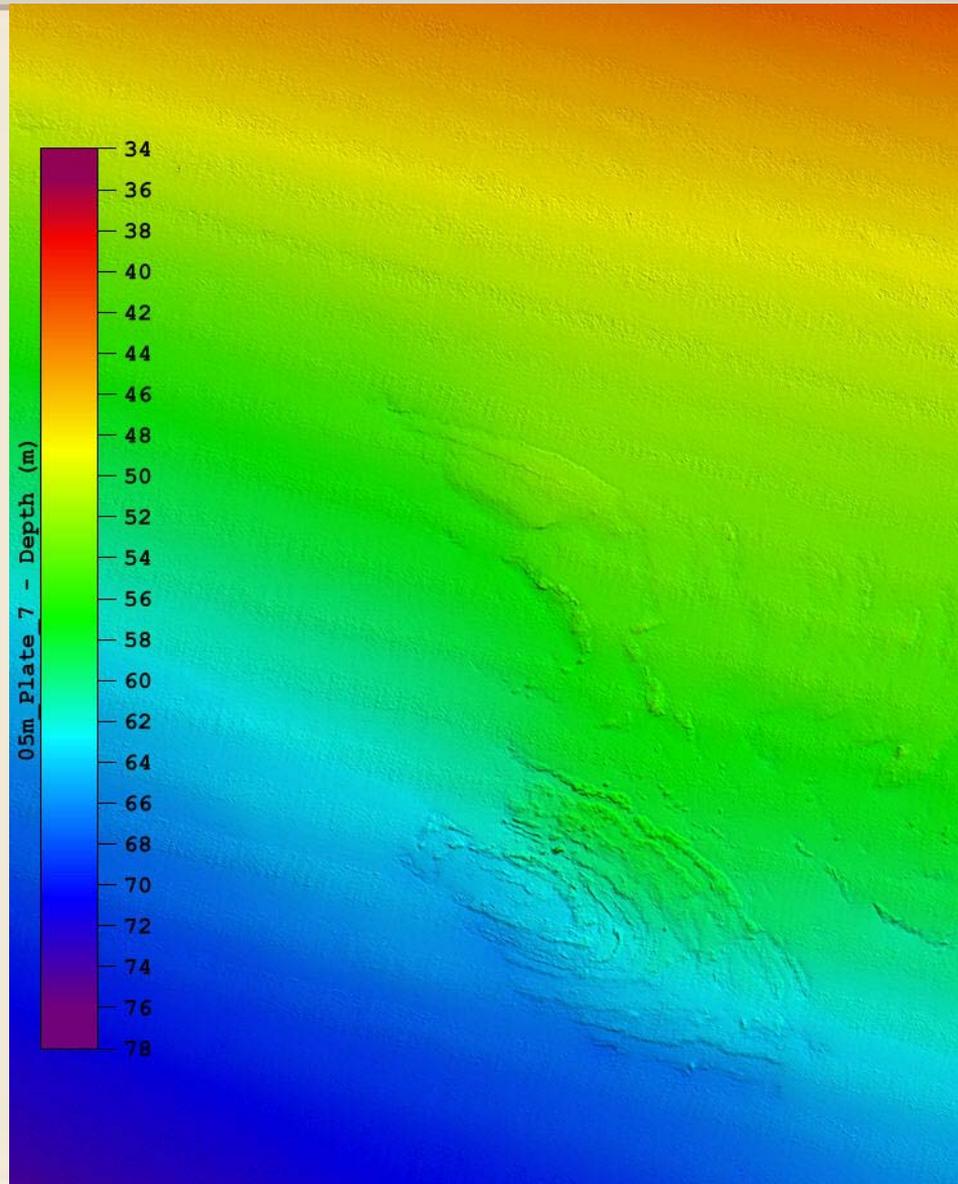


AREA 7 – 2008 MBES Acoustic Backscatter Mosaic





AREA 7
2008 Multibeam
Echosounder
Bathymetry



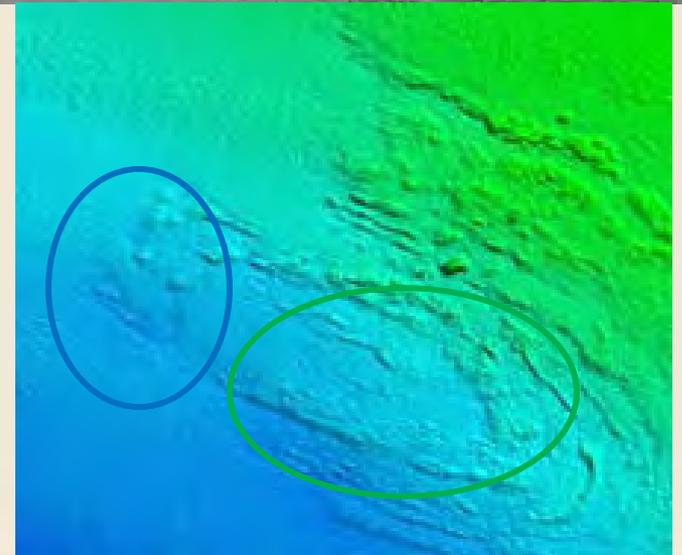
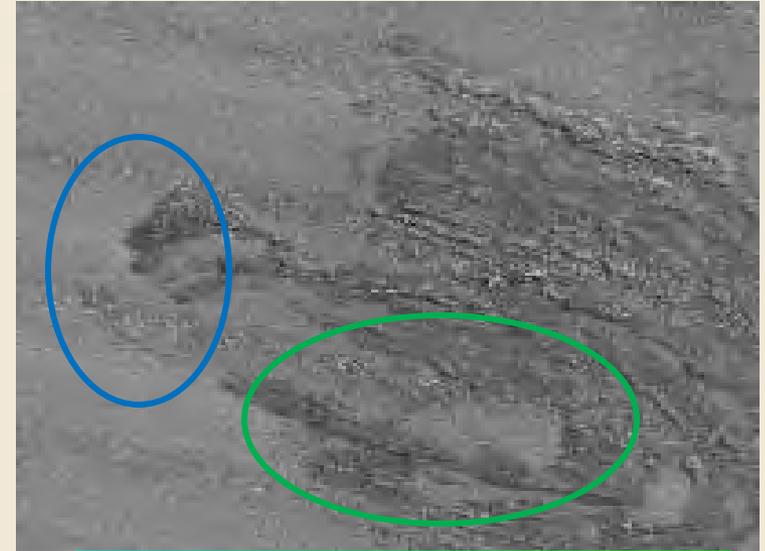
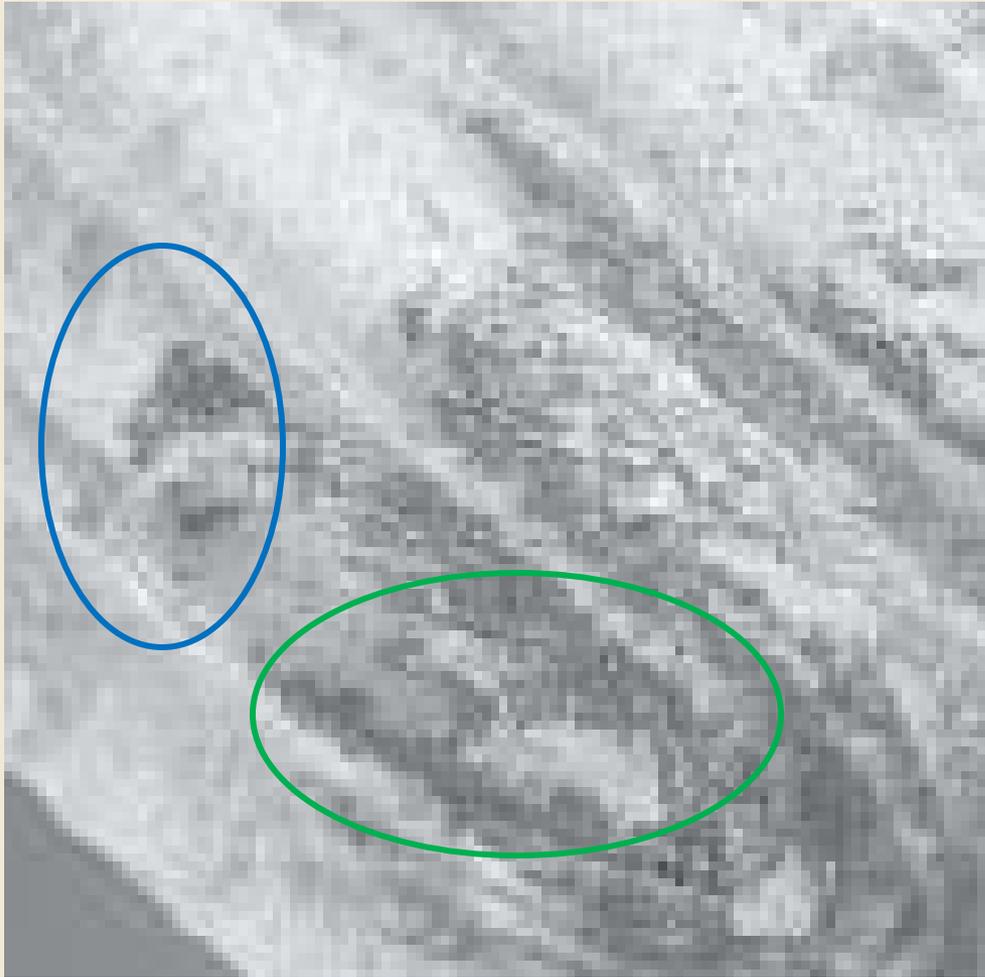


GeoTools 2009: Observation of seafloor change in Santa Barbara Channel

1983 SSS

AREA 7

2008 MBES

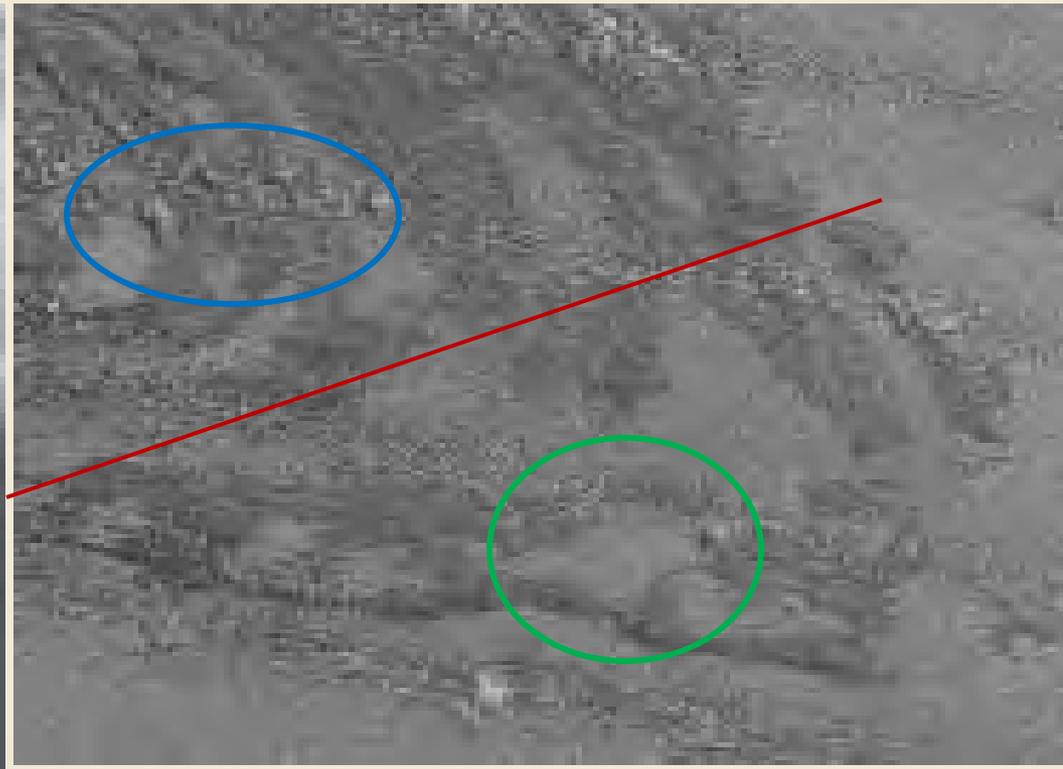
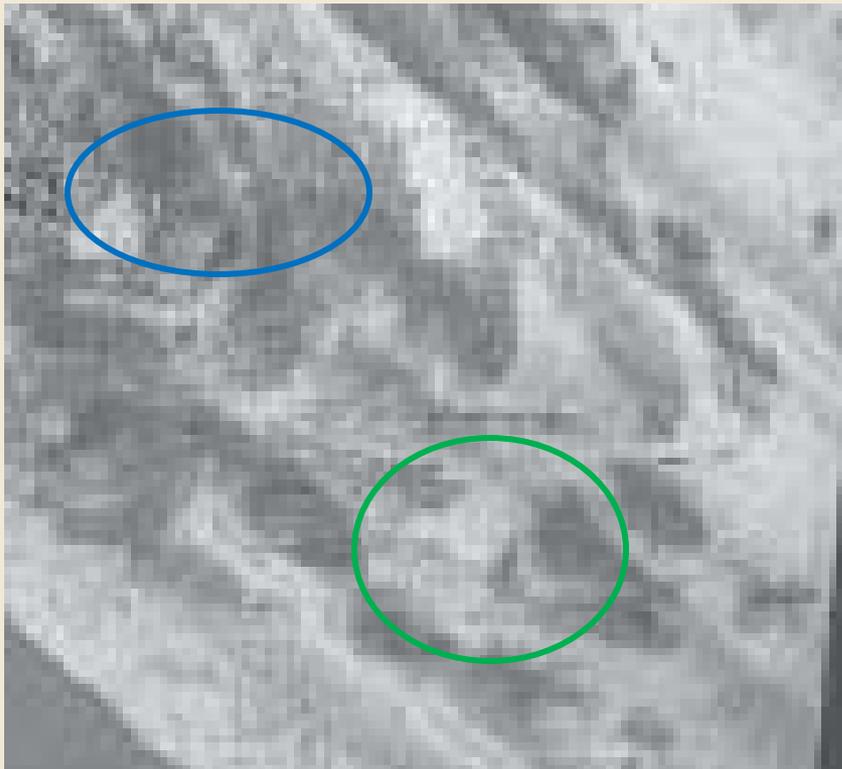




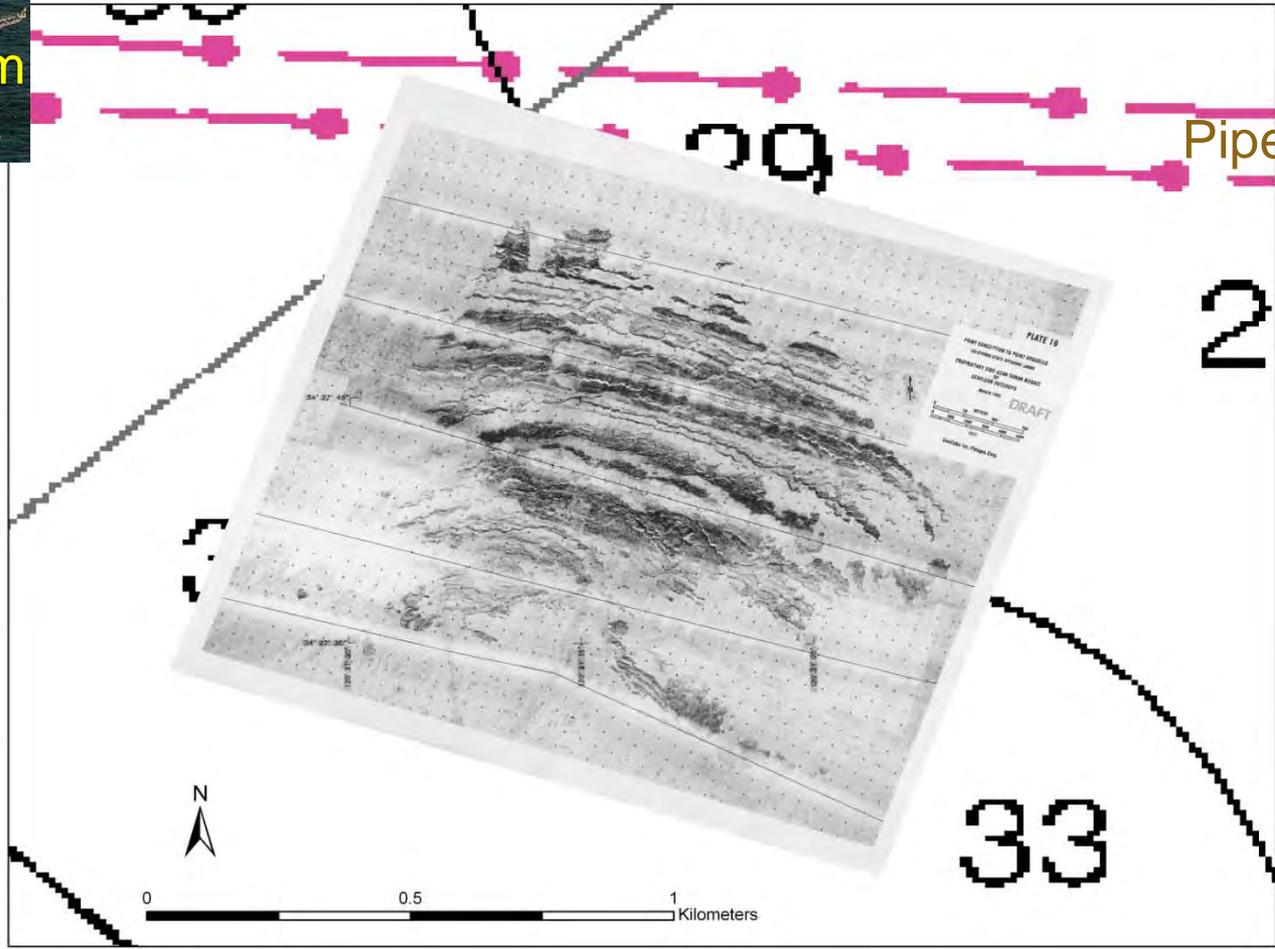
AREA 7

1983 SSS

2008 MBES

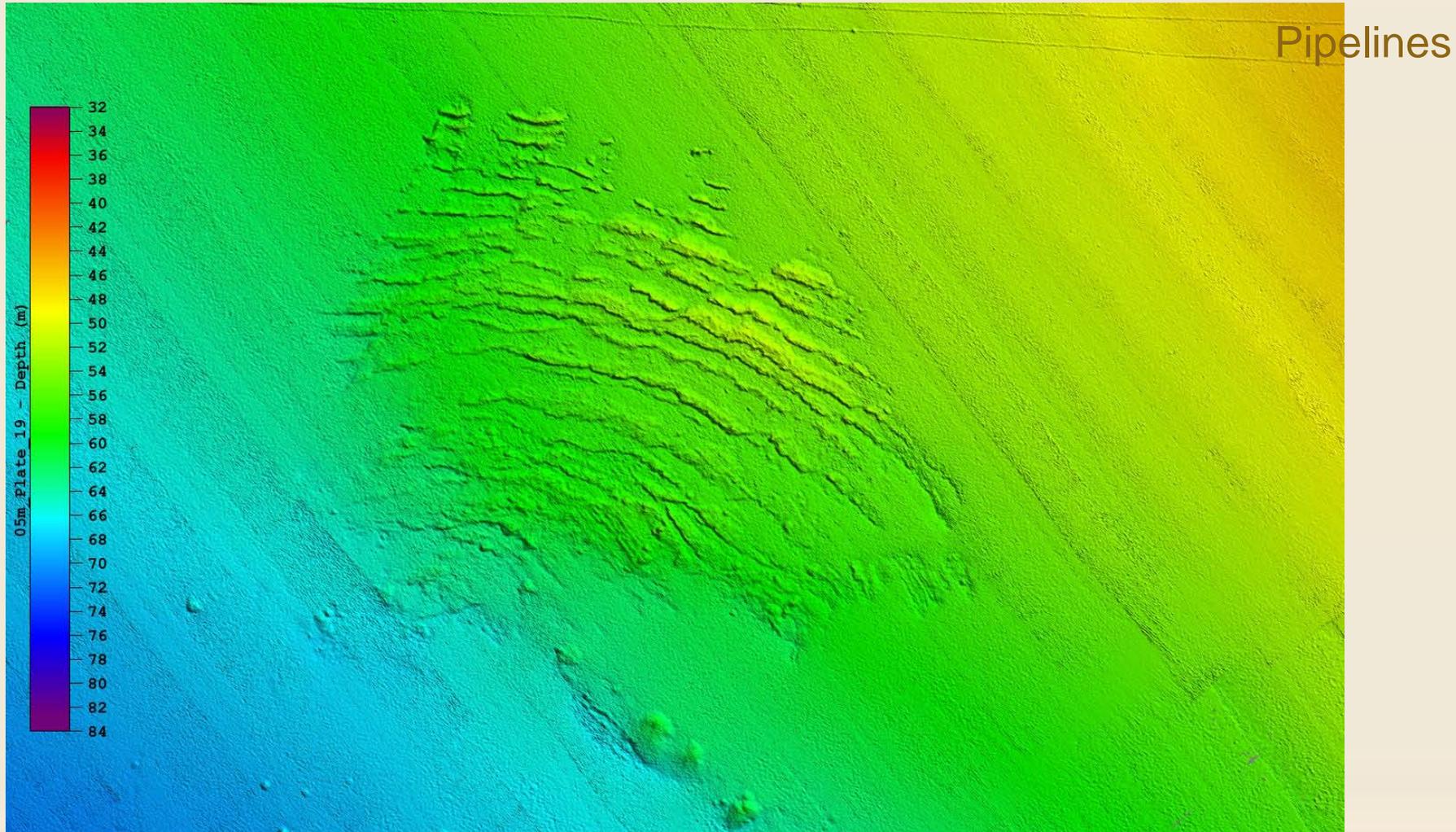


AREA 19 – Georeferenced 1983 SSS Mosaic on Nautical Chart with depths in fathoms





AREA 19 – 2008 Multibeam Echosounder Bathymetry





AREA 19 – 2008 MBES Acoustic Backscatter Mosaic

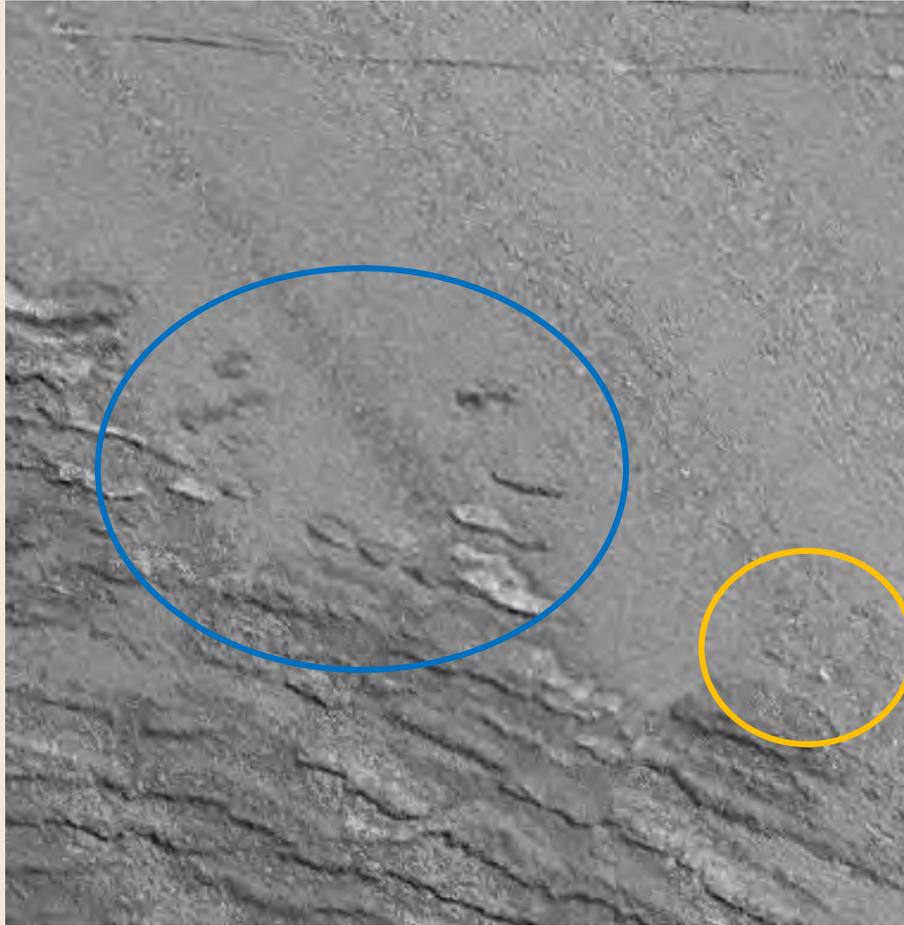


Pipelines

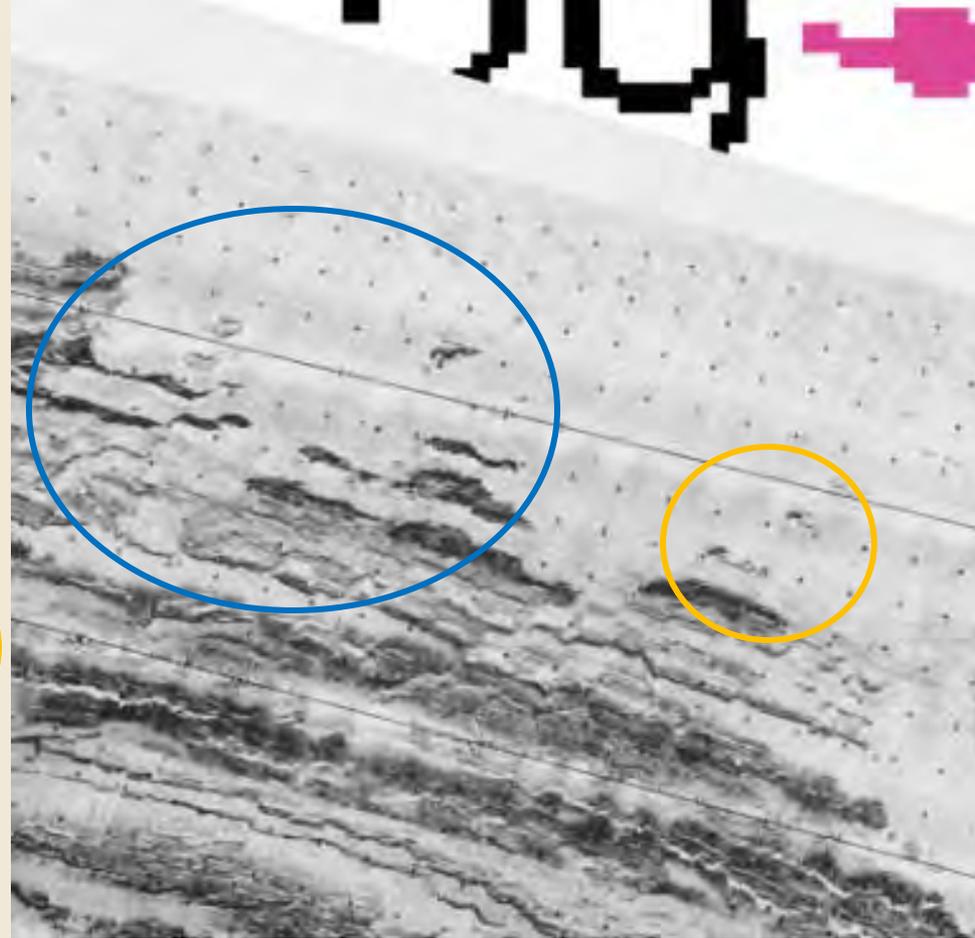


AREA 19

2008 MBES



1983 SSS

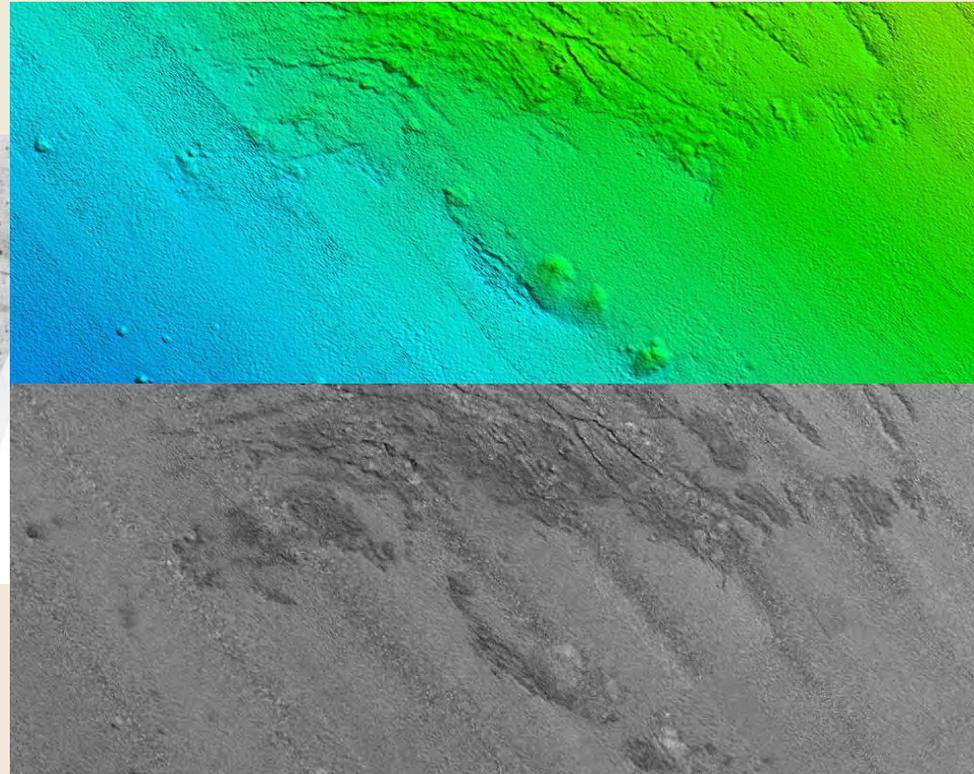
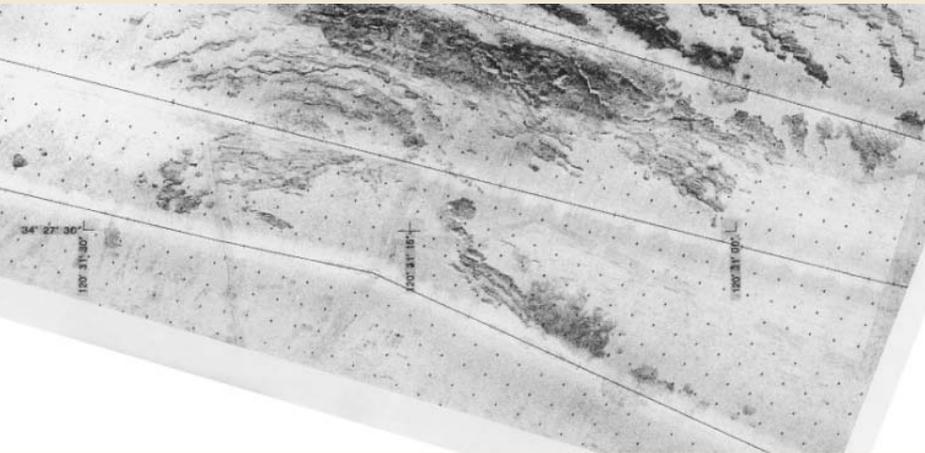




AREA 19

2008 MBES

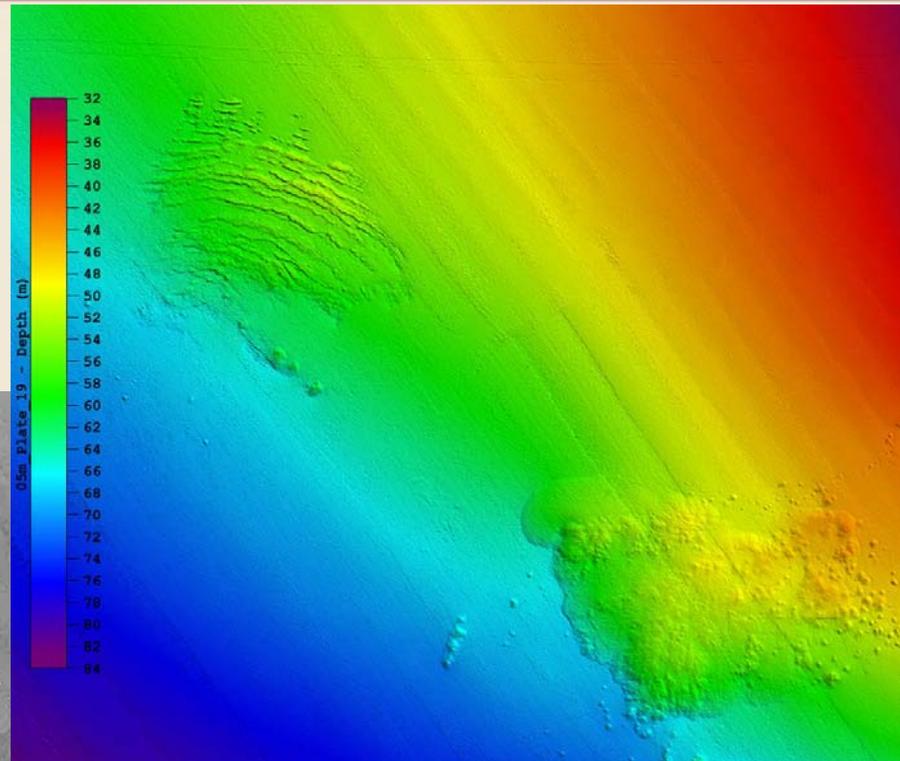
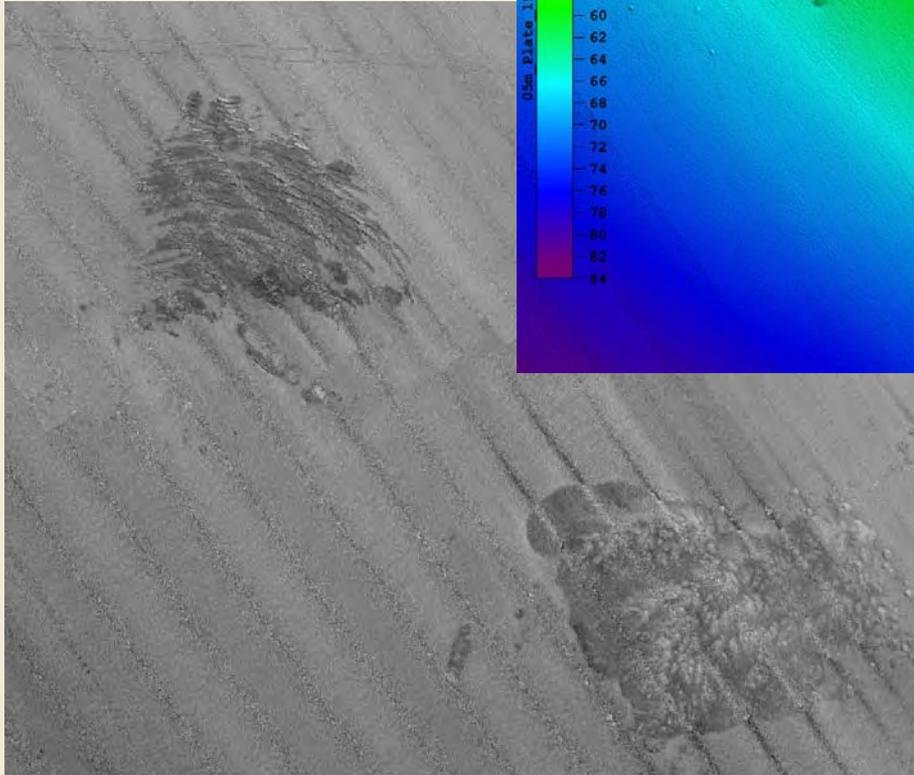
1983 SSS





AREA 19 TAR MOUNDS

2008 MBES





Summary of Seafloor Change Observations

Area	Mid-Depth	Navigation Adjustment	Change Indications
1	15m	130m W	Yes. Sediment Transport.
3	25m	120m W	Yes. Sediment Transport.
7	60m	95m W	Possible small changes, but not definitive.
19	60m	80m WSW	No changes in small features. Tar mounds.



Acknowledgements

1. The 2008 data is from the California Coastal Mapping Program of the CA Ocean Protection Council.
2. This California Mapping Program benefits significantly from NOAA participation, which is made possible through a State:Federal MOU managed by the Coastal Services Center with the California State Coastal Conservancy.