COASTAL FLOODING AND SEA LEVEL RISE IN IMPERIAL BEACH


IMPERIAL BEACH
classic southern california
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California


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Tijuana River Valley Sewage Spills

Unknown substance entered into Goat Canyon May 5-6, 2017

CBP has video of this flow coming through from Mexico.

U.S. Customs and Border Protection


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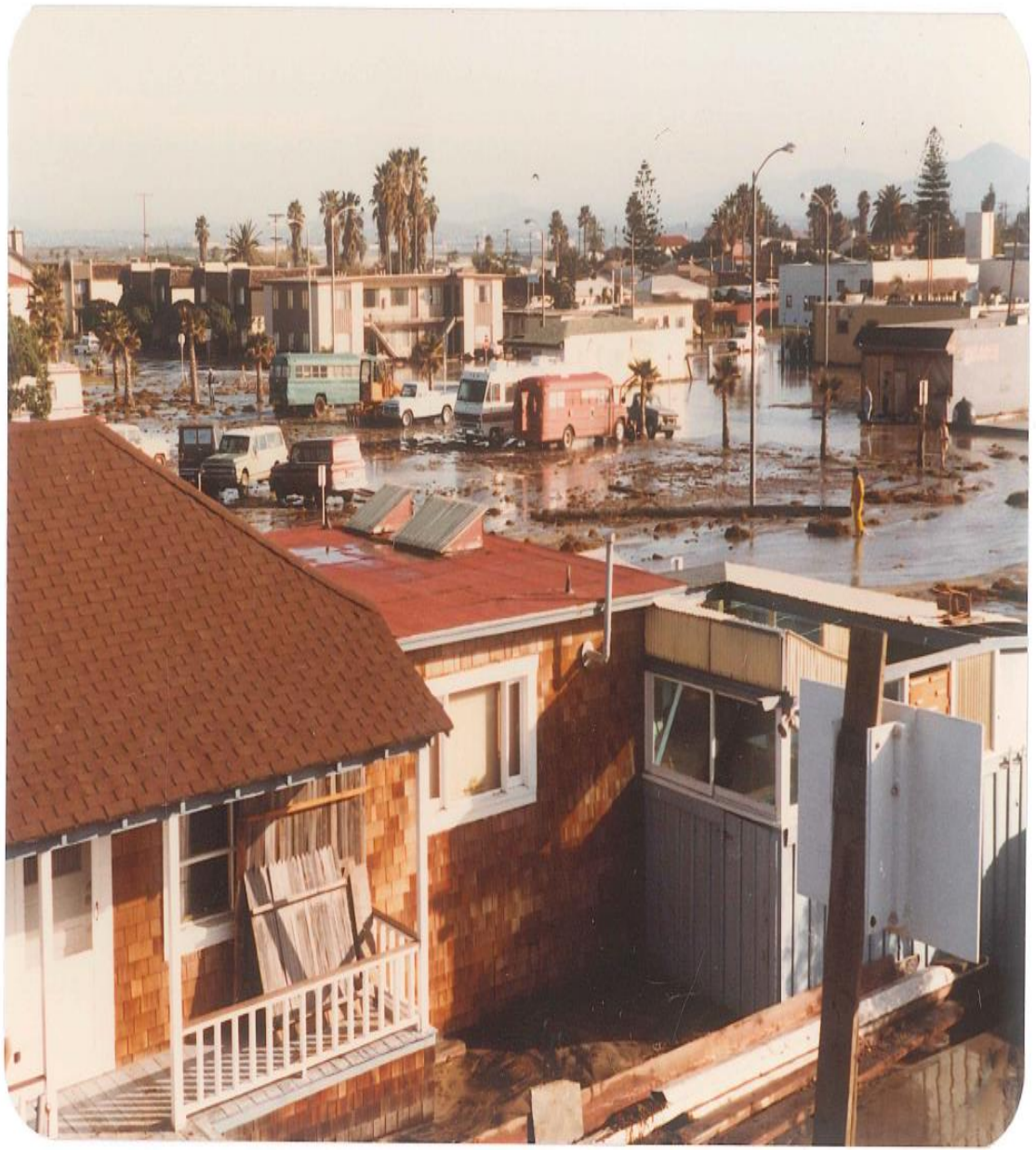
California

JANUARY 1983 El Niño



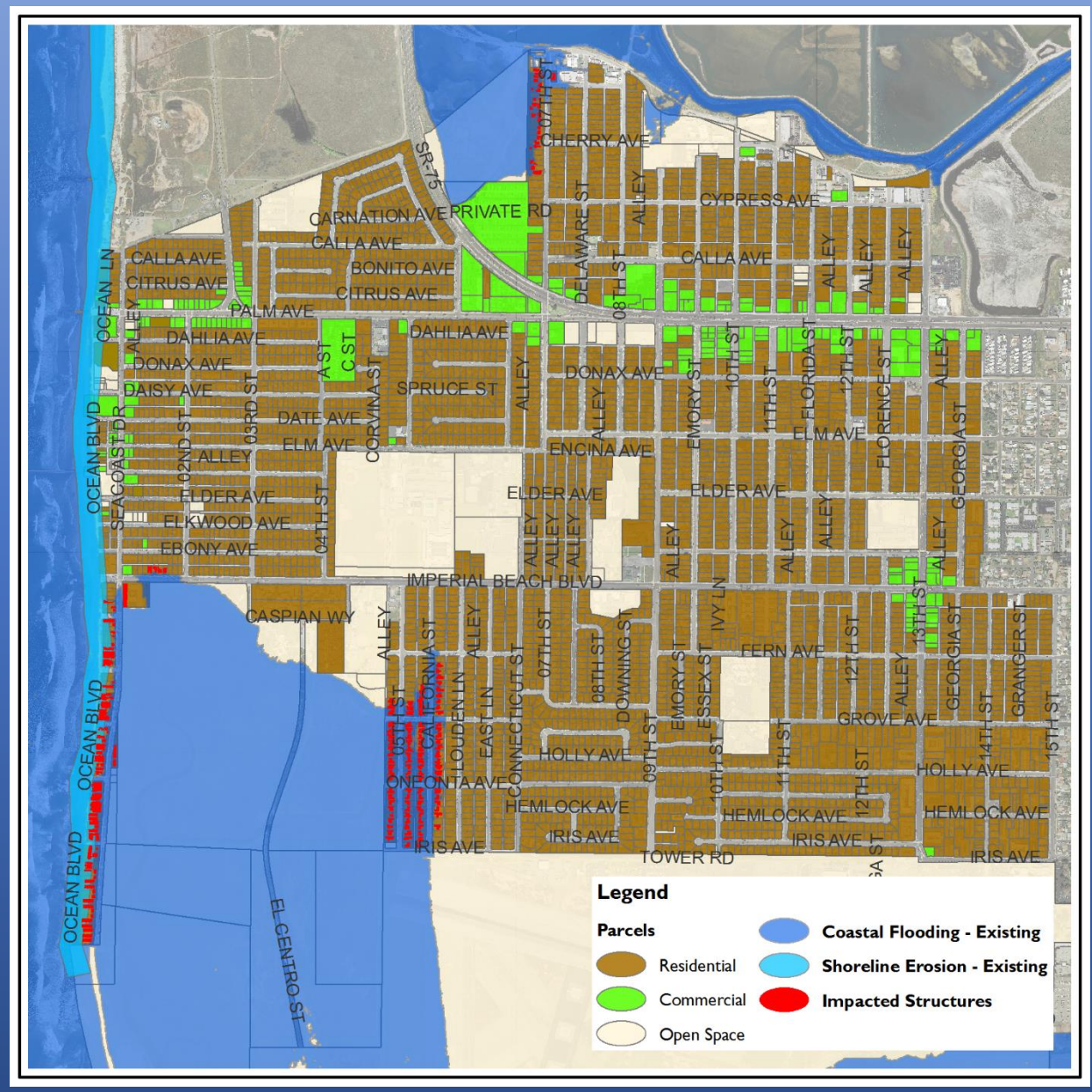
SEA LEVEL RISE IMPACT ANALYSIS

- Land Use
- Roads
- Public Transportation
- Wastewater
- Stormwater
- Schools and Parks
- Hazardous Materials

IMPERIAL BEACH California

LAND USE EXISTING CONDITIONS

- Number of parcels in existing Hazard Zones vs total
  - Total = 5955
  - Nuisance = 77 (74 residential, 3 public (school)
  - Coastal Flooding = 1082
  - Coastal Erosion = 383



IMPERIAL BEACH California

COASTAL EROSION

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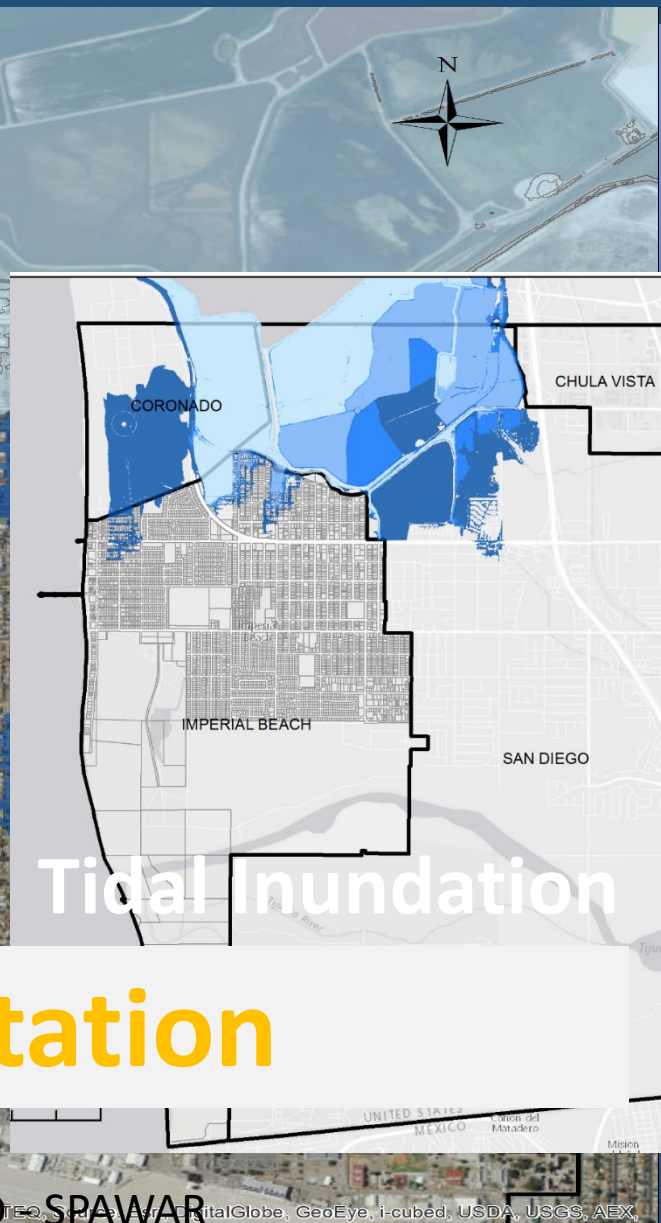


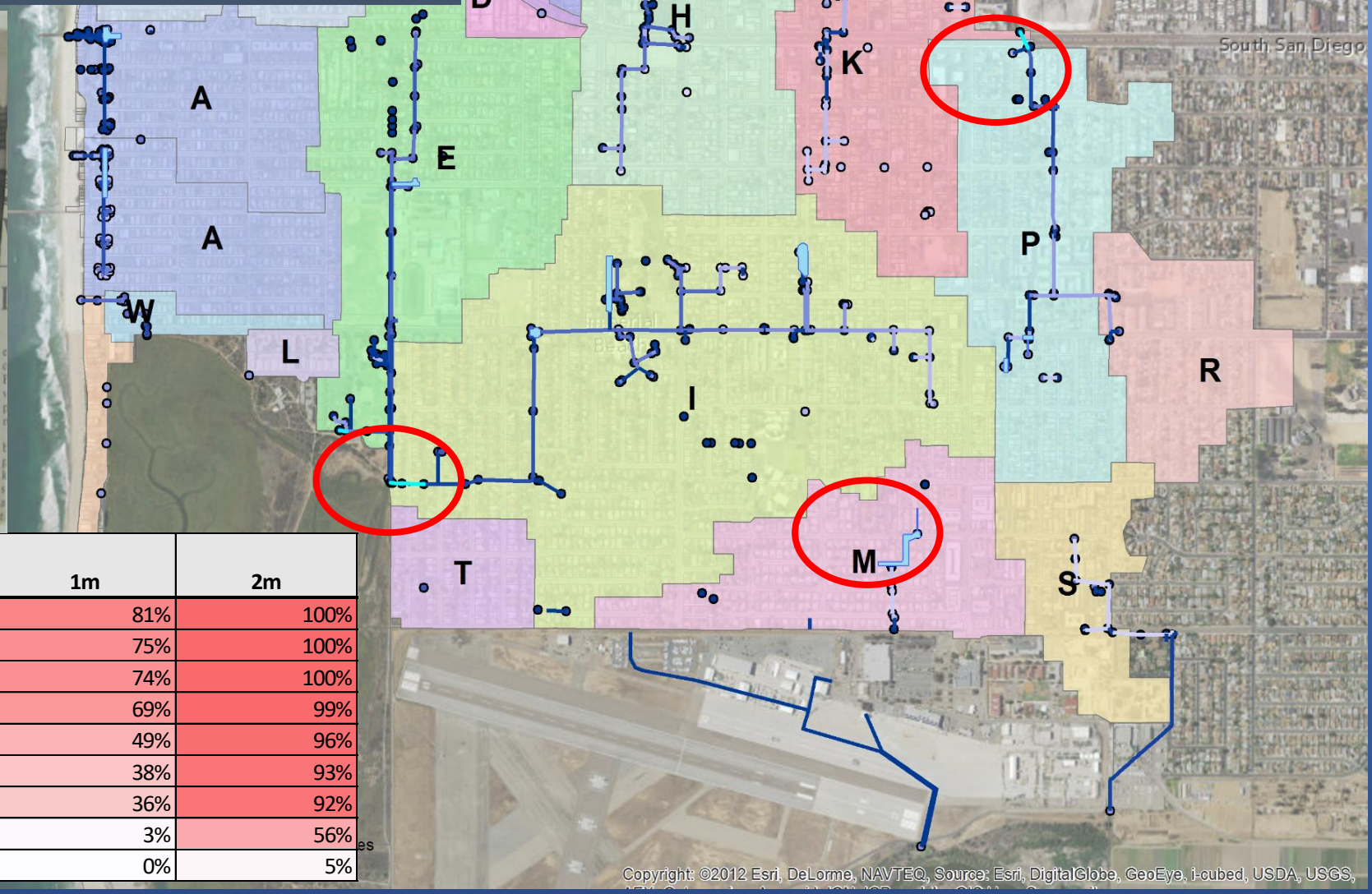
All Modeling assumes no adaptation

Modeling done separately by USGS and DoD - SPAWAR

FUTURE NUISANCE FLOODING

Staff photo by Paul Longworth

South San Diego residents found taking a boat to this 7-11 store off Palm Avenue much easier than driving Tuesday. Almost five inches of rain was dumped on the South Bay causing widespread flooding, electrical problems and traffic congestion.



Drainage Basin	Elevation top of Pipe - (ft NAVD)	Baseline	0.5m	1m	2m
I	4.3	18%	49%	81%	100%
G	4.7	12%	40%	75%	100%
I	4.8	11%	38%	74%	100%
I	5.1	8%	32%	69%	99%
H	6	2%	16%	49%	96%
I	6.5	1%	10%	38%	93%
K	6.6	0%	9%	36%	92%
K - P	9	0%	0%	3%	56%
E	12.1	0%	0%	0%	5%

KEY FINDINGS

- Storm water – substantial decrease in stormwater capacity
- Land Use – parcels and buildings 30%
- Roads – 40% of all roads impacted
- Most vulnerable neighborhoods –
  - South Sea Coast
  - North of Palm Ave/Carnation
  - Neighborhood around Bayside Elementary

ADAPTATION STRATEGIES

1. Fee Simple Acquisition:
2. Conservation Easements:
3. Transfer of Development
4. Rolling Easement
5. Structural or Habitat Adaption
6. Setback Development
7. Controlling Surface Run-off
8. Controlling Groundwater
9. Beach Nourishment
10. Harbor By-Passing
11. Back-Passing
12. Subaerial Placement
13. Artificial Seaweed
14. Geotextile Core
16. Nearshore Placement
17. Offshore Sand Deposits
18. Added Courser Sand than Native
19. Opportunistic Sand
20. Canyon Interception
21. Inter-littoral Cell Transfers
22. Berms/Beach Scraping
23. Perched Beaches
24. Groins
25. Breakwaters
26. Dune Nourishment
27. Delta Enhancement
28. Headland Enhancement
29. Geotextile Groins
30. Branch Box Breakwaters
31. Floating Breakwaters
32. Submerged Breakwaters
33. Dune Restoration
34. Beach Dewatering
35. Seawalls
36. Revetments
37. Gabions
38. Cobble Nourishment
39. Dynamic Revetments
40. Geotextile Revetment
41. Floating Reefs
42. Rubber Dams
43. Sand Fencing

This Tiny California Beach Town Is Suing Big Oil. It Sees This as a Fight for Survival.

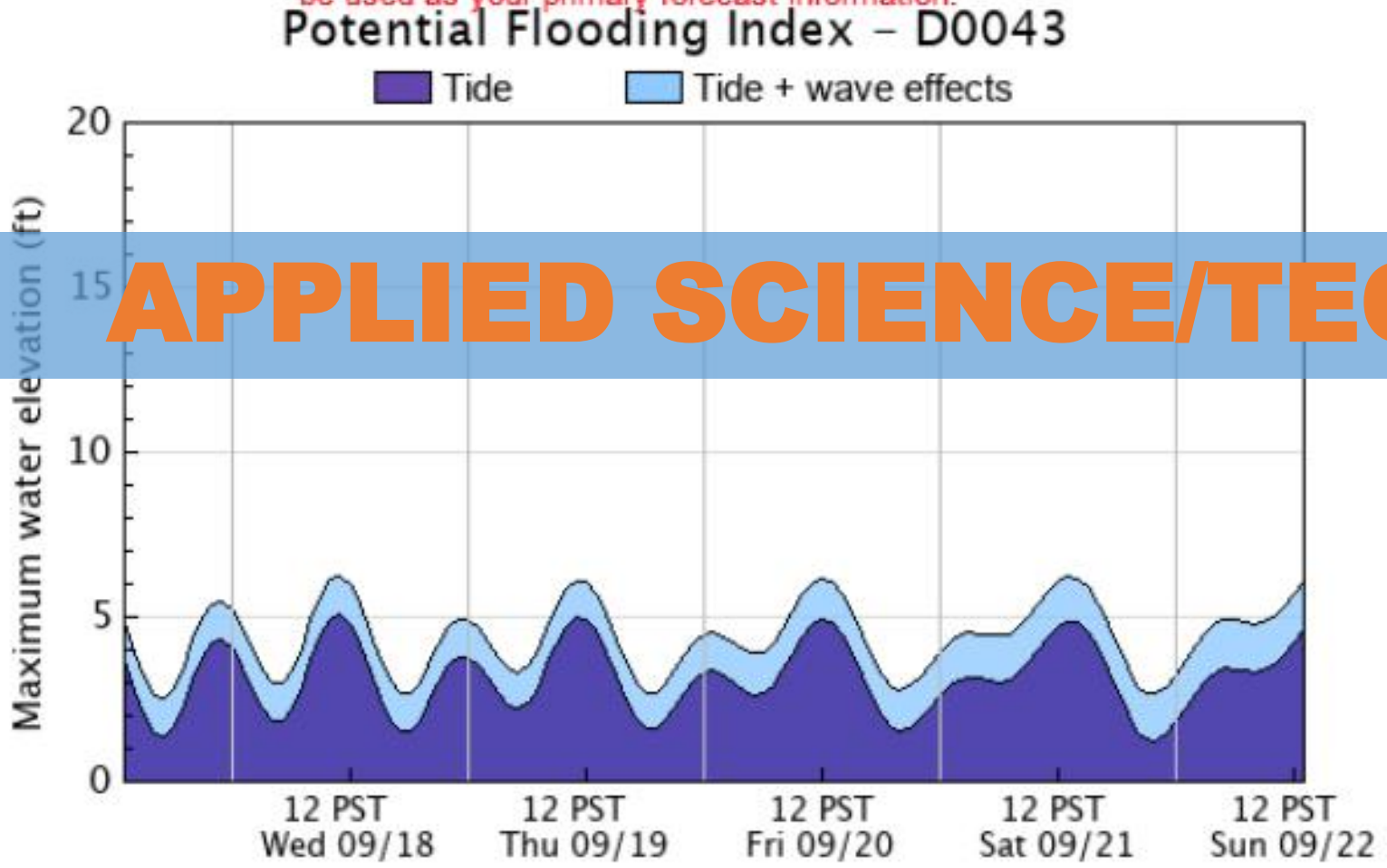
Imperial Beach can't afford seawalls, so it's trying to hold fossil fuel companies accountable for climate change as sea level rises and saltwater creeps in.

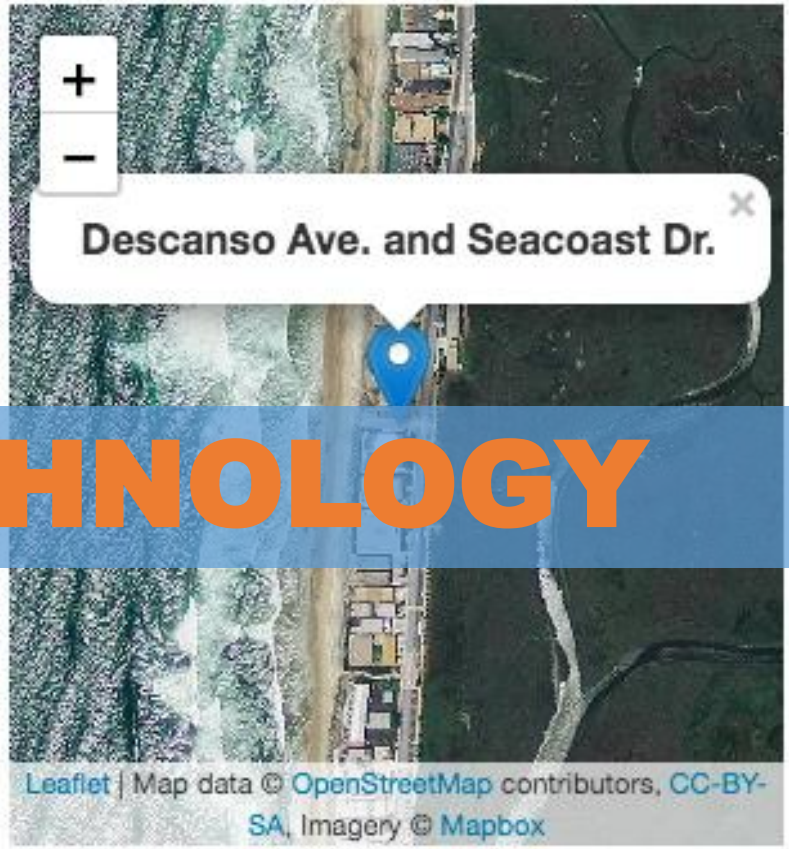
By David Hasemyer

JUN 27, 2018

CDIP/SIO

Water level elevation (relative to MLLW) forecasts use Stockdon (2006), are HIGHLY experimental, and should not be used as your primary forecast information.





APPLIED SCIENCE/TECHNOLOGY

LCP-LOCAL COASTAL PLAN

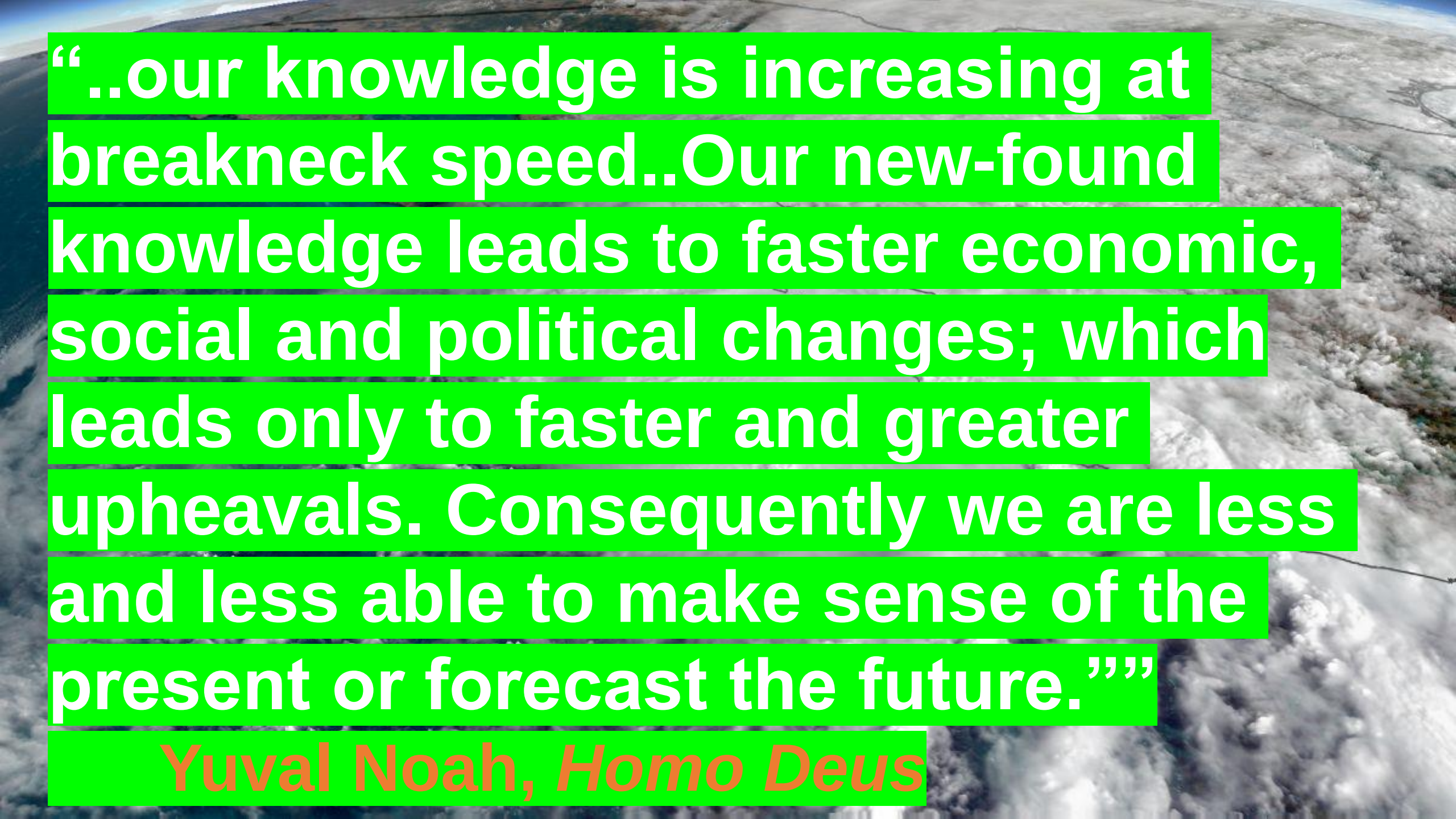
PUBLIC INFRASTRUCTURE

IMPERIAL BEACH California

NATURAL CLIMATE SOLUTIONS

BLUE CARBON

PUBLIC ACCESS


“..our knowledge is increasing at breakneck speed..Our new-found knowledge leads to faster economic, social and political changes; which leads only to faster and greater upheavals. Consequently we are less and less able to make sense of the present or forecast the future.””
Yuval Noah, *Homo Deus*