Coastal Zone Management Act

Then (1972)
Coastal Zone Management Act

Now (2022)
34 CZM Programs
30 Research Reserves

Future
Continued State and Federal Partnerships
Coastal Development – National

- New development = size of New Jersey (7,411 sq miles).
- Growth rate = 13.8%, or 114 houses for every 100 previously.
- Based on 1996 to 2019 data (23 years); contiguous coastal U.S. only.

Then: 53,834 sq miles 7.8%
Now: 61,245 sq miles 8.8%
Future: ?

Then vs. Now:
- Increase of 7,371 sq miles
- 7.8% to 8.8% growth rate
Coastal Development – Jobs

- Based on latest data – 1975, 2020 (45 years).
- Total coastal increase: 23,296,198 jobs.
- 39% of the nation's jobs are in shore-adjacent counties.

Then
30,586,906

Now
53,883,104

Future
?
Coastal Development – Population

- Based on latest data – 1970, 2019 (49 years).
- Population increase – 40,075,042 (roughly the size of Canada).
- Shore-adjacent counties in the contiguous U.S. – 10% of the landmass, but 39% of the population.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>86,334,398</td>
<td>126,409,440</td>
<td>?</td>
</tr>
</tbody>
</table>
Coastal Weather – Billion-Dollar Hurricanes

- 2020 – only second time the Atlantic storm name list was exhausted and the Greek alphabet used to name storms.

<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980 to 1985</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 tropical cyclones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$20 billion total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015 to 2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 tropical cyclones</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$408.4 billion total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Costs adjusted for inflation
Coastal Technology – Land Cover Mapping

- The more precise the data, the more useful for local and site-level decision making.
- Machine learning and artificial intelligence brings down costs and improves speed, accuracy, and scale.

**Then**
- 30-meter Imagery
- Covers Coastal Zone

**Now**
- 1-meter Imagery
- Growing Availability

**Future**
- ?
National Sea Level Rise

- Projections vary by location.
- 10-12 inch rise in last 100 years; same amount of rise projected in next 30 years.
- Results: profound shift in coastal flooding over next 30 years.
- Results: damaging floods projected 10+ times as often.

Then 1920

2020 (Now) 10-12 inches higher

2050 (Future) additional 10-12 inches
High Tide Flooding Averages

- Some regions have 400 - 1,100% increase in frequency.
- Acceleration is seen at 80% of East and Gulf Coast locations.
- By 2050, minor high tide flooding is normal occurrence at most locations.

Then (2000)
2 days

Now (2020)
4 days – twice as frequent as in 2000

Future (2050)
25 to 75 days – up to 19 times as frequent as in 2020
Changing Water Levels – The Great Lakes

- Rising water levels: increased flooding and erosion.
- Decreasing water levels: wider beaches, better public access.
- Both scenarios result in wetland migration.

Preparation Saves Lives, Property, and Infrastructure.