SAB Study Topics:
2020 Response
&
Priority Long-Term Topics

Presented to the NOAA Science Advisory Board
23 July 2020

SAB Study Topics

❑ **BLUF**
- SAB identified liaison for each NOAA S&T Focus Area Team
- SAB developed approach/criteria to select priority long-term topics
- Next steps to down-select from list of topics developed at SAB 4/20 meeting

❑ **Presentation**
- Background from SAB 4/20 meeting
- Liaisons for NOAA S&T Focus Area Teams
- Approach/criteria to down-select potential priority long-term topics
- Next steps

Background – Results from SAB April Meeting

- ❑ **Goals for SAB Work Plan**
  - ▪ Be responsive to NOAA leadership request for urgency in 2020
  - ▪ Maintain focus on priority long-term issues

- ❑ **2020 Response**
  - ▪ Identify SAB liaison for each NOAA S&T Focus Area Implementation Team
  - ▪ Continue ongoing studies of Working Groups (WGs)
  - ▪ Improve effectiveness of WG/SAB/NOAA collaboration

- ❑ **Priority Long-Term Topics**
  - ▪ Identified 14 potential topics
  - ▪ Formed SAB Subcommittee to evaluate and report back at July SAB meeting

2020 Response
SAB Liaisons for NOAA S&T Focus Area Teams

NOAA S&T Focus Area	SAB Liaison
Artificial Intelligence	• Dr. Molly Jahn, Co-Chair DAARWG • Dr. Eugenia Kalnay, SAB

Cloud Computing	• DAARWG
	  • Dr. Chelle Gentemann, Co-Chair
	  • Dr. Molly Jahn, Co-Chair

Data	• DAARWG
	  • Dr. Chelle Gentemann, Co-Chair
	  • Dr. Molly Jahn, Co-Chair

'Omics	• Dr. Michael Castellini, Co-Chair ESMWG
UxS	• OEAB • Mr. Bob Winokur, SAB
Citizen Science	• Dr. Martin Storksdieck, SAB

Potential Priority Long-Term Topics (from SAB Meeting #67 on 4/15/20)

❑ **Sources of Potential Priority Long-Term Topics**

- NOAA Priorities
- Observations at SAB Meeting #67
- SAB Working Group discussions (CWG, DAARWG, EISWG, ESMWG)
- Topics from previous SAB meetings (2019)
- Discussion with NOAA AAs and WG Chairs – how can SAB be of most value

❑ **Identified List of 14 Potential Priority Long-Term Topics**

Potential Priority Long-Term Topics for SAB Study

	Topic
CR	**Coastal Resilience** – obs, predictions, rapid change, mixed use, multi-stressor
PS	S&T **Partnership Strategies** – more effective/leveraging of private sector & fed agencies
CO	**Climate Observations** – identification of additional obs
SW	**Space Weather**
NO	**Noise Observations** in marine sanctuaries
5G	**5G** – mitigate interference w/ weather satellite water vapor sensors
LT	**Long-Term** Focus – advise on most leveraging & next big pivots in S&T to impact NOAA mission
CI	**Continuous Improvement** – risk management, acceptance of failure, lessons learned
EM	**Earth** System **Modeling** – more effective/efficient to improve coupling/reduce redundancies
IE	**Innovation Enhancement** – more structured pathway
ME	Rapidly Changing **Marine Environment** – characterization, obs, & modeling
CS	**Complex Systems** – improving collaboration requiring interdisciplinary approaches
RD	**R&D** – risk management of publishing/peer review & accelerating dissemination of findings
SS	**Social Sciences** – weaving into physical sciences & emerging technologies

SAB Priorities Subcommittee

❑ **Subcommittee Members & Staff**

  ▪ John Kreider

  ▪ Chris Lenhardt

  ▪ Ruth Perry

  ▪ Betsy Weatherhead

  ▪ Bob Winokur

  ▪ Cynthia Decker, Courtney Edwards, Caren Madsen

❑ **Subcommittee Approach**

  ▪ Focus on selection criteria vs ranking topics

  ▪ Developed potential criteria and selection approach

  ▪ Beta tested on 14 potential topics

  ▪ Presented to and accepted by SAB

SAB Criteria to Select Topics for Study

> *Evaluate potential topics on four independent dimensions*

1. **Value** – Does topic add value?	2. **Impact** – Does topic have broad impact?
a. Value to society (economic, social, security, safety, conservation/management of resources) b. Contribution to global health and predictability of earth environment c. Value to country (nation's economic, social, & environmental needs) d. Value to NOAA (impact to NOAA policy/budget) e. R2X (application of science to ops and information services) f. Innovation	a. Strategic b. Impact across multiple Line Offices and/or regional offices c. Multiple Programs d. Management of resources e. Communications
3. **Transformational** – Does topic have potential to be transformational?	4. **Fit to NOAA/SAB** – Is NOAA the best agency/SAB the best group to undertake the topic?
a. Technical b. Strategy c. Organizational d. Management of resources e. Communications	a. Alignment with NOAA mission b. Alignment with NOAA/SAB strengths & capabilities (say "no" to things better done by other agencies/entities) c. Potential partnerships with other sectors (private/academic/international) d. Alignment with NOAA R&D Principles

SAB Approach to Select Study Topics

❑ **Approach for Prioritizing Potential Topics**

  ▪ Score each topic on each dimension (four)

  ▪ Dimensions are independent, so scores should not be combined

  ▪ Ultimate selection is subjective (scores are indicative), and also consider:

    ○ National priority (administration, congressional, interagency)

    ○ Prominence/impact

    ○ NOAA leadership preferences
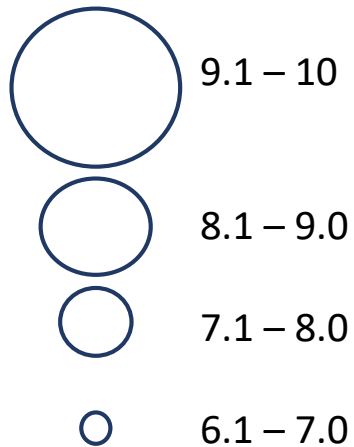
    ○ SAB champion & NOAA liaison

Beta Test Results
SAB Subcommittee Scoring of Potential Topics

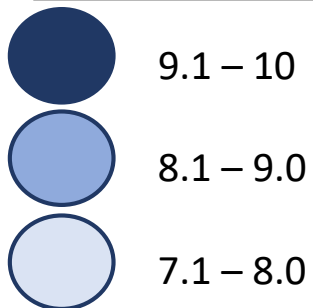|	Topics to score	Value	Impact	Transformational	Fit to NOAA/SAB
CR	Coastal Resilience – obs, predictions, rapid change, mixed use, multi-stressor	10.0	8.8	7.0	9.0
PS	S&T Partnership Strategies – more effective/leveraging of private sector & fed agencies	9.0	9.5	8.3	8.0
CO	Climate Observations – identification of additional obs	7.8	6.5	5.3	9.5
SW	Space Weather	6.5	4.3	6.0	8.3
NO	Noise Observations in marine sanctuaries	7.3	4.5	4.3	8.8
5G	5G – mitigate interference w/ weather satellite water vapor sensors	8.0	3.5	4.7	10.0
LT	Long-Term Focus – advise on most leveraging & next big pivots in S&T to impact NOAA mission	8.3	10.0	9.3	8.3
CI	Continuous Improvement – risk management, acceptance of failure, lessons learned	8.3	9.0	8.0	7.5
EM	Earth System Modeling – more effective/efficient to improve coupling/reduce redundancies	8.5	7.5	7.5	8.3
IE	Innovation Enhancement – more structured pathway	7.5	9.0	9.0	7.8
ME	Rapidly Changing Marine Environment – characterization, obs, & modeling	9.5	7.5	8.0	9.8
CS	Complex Systems – improving collaboration requiring interdisciplinary approaches	8.3	8.8	7.8	8.0
RD	R&D – risk management of publishing/peer review & accelerating dissemination of findings	8.3	8.7	7.7	9.0
SS	Social Sciences – weaving into physical sciences & emerging technologies	8.7	9.3	7.3	8.7

Scores are average of individual scoring by Priorities Subcommittee members (beta test purposes only)
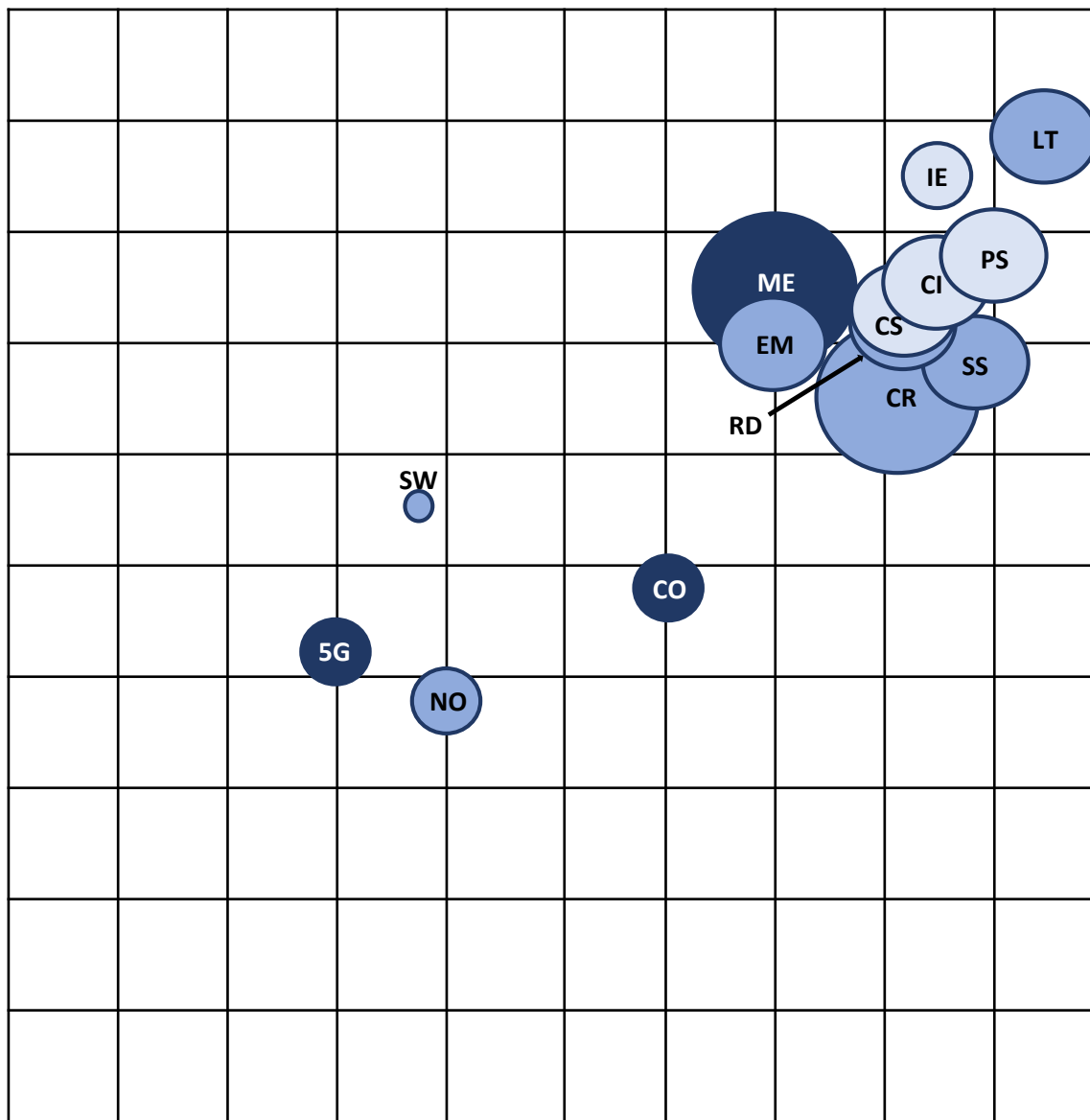
1. Transformational vs Impact (Example Only)

2. Value vs Impact (Example Only)

Fit to NOAA/SAB

- 9.1 – 10
- 8.1 – 9.0
- 7.1 – 8.0

Transformational

Does topic have potential to be transformational?

- 9.1 – 10
- 8.1 – 9.0
- 6.1 – 8.0
- 4.1 – 6.0

Value - Does topic add value?
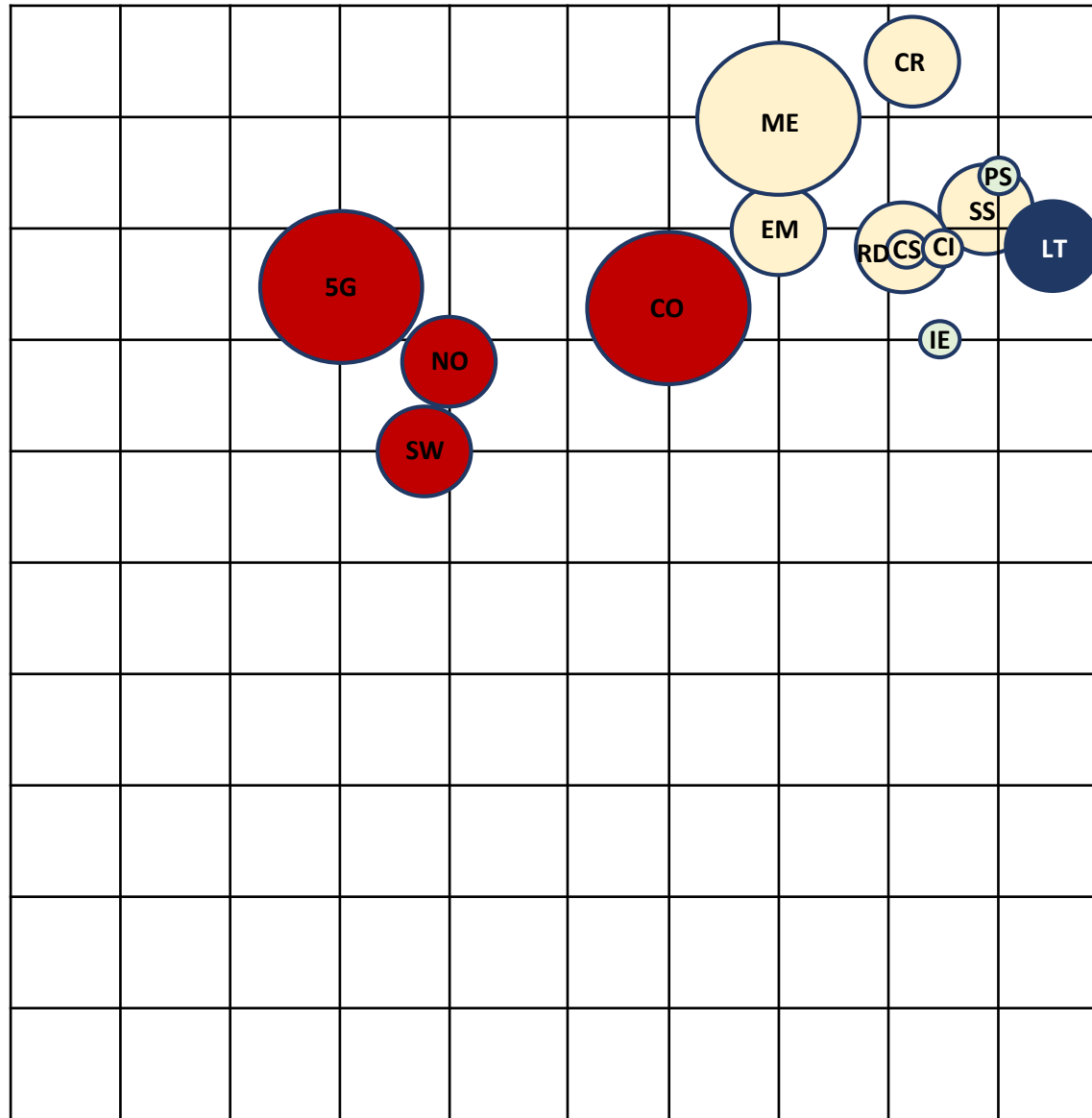
Impact - Does topic have broad impact?

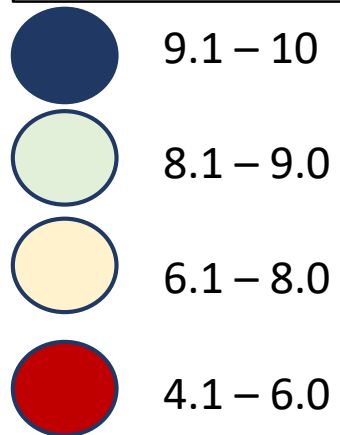|	Topics
CR	Coastal Resilience
PS	S&T Partnership Strategies
CO	Climate Observations
SW	Space Weather
NO	Noise Observations – marine sanctuaries
5G	5G – mitigate interference
LT	Long-Term Focus – big pivots in S&T
CI	Continuous Improvement
EM	Earth System Modeling
IE	Innovation Enhancement
ME	Rapidly Changing Marine Environment
CS	Complex Systems – interdisciplinary
RD	R&D – risk mgt of publish/peer review
SS	Social Sciences

Findings/Recommendations of SAB

	Topic
CR	**Coastal Resilience** – obs, predictions, rapid change, mixed use, multi-stresso
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Findings/Recommendations

1. Found proposed criteria and approach to be useful
   a. Enables meaningful discussions
   b. Provides basis for decisions
   c. Transparent decision process

2. Need discussion of topics to understand objectives and scope (in order to score)

Proposed Next Steps

- ❑ 7/23 – Select individuals to draft ½ page description of each topic (objective & scope)

- ❑ 8/7 – Draft descriptions due

- ❑ 8/10 – Circulate drafts for review to SAB, NOAA Leadership, WG Chairs

- ❑ Week of 8/24 – Hold meeting to discuss and clarify topics (for understanding)

- ❑ 9/11 – SAB members and WG Chairs score topics and submit individual results

- ❑ 9/18 – Distribute results of scoring

- ❑ Week of 9/21 or 9/28 – SAB meeting to decide on final selection of ~ 3 – 4 topics
    - Review scoring results
    - Discuss subjective aspects
    - Decide final selection of topics for study
    - Assign team to develop SOW and study approach for each topic
    - Present at SAB October meeting