

Science Mission Requirements

Survey Report

Demographics of Survey Participants

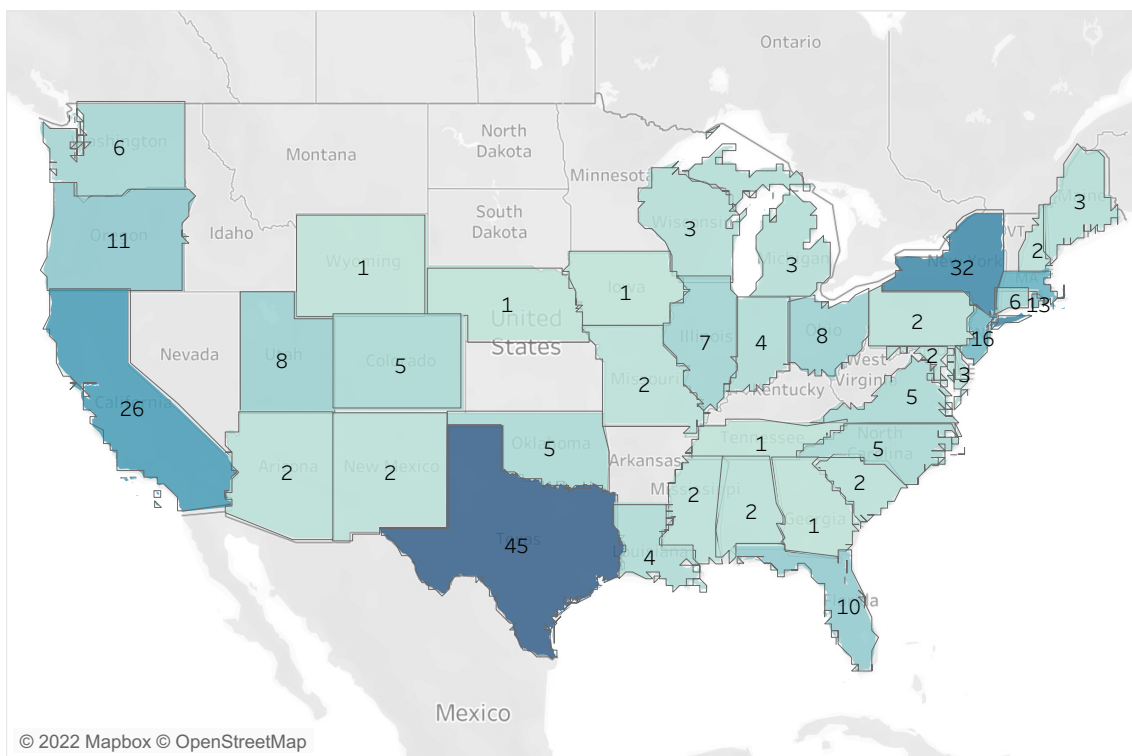
Total Number of Participants: 278

Note: Not all participants answered every question, so the totals for some of the questions may not match the total number of participants.

Unique Institutions: 104

States Represented: 39 and Washington DC

Location of Participants' Institutions:

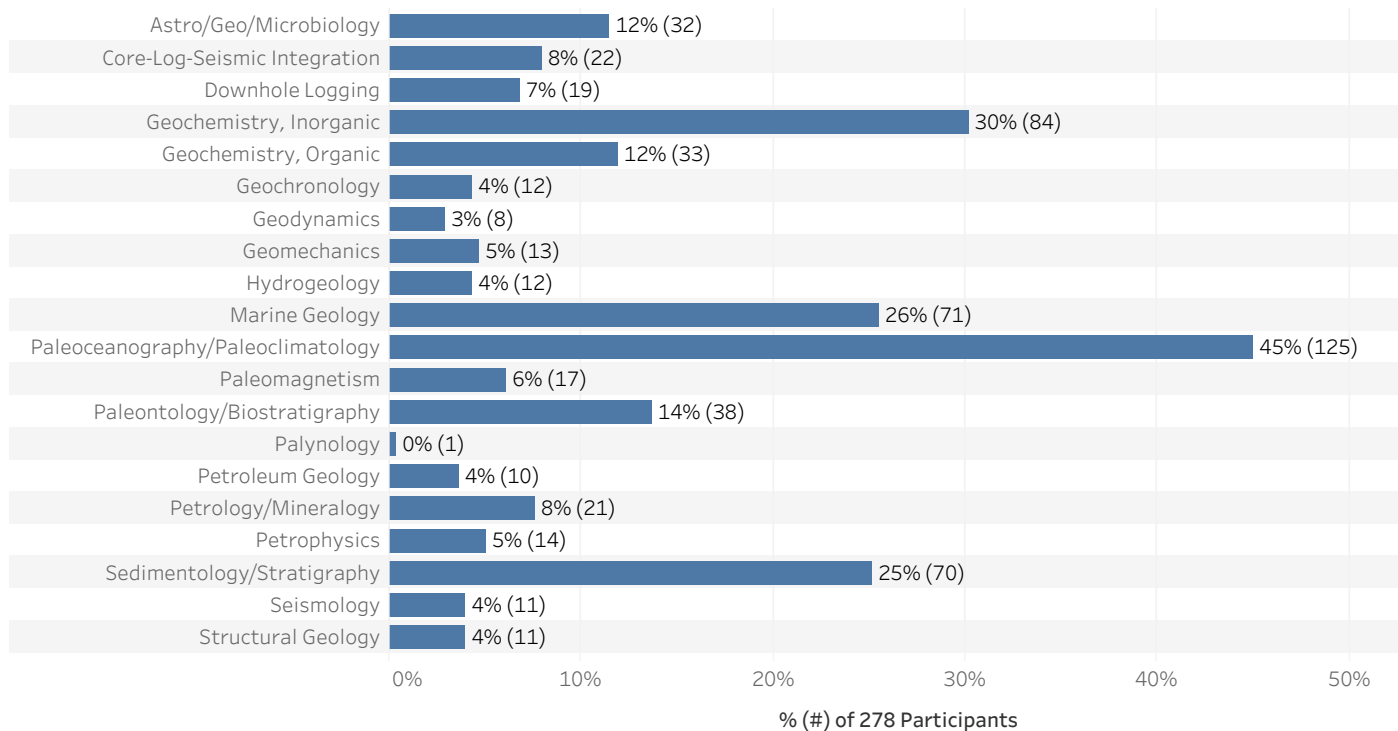


Alabama	2
Alaska	5
Arizona	2
California	26
Colorado	5
Connecticut	6
DC	1
Delaware	3
Florida	10
Georgia	1
Hawaii	2
Illinois	7
Indiana	4
Iowa	1
Louisiana	4
Maine	3
Maryland	2
Massachusetts	19
Michigan	3
Mississippi	2
Missouri	2
Nebraska	1
New Hampshire	2
New Jersey	16
New Mexico	2
New York	32
North Carolina	5
Ohio	8
Oklahoma	5
Oregon	11
Pennsylvania	2
Rhode Island	13
South Carolina	2
Tennessee	1
Texas	45
Utah	8
Virginia	5
Washington	6
Wisconsin	3
Wyoming	1



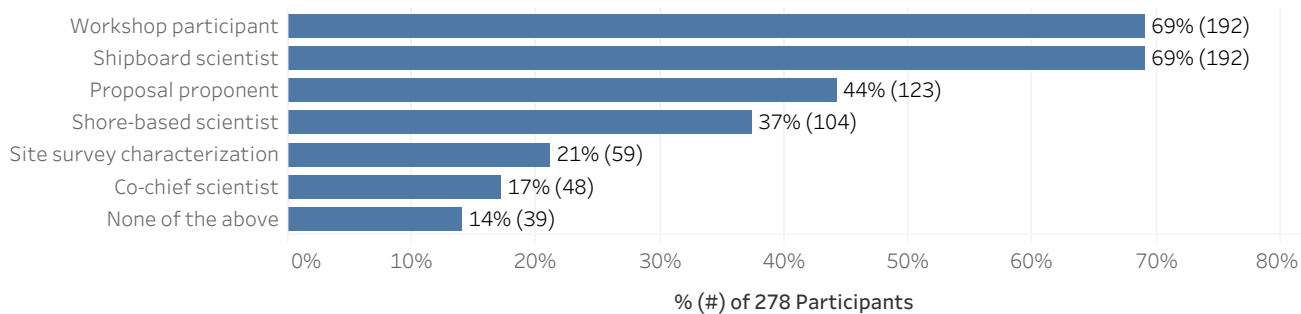
Areas of Expertise

Note: Participants could select up to three areas of expertise.

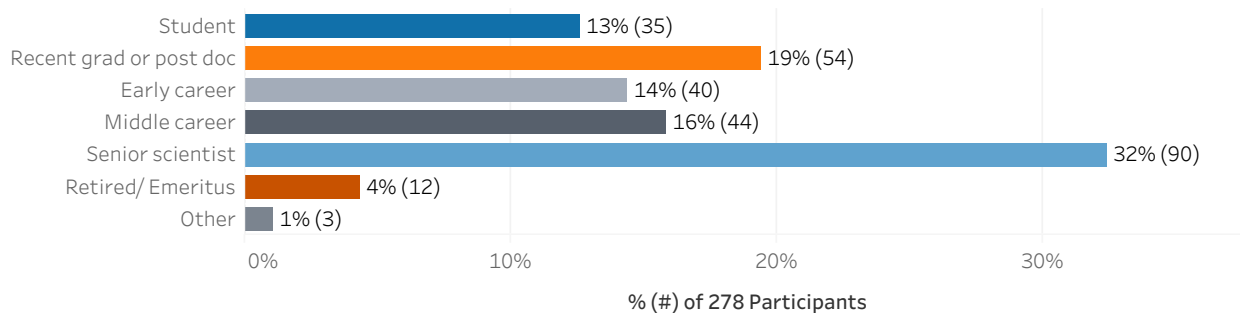


Prior Involvement

Note: Participants could select multiple ways they had previously been involved.

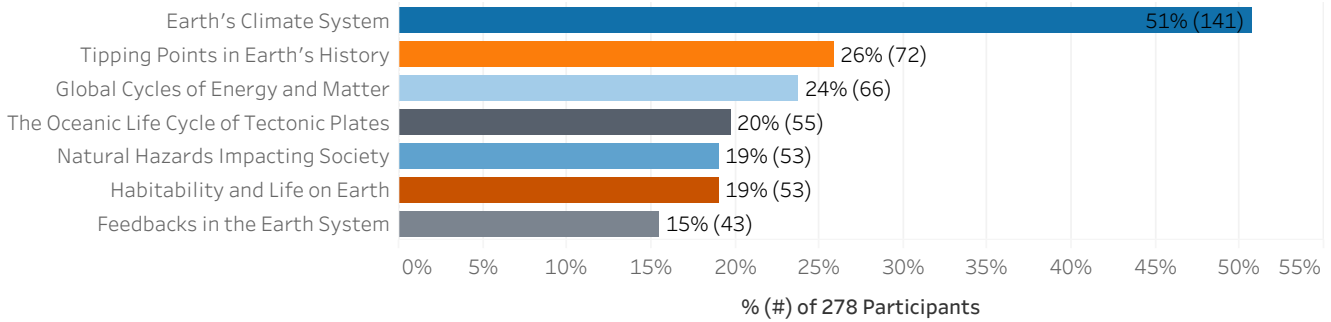


Career Stage



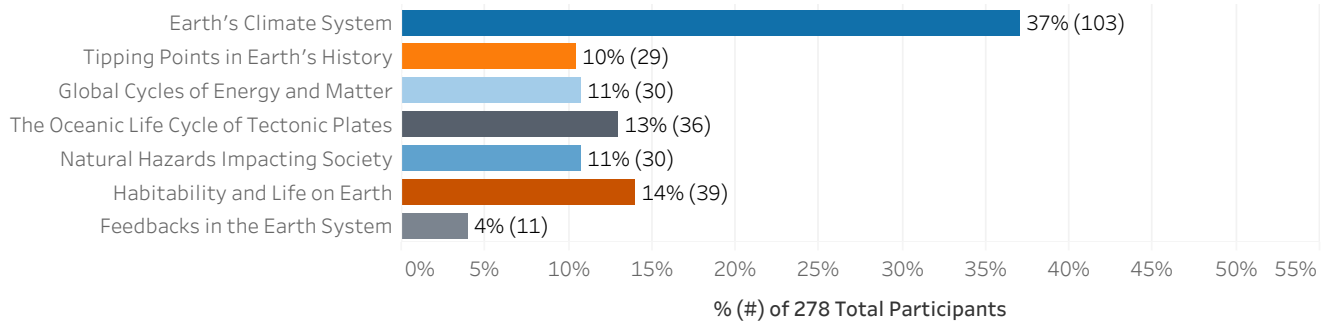
Combined Strategic Objectives

Participants were asked which two Strategic Objectives they were most excited to provide feedback on, with a separate set of questions for each Strategic Objective. The graph below shows how many times a Strategic Objective was selected in either the first or the second question as a proportion of the total number of participants.



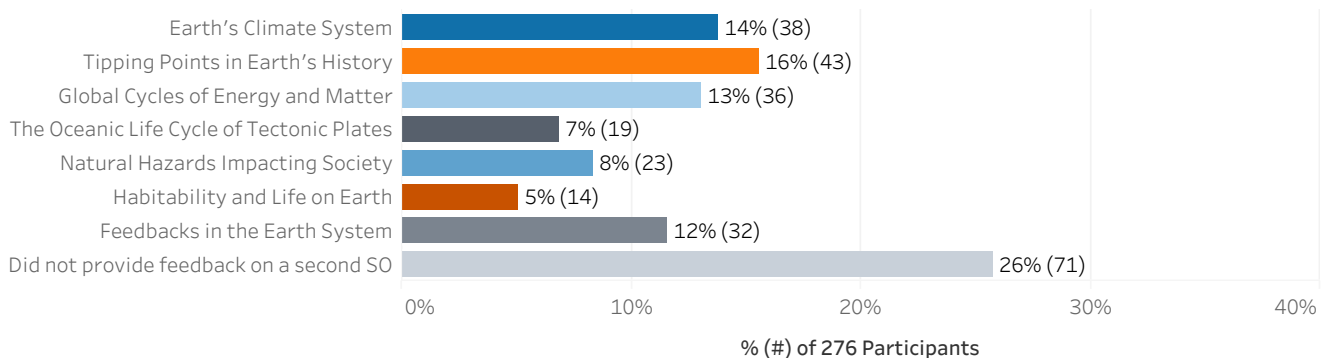
Individual Strategic Objectives

Which Strategic Objective are you most excited to provide feedback about first?



Which Strategic Objective are you most excited to provide feedback about next?

Note: Two participants left this question blank.



Interest in Strategic Objectives by Career Stage

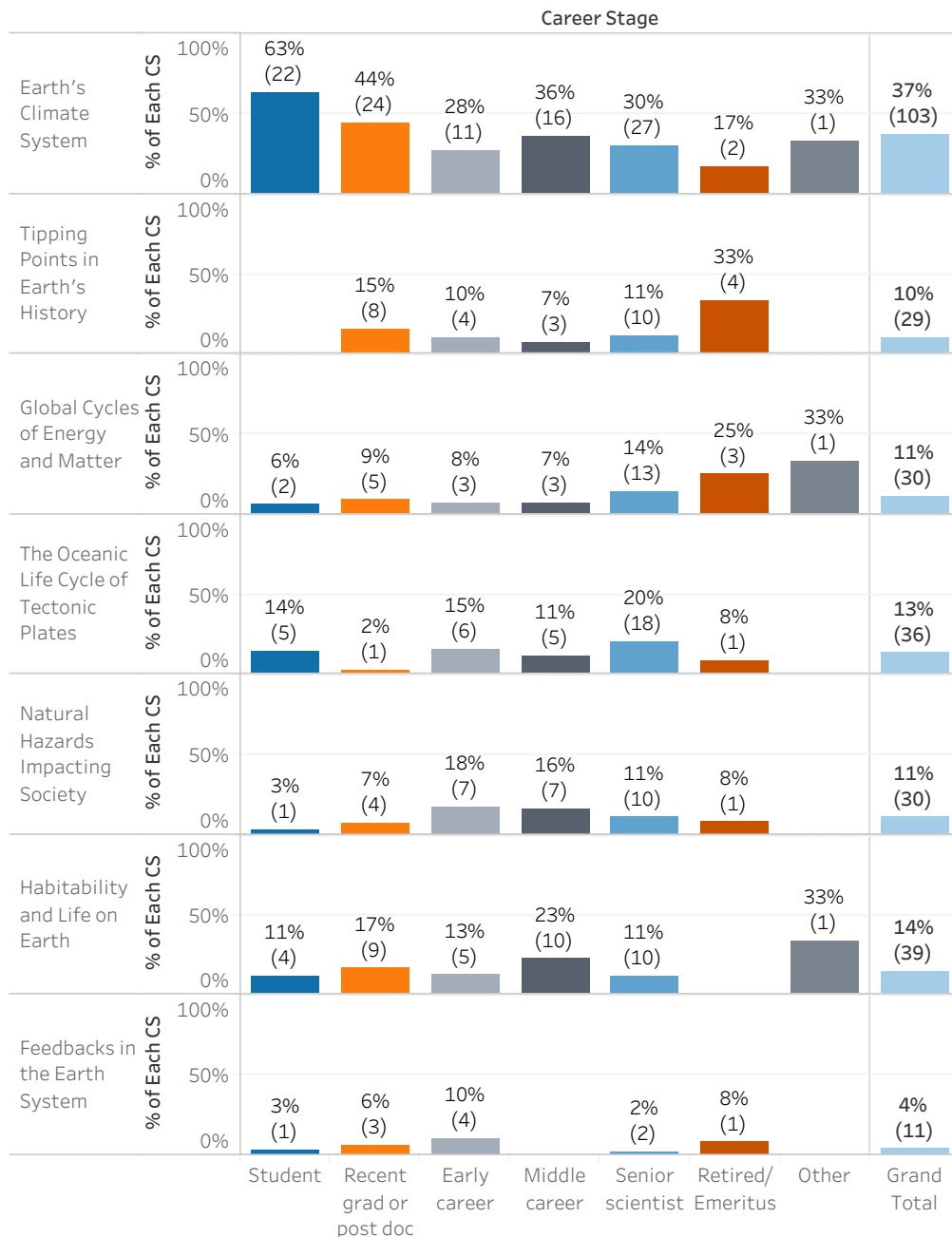
Relative priority of each Strategic Objective for each career stage.

Percentages are the proportion of the participants in a given career stage who chose each Flagship Initiative.

Grand totals are the total number of participants who selected the Flagship Initiatives out of the total number of participants.

Note: This graph reflects participants' first choice of Strategic Objective. Because not everyone chose to rate a second Strategic Objective, displaying both choices of Strategic Objective by career stage would overrepresent the career stages for participants who rated a second Strategic Objective.

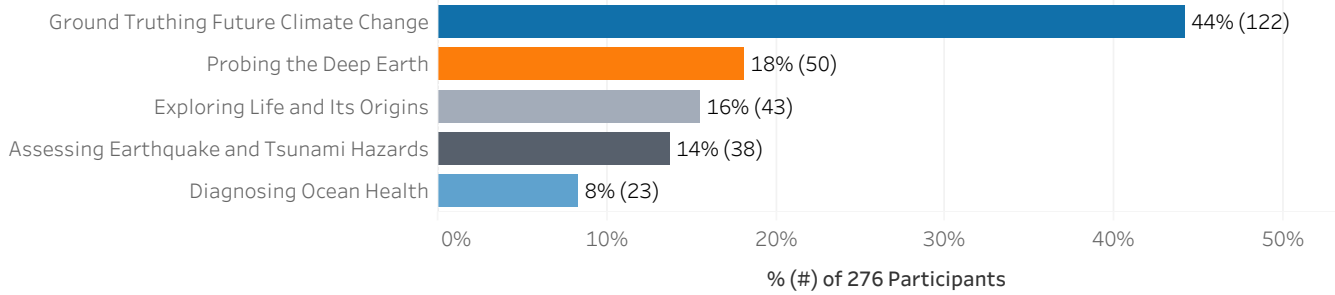
Which Strategic Objective are you most excited to provide feedback about first?



Flagship Initiatives and Enabling Elements

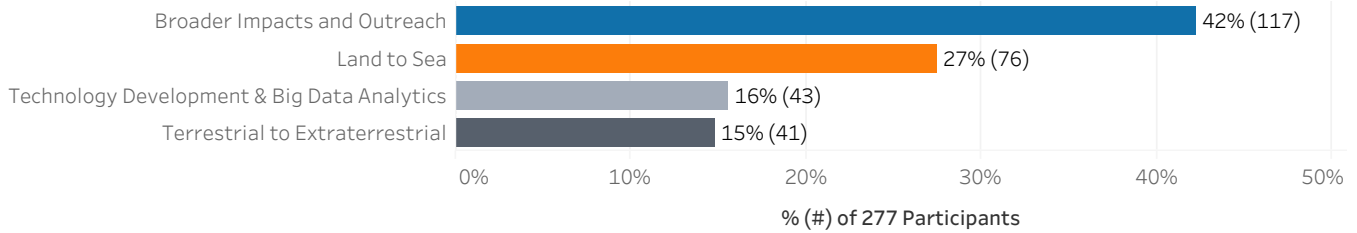
Which Flagship Initiative are you most excited to provide feedback about?

Note: Two participants left this question blank.



Which Enabling Element are you most excited to provide feedback about?

Note: One participant left this question blank.



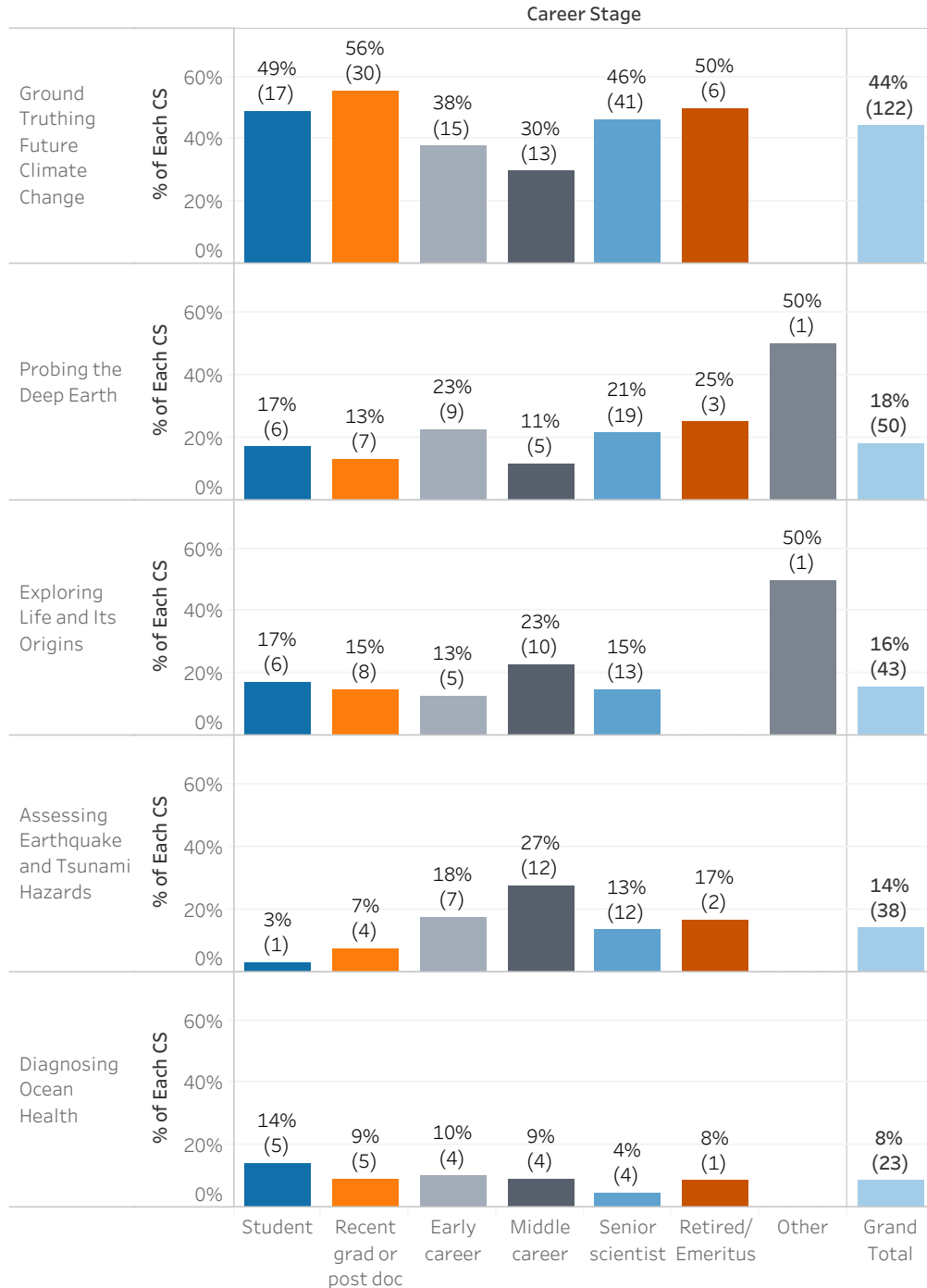
Interest in Flagship Initiative by Career Stage

Relative priority of each Flagship Initiative for each career stage.

Percentages are the proportion of the participants in a given career stage who chose each Flagship Initiative.

Grand totals are the total number of participants who selected the Flagship Initiatives out of the total number of participants.

Which Flagship Initiative are you most excited to provide feedback about?



Interest in Enabling Element by Career Stage

Relative priority of each Enabling Element for each career stage.

Percentages are the proportion of the participants in a given career stage who chose each Enabling Element.

Grand totals are the total number of participants who selected the Enabling Element out of the total number of participants.

Which Enabling Element are you most excited to provide feedback about?



What are the most important operational capabilities needed for the ship to accomplish the Strategic Objective you selected? Select up to 5.

Answers the Questions:

What are the most important operational capabilities for each Strategic Objective? (Columns)

How important is each operational capability overall, across Strategic Objectives? (Grand totals)



	Earth's Climate System	Feedbacks in the Earth System	Cycles of Energy and Matter	Habitability and Life on Earth	Hazards Impacting Society	Life Cycle of Tectonic Plates	Points in Earth's History	Grand Total
24/7 shorebased communications, technical, and operational support	24%	23%	17%	21%	32%	25%	26%	24%
Borehole re-entry, observatories, and sensors	14%	23%	45%	51%	51%	42%	13%	30%
Drilling capabilities from >70 m water depth	64%	72%	35%	40%	49%	40%	78%	56%
Drilling in extreme P/T/chemistry environments	20%	35%	58%	62%	34%	45%	17%	35%
Hard rock spud in and drilling	1%	7%	29%	17%	13%	65%	4%	16%
Ice strengthened hull	48%	40%	11%	13%	9%	9%	60%	31%
Larger drill string diameter	18%	16%	17%	8%	13%	15%	19%	16%
Logging While Drilling (LWD) capability	18%	9%	33%	8%	43%	20%	14%	20%
Modern drilling, mud, casing, and cementing systems	29%	35%	38%	26%	42%	51%	29%	34%
Modern laboratory and curation data systems	77%	67%	42%	64%	36%	47%	68%	61%
Observatories installation, re-entry, sensors, and cabled	8%	12%	30%	26%	38%	20%	3%	17%
Operate in US waters	9%	9%	9%	8%	8%	2%	8%	8%
Real-time adaptable drilling and coring capabilities	38%	40%	15%	15%	26%	29%	35%	30%
Space for adequate sample preservation	26%	19%	24%	45%	2%	7%	39%	24%
Space for special equipment, multiple containers, and ROV	9%	14%	33%	28%	26%	16%	14%	18%
Water column and (near)-seafloor measurements, imaging, and vis.	27%	19%	32%	17%	21%	11%	14%	21%

Percentages are the number of participants who selected the specific operational capability out of the total number of participants who selected the specific Strategic Objective in either question, e.g., 24% (34) of the 141* participants who selected *Earth's Climate System* as one of their Strategic Objectives chose *24/7 shorebased communications* as one of their operational capabilities.

Grand totals are calculated differently than for the Flagship Initiatives and Enabling Elements, because each participant could rate up to two Strategic Objectives. The denominator is the number of participants who rated the first Strategic Objective plus the number of participants who rated a second Strategic Objective. Put differently, it is the total number of "voting opportunities" for capabilities. The grand totals are the number of "votes" that each technical capability received across the "voting opportunities," regardless of Strategic Objective, e.g., *24/7 shorebased communications* received "votes" in 24% (116) of the 483* "voting opportunities."

*Note: Some participants selected Strategic Objectives but did not select any operational capabilities. Totals are out of the number of participants who answered the operational capabilities question.

What are the most important technical capabilities needed for the ship to accomplish the Strategic Objective you selected? Select up to 5.

Answers the Questions:

What are the most important technical capabilities for each Strategic Objective? (Columns)

How important is each technical capability overall, across Strategic Objectives? (Grand totals)

% Participants Who Selected



	Earth's Climate System	Feedbacks in the Earth System	Global Cycles of Energy and Matter	Habitability and Life on Earth	Natural Hazards Impacting Society	The Oceanic Life Cycle of Tectonic Plates	Tipping Points in Earth's History	Grand Total
Advance pressure core systems and labs	15%	19%	36%	36%	19%	11%	14%	20%
Borehole re-entry, observatories, and sensors	11%	14%	38%	42%	40%	31%	17%	24%
Core and log orientation	32%	33%	18%	8%	28%	40%	35%	28%
Core recovery: high quality, continuous, with minimal contamination	86%	91%	74%	74%	64%	69%	94%	80%
Deep drilling (water and mbsf)	60%	72%	50%	53%	57%	75%	63%	61%
Deep piston coring	57%	49%	21%	23%	32%	15%	65%	41%
Downhole logging and in situ measurements	30%	23%	48%	21%	68%	44%	32%	37%
Drilling and sampling in extreme P/T/chemistry environments	12%	35%	48%	57%	19%	42%	18%	29%
Hard rock spud in and drilling	1%	7%	17%	13%	6%	44%	6%	11%
Link with deep-sea cabled observatories	4%	5%	14%	11%	28%	7%	4%	9%
Nonmagnetic drill collars and core barrels	13%	16%	3%	9%	8%	25%	25%	14%
Seismic source	5%	2%	9%	4%	13%	20%	6%	8%
Space for adequate sample preservation	26%	21%	15%	28%	8%	7%	27%	20%
Space for special equipment, multiple containers, and ROV	10%	7%	26%	23%	19%	5%	4%	13%
Underway geophysics	10%	7%	5%	4%	26%	24%	7%	11%
Water column and (near-)seafloor measurements, imaging, and vis.	23%	21%	30%	19%	15%	7%	8%	18%

Percentages are the number of participants who selected the specific technical capability out of the total number of participants who selected the specific Strategic Objective in either question, e.g., *15% (21) of the 141* participants who selected Earth's Climate System as one of their Strategic Objectives chose Advance pressure core systems and labs as one of their operational capabilities.*

Grand totals are calculated differently than for the Flagship Initiatives and Enabling Elements, because each participant could rate up to two Strategic Initiatives. The denominator is the number of participants who rated the first Strategic Objective plus the number of participants who rated a second Strategic Objective. Put differently, it is the total number of "votes" for capabilities. The grand totals are the number of "votes" that each technical capability received across the "voting opportunities," regardless of Strategic Objective, e.g., *Advance pressure core systems and labs received "votes" in 20% (98) of the 482* "voting opportunities."*

*Note: Some participants selected Strategic Objectives but did not select any technical capabilities. Totals are out of the number of participants who answered the technical capabilities question.

What mission-critical or time-sensitive properties do we need to determine on the ship during operations to accomplish the Strategic Objective you selected? Select up to 5.

Answers the Questions:

What are the most important properties for each Strategic Objective? (Columns)

How important is each properties overall, across Strategic Objectives? (Grand totals)

% Participants Who Selected



	Earth's Climate System	Feedbacks in the Earth System	Global Cycles of Energy and Matter	Habitability and Life on Earth	Natural Hazards Impacting Society	The Oceanic Life Cycle of Tectonic Plates	Tipping Points in Earth's History	Grand Total
3D and split core imaging (e.g., CT, photo, reflectance, hyperspectral, X-Ray)	62%	63%	44%	38%	62%	54%	66%	56%
Appropriate preservation of sensitive materials	47%	47%	59%	68%	40%	22%	44%	47%
Biostratigraphy	75%	63%	18%	32%	15%	20%	76%	49%
Core and in situ petrophysical properties	27%	37%	47%	15%	79%	61%	27%	39%
Core contamination	28%	19%	44%	60%	19%	19%	31%	31%
Fluid, sediment, and rock organic and inorganic geochemistry	49%	60%	73%	72%	35%	43%	41%	52%
Geomechanical properties	7%	16%	15%	8%	50%	15%	6%	14%
High resolution images of microscopic materials	25%	16%	12%	19%	21%	30%	24%	22%
Hydrocarbon quantification	9%	9%	24%	9%	10%	0%	10%	10%
Lithology	46%	47%	24%	15%	48%	56%	49%	41%
Magnetostratigraphy/paleomagnetism	43%	28%	6%	15%	12%	48%	63%	33%
Microbial abundance and activity	11%	19%	42%	68%	13%	6%	4%	21%
Mineralogy	10%	21%	27%	11%	17%	46%	10%	18%
Thermal properties	3%	5%	11%	11%	15%	20%	3%	8%

Percentages are the number of participants who selected the specific property out of the total number of participants who selected the specific Strategic Objective in either question, e.g., 62% (85) of the 138* participants who selected Earth's Climate System as one of their Strategic Objectives chose 3D and split core imaging as one of their properties.

Grand totals are calculated differently than for the Flagship Initiatives and Enabling Elements, because each participant could rate up to two Strategic Initiatives. The denominator is the number of participants who rated the first Strategic Objective plus the number of participants who rated a second Strategic Objective. Put differently, it is the total number of "votes" for properties. The grand totals are the number of "votes" that each technical capability received across the "voting opportunities," regardless of Strategic Objective, e.g., 3D and split core imaging received "votes" in 56% (268) of the 476* "voting opportunities."

*Note: Some participants selected Strategic Objectives but did not select any properties. Totals are out of the number of participants who answered the properties question.

What are the most important operational capabilities needed for the ship to accomplish the Flagship Initiative you selected? Select up to 5.

Answers the Questions:

What are the most important operational capabilities for each Flagship Initiative? (Columns)

How important is each operational capability overall, across Flagship Initiatives? (Grand totals)



	Assessing Earthquake and Tsunami Hazards	Diagnosing Ocean Health	Exploring Life and Its Origins	Ground Truthing Future Climate Change	Probing the Deep Earth	Grand Total
24/7 shorebased communications, technical, and operational support	32%	22%	19%	27%	29%	26%
Borehole re-entry, observatories, and sensors	68%	17%	48%	13%	53%	33%
Drilling capabilities from >70 m water depth	35%	48%	24%	61%	43%	48%
Drilling in extreme P/T/chemistry environments	32%	26%	74%	14%	55%	34%
Hard rock spud in and drilling	11%	9%	12%	0%	67%	16%
Ice strengthened hull	3%	39%	19%	59%	4%	34%
Larger drill string diameter	16%	17%	7%	22%	14%	17%
Logging While Drilling (LWD) capability	49%	9%	2%	17%	20%	19%
Modern drilling, mud, casing, and cementing systems	57%	35%	26%	36%	45%	39%
Modern laboratory and curation data systems	27%	74%	57%	76%	45%	61%
Observatories installation, re-entry, sensors, and cabled	54%	13%	26%	3%	8%	15%
Operate in US waters	11%	22%	5%	5%	0%	6%
Real-time adaptable drilling and coring capabilities	30%	26%	21%	35%	22%	29%
Space for adequate sample preservation	5%	39%	50%	25%	12%	25%
Space for special equipment, multiple containers, and ROV	22%	26%	40%	9%	18%	19%
Water column and (near-)seafloor measurements, imaging, and visualization	19%	48%	29%	24%	14%	24%

Percentages are the number of participants who selected the specific operational capability out of the total number of participants who selected the specific Flagship Initiative, e.g., 32% (12) of the 37* participants who selected Assessing Earthquake and Tsunami Hazards chose 24/7 shorebased communications as one of their operational capabilities.

Grand totals are the number of participants who selected each capability (regardless of Flagship Initiative) out of the total number of participants who answered the question, e.g., 26% (72) of 273* total participants chose 24/7 shorebased communications as one of their operational capabilities.

*Note: Some participants selected a Flagship Initiative but did not select any operational capabilities. Totals are out of the number of participants who answered the operational capabilities question.

What are the most important technical capabilities needed for the ship to accomplish the Flagship Initiative you selected? Select up to 5.

Answers the Questions:

What are the most important technical capabilities for each Flagship Initiative? (Columns)

How important is each technical capability overall, across Flagship Initiatives? (Grand totals)



	Assessing Earthquake and Tsunami Hazards	Diagnosing Ocean Health	Exploring Life and Its Origins	Ground Truthing Future Climate Change	Probing the Deep Earth	Grand Total
Advance pressure core systems and labs	24%	17%	48%	15%	24%	23%
Borehole re-entry, observatories, and sensors	62%	17%	50%	17%	39%	32%
Core and log orientation	27%	22%	5%	31%	39%	27%
Core recovery: high quality, continuous, with minimal contamination	62%	78%	81%	86%	69%	78%
Deep drilling (water and mbsf)	54%	35%	40%	60%	78%	57%
Deep piston coring	22%	35%	24%	63%	16%	41%
Downhole logging and in situ measurements	70%	26%	17%	26%	31%	31%
Drilling and sampling in extreme P/T/chemistry environments	19%	22%	67%	15%	37%	28%
Hard rock spud in and drilling	5%	13%	10%	1%	47%	12%
Link with deep-sea cabled observatories	35%	35%	12%	6%	8%	14%
Nonmagnetic drill collars and core barrels	0%	9%	2%	19%	16%	13%
Seismic source	24%	0%	2%	2%	6%	6%
Space for adequate sample preservation	8%	39%	40%	31%	6%	25%
Space for special equipment, multiple containers, and ROV	19%	22%	26%	13%	6%	15%
Underway geophysics	27%	4%	7%	12%	6%	11%
Water column and (near-)seafloor measurements, imaging, and visualization	11%	70%	12%	20%	10%	20%

Percentages are the number of participants who selected the specific technical capability out of the total number of participants who selected the specific Flagship Initiative, e.g., 24% (9) of the 37* participants who selected *Assessing Earthquake and Tsunami Hazards* chose *Advance pressure core systems and labs* as one of their technical capabilities.

Grand totals are the number of participants who selected each capability (regardless of Flagship Initiative) out of the total number of participants who answered the question, e.g., 23% (63) of 271* total participants chose *Advance pressure core systems and labs* as one of their technical capabilities.

*Note: Some participants selected a Flagship Initiative but did not select any technical capabilities. Totals are out of the number of participants who answered the technical capabilities question.

What mission-critical or time-sensitive properties do we need to determine on the ship during operations to accomplish the Flagship Initiative you selected? Select up to 5.

Answers the Questions:

What are the most important properties for each Flagship Initiative? (Columns)

How important is each property overall, across Flagship Initiatives? (Grand totals)



	Assessing Earthquake and Tsunami Hazards	Diagnosing Ocean Health	Exploring Life and Its Origins	Ground Truthing Future Climate Change	Probing the Deep Earth	Grand Total
3D and split core imaging (e.g., CT, photo, reflectance, hyperspectral, X-Ray)	54%	45%	33%	69%	57%	57%
Appropriate preservation of sensitive materials	32%	64%	76%	40%	27%	44%
Biostratigraphy	19%	73%	24%	72%	10%	46%
Core and in situ petrophysical properties	84%	32%	12%	34%	47%	40%
Core contamination	22%	23%	79%	29%	20%	34%
Fluid, sediment, and rock organic and inorganic geochemistry	38%	64%	79%	50%	51%	54%
Geomechanical properties	59%	5%	2%	8%	14%	15%
High resolution images of microscopic materials	8%	23%	19%	24%	29%	22%
Hydrocarbon quantification	8%	18%	21%	8%	4%	10%
Lithology	30%	27%	14%	44%	57%	38%
Magnetostratigraphy/paleomagnetism	8%	5%	5%	41%	37%	27%
Microbial abundance and activity	3%	59%	81%	6%	12%	23%
Mineralogy	22%	9%	7%	8%	51%	18%
Thermal properties	24%	18%	12%	3%	16%	11%

Percentages are the number of participants who selected the specific property out of the total number of participants who selected the specific Flagship Initiative, e.g., 54% (20) of the 37* participants who selected Assessing Earthquake and Tsunami Hazards chose 3D and split core imaging as one of their properties.

Grand totals are the number of participants who selected each property (regardless of Flagship Initiative) out of the total number of participants who answered the question, e.g., 57% (154) of 268* total participants chose 3D and split core imaging as one of their properties.

*Note: Some participants selected a Flagship Initiative but did not select any properties. Totals are out of the number of participants who answered the properties question.

What are the most important operational capabilities needed for the ship to accomplish the Enabling Element you selected?

Answers the Questions:

What are the most important operational capabilities for each Enabling Element? (Columns)

How important is each operational capability overall, across Enabling Elements? (Grand totals)



	Broader Impacts and Outreach	Land to Sea	Technology Development & Big Data Analytics	Terrestrial to Extraterrestrial	Grand Total
24/7 shorebased communications, technical, and operational support	59%	29%	55%	51%	49%
Appropriate shipboard space (berth, office, etc.)	54%				54%
Borehole re-entry, observatories, and sensors		27%	40%	39%	34%
Drilling and coring monitoring data systems	12%				12%
Drilling capabilities from >70 m water depth		60%	14%	34%	41%
Drilling in extreme P/T/chemistry environments		21%	17%	78%	35%
Hard rock spud in and drilling		12%	7%	32%	16%
Ice strengthened hull		34%	7%	29%	26%
Larger drill string diameter		14%	14%	5%	12%
Logging While Drilling (LWD) capability		25%	29%	10%	22%
Modern drilling, mud, casing, and cementing systems		32%	24%	34%	30%
Modern laboratory and curation data systems		51%	67%	44%	53%
Operate in US waters		19%	5%	0%	10%
Professional audio/video equipment for generating content at sea	69%				69%
Real-time adaptable drilling and coring capabilities		32%	29%	17%	27%
Ship access and support during portcalls	25%				25%
Ship-to-shore collaborative communication, data sharing and manipulation tools	63%				63%
Space for adequate sample preservation		21%	19%	37%	24%
Space for special equipment, multiple containers, and ROV		21%	31%	32%	26%
Water column and (near-)seafloor measurements, imaging, and visualization		27%	19%	7%	20%

Unique to this question: Participants who selected Broader Impacts were allowed 3 choices and saw a unique set of operational capabilities. Participants who selected one of the other Enabling Elements saw the same set of operational capabilities as the other questions (S01, S02, FI) and were allowed 5 choices. 24/7 shorebased communication occurred in both EE sets.

Percentages are the number of participants who selected the specific operational capability out of the total number of participants who selected the specific Enabling Element, e.g., 59% (67) of the 114* participants who selected Broader Impacts and Outreach chose 24/7 shorebased communications as one of their operational capabilities.

Grand totals are the number of participants who selected each capability (regardless of Enabling Element) out of the total number of participants who answered the question, e.g., 49% (132) of 270* total participants chose 24/7 shorebased communications as one of their operational capabilities.

*Note: Some participants selected an Enabling Element but did not select any operational capabilities. Totals are out of the number of participants who answered the operational capabilities question.

What mission-critical or time-sensitive properties do we need to determine on the ship during operations to accomplish the Enabling Element you selected? Select up to 5.

Answers the Questions:

What are the most important properties for each Enabling Element? (Columns)

How important is each property overall, across Enabling Elements? (Grand totals)



	Broader Impacts and Outreach	Land to Sea	Technology Development & Big Data Analytics	Terrestrial to Extraterrestrial	Grand Total
Appropriate preservation of sensitive materials	23%	32%	30%	68%	33%
Biostratigraphy	32%	46%	33%	15%	33%
Core and in situ petrophysical properties	16%	40%	48%	23%	29%
Core contamination	10%	24%	10%	63%	22%
Fluid, sediment, and rock organic and inorganic geochemistry	23%	53%	38%	63%	40%
Geomechanical properties	7%	15%	15%	8%	11%
High resolution images of microscopic materials	49%	26%	23%	33%	36%
Hydrocarbon quantification	2%	13%	5%	13%	7%
Lithology	32%	54%	28%	25%	37%
Magnetostratigraphy/paleomagnetics	10%	28%	15%	20%	17%
Microbial abundance and activity	22%	13%	13%	48%	22%
Mineralogy	11%	17%	13%	30%	16%
Thermal properties	3%	7%	15%	10%	7%

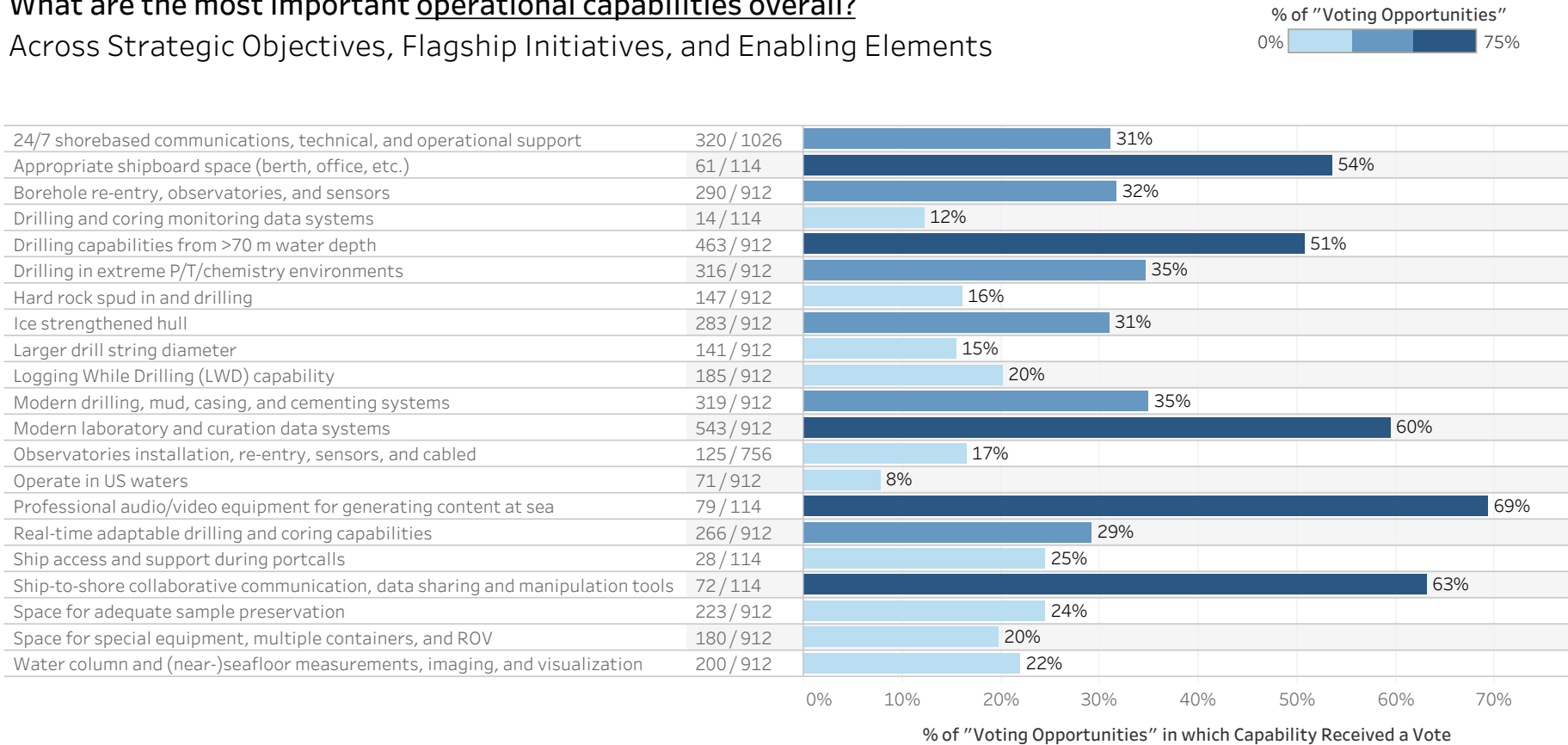
Percentages are the number of participants who selected the specific property out of the total number of participants who selected the specific Enabling Element, e.g., 63% (64) of the 102* participants who selected Broader Impacts and Outreach chose 3D and split core imaging as one of their properties.

Grand totals are the number of participants who selected each property (regardless of Enabling Element) out of the total number of participants who answered the question, e.g., 59% (151) of 254* total participants chose 3D and split core imaging as one of their properties.

*Note: Some participants selected an Enabling Element but did not select any properties. Totals are out of the number of participants who answered the properties question.

What are the most important operational capabilities overall?

Across Strategic Objectives, Flagship Initiatives, and Enabling Elements



These questions were asked for Strategic Objective 1, Strategic Objective 2 (for those who chose a second Strategic Objective), Flagship Initiatives, and Enabling Elements.

The denominator is the number of "voting opportunities" for technical capabilities: **278** participants "voted" on these capabilities (SO1) + **204** participants "voted" again on these capabilities (SO2) + **271** participants "voted" on these capabilities a third time (FI) + **270** participants "voted" a fourth time (EE) (Note: 114 selected Broader Impacts, which had a unique set of capabilities, except for 24/7 shorebased communications; 156 chose another EE, which shared the capabilities with SO1, SO2, and FI).

114 "voting opportunities" for capabilities unique to Broader Impacts.

912 opportunities for capabilities in SO1, SO2, FI, and the other EEs aside from Broader Impacts. (Observatories was not included as a choice for Enabling Elements).


1,026 opportunities for 24/7 shorebased communication, which appeared in the sets for SO1, SO2, FI, and all EE.

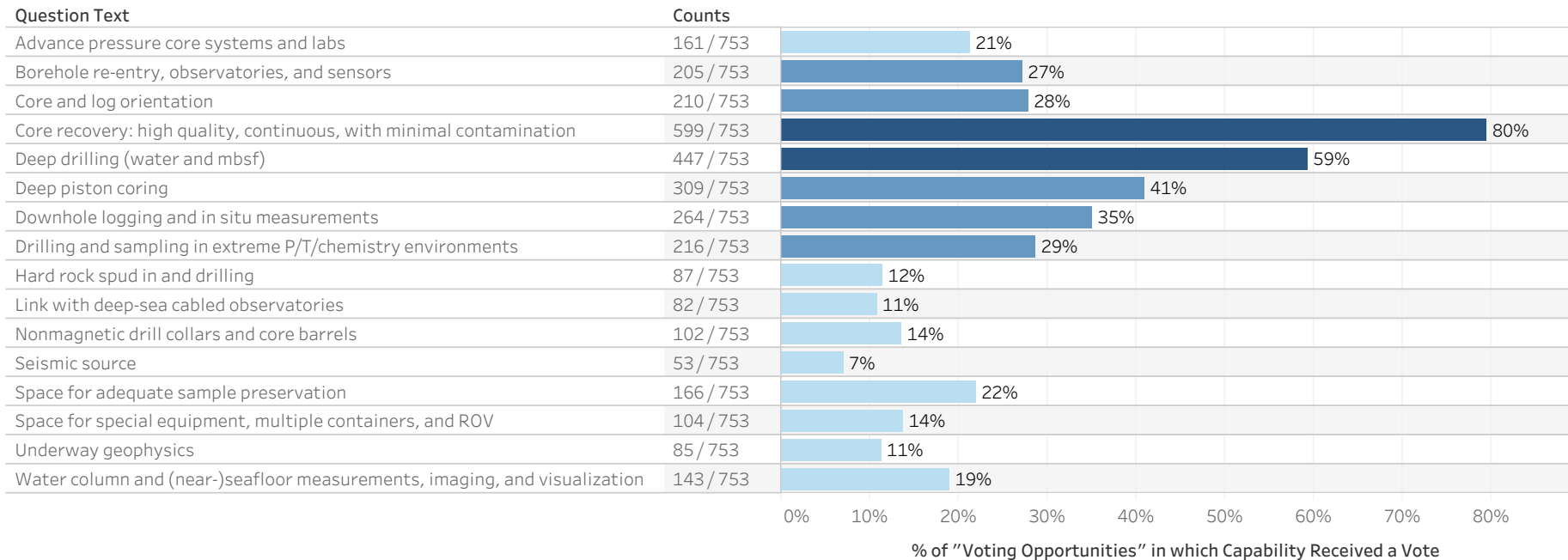
In each "voting opportunity," participants could "vote for" up to 5 operational capabilities (3 for Broader Impacts).

Percentages are the number of "votes" that each operational capability received across the "voting opportunities." e.g., 24/7 shorebased communication received "votes" in 31% (320) of the 1,026 "voting opportunities."

What are the most important technical capabilities overall?

Across Strategic Objectives and Flagship Initiatives

% of "Voting Opportunities"
0%  75%




These questions were asked for Strategic Objective 1, Strategic Objective 2 (for those who chose a second Strategic Objective), and Flagship Initiatives.

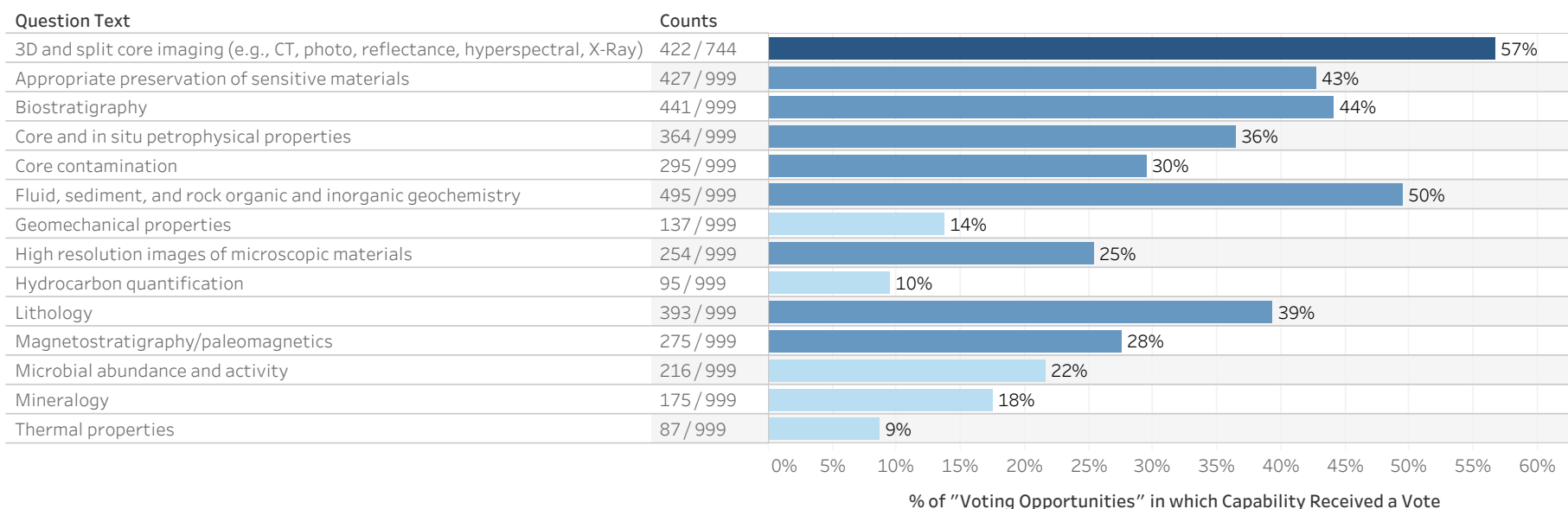
The denominator is the number of "voting opportunities" for technical capabilities: **278** participants "voted" on these capabilities (SO1) + **204** participants "voted" again on these capabilities (SO2) + **271** participants "voted" on these capabilities a third time (FI) = **753 "voting opportunities"**

In each "voting opportunity," participants could "vote for" up to 5 technical capabilities.

Percentages are the number of "votes" that each technical capability received across the "voting opportunities." e.g., *Advance pressure core systems and labs* received "votes" in 24% (161) of the 753 "voting opportunities" for technical capabilities.

What are the most important mission-critical or time-sensitive properties overall? Across Strategic Objectives, Flagship Initiatives, and Enabling Elements

% of "Voting Opportunities"
0%  75%



These questions were asked for Strategic Objective 1, Strategic Objective 2 (for those who chose a second Strategic Objective), Flagship Initiatives, and Enabling Elements.

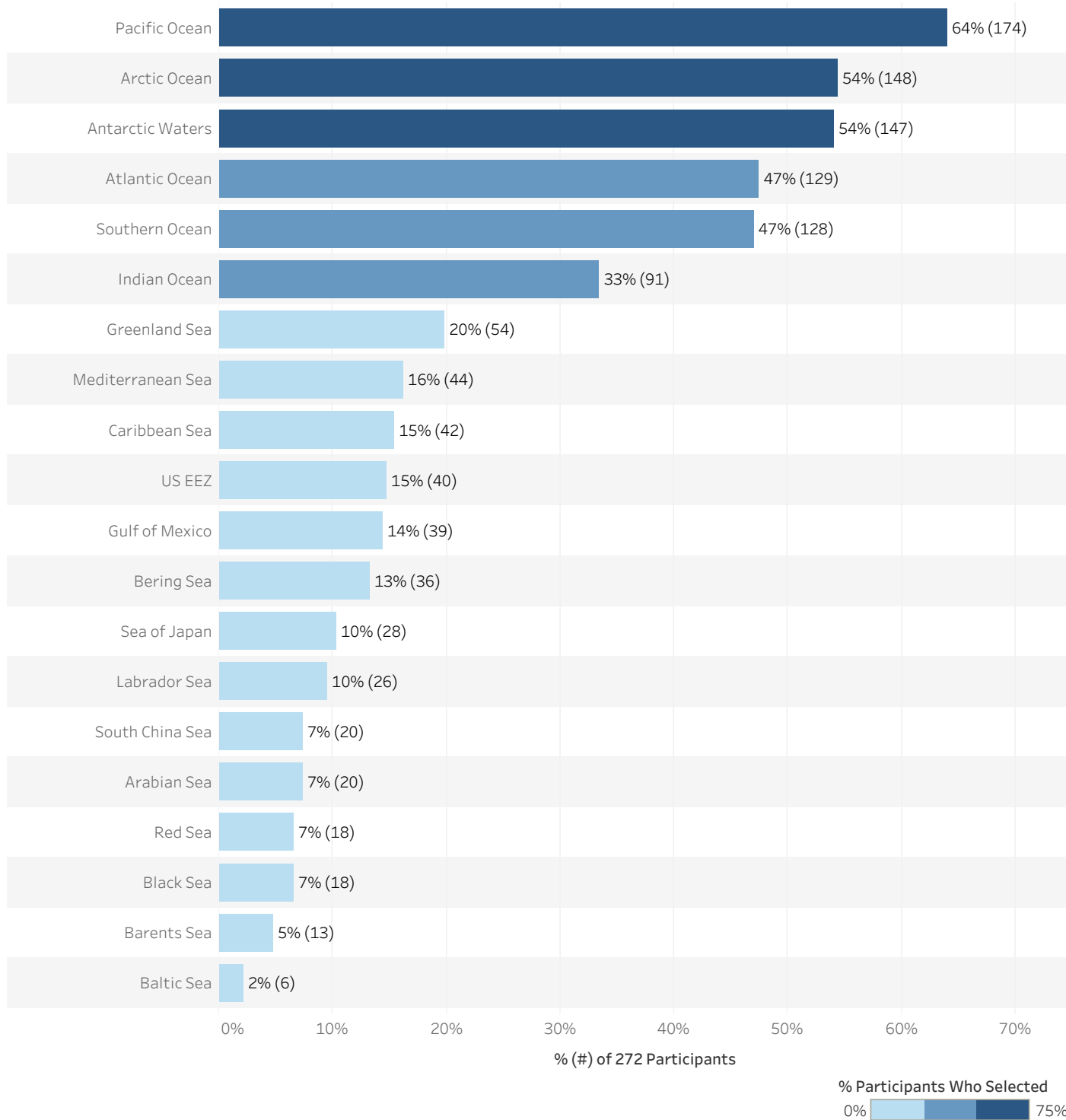
The denominator is the number of "voting opportunities" for technical capabilities: **274** participants "voted" on these capabilities (SO1) + **202** participants "voted" again on these capabilities (SO2) + **268** participants "voted" on these capabilities a third time (FI) + **255** participants "voted" a fourth time (EE) = **999 "voting opportunities"**

In each "voting opportunity," participants could "vote for" up to 5 properties.

Percentages are the number of "votes" that each property received across the "voting opportunities." e.g., *3D and split core imaging* received "votes" in 57% (574) of the 999 "voting opportunities."

Drilling Locations

Where are the most important geographic drilling locations for the components of the 2050 Science Framework you selected? Select up to 6.



Drilling Locations by Strategic Objective

Where are the most important geographic drilling locations for the components of the 2050 Science Framework you selected? Select up to 6.

	Earth's Climate System	Tipping Points in Earth's History	Global Cycles of Energy and Matter	The Oceanic Life Cycle of Tectonic Plates	Natural Hazards Impacting Society	Habitability and Life on Earth	Feedbacks in the Earth System	Grand Total
Pacific Ocean	49%	59%	69%	83%	93%	62%	64%	64%
Arctic Ocean	64%	72%	45%	25%	27%	73%	55%	54%
Antarctic Waters	73%	66%	31%	19%	27%	65%	64%	54%
Atlantic Ocean	36%	34%	66%	72%	47%	54%	36%	47%
Southern Ocean	58%	72%	24%	39%	17%	43%	64%	47%
Indian Ocean	29%	28%	38%	50%	33%	27%	45%	33%
Greenland Sea	33%	34%	7%	6%	0%	11%	27%	20%
Mediterranean Sea	14%	7%	14%	25%	27%	14%	18%	16%
Caribbean Sea	13%	17%	10%	19%	30%	11%	9%	15%
US EEZ	7%	21%	24%	25%	17%	8%	27%	15%
Gulf of Mexico	9%	14%	41%	3%	10%	22%	18%	14%
Bering Sea	17%	10%	10%	8%	7%	16%	18%	13%
Sea of Japan	5%	0%	3%	14%	37%	11%	18%	10%
Labrador Sea	16%	10%	0%	6%	3%	8%	9%	10%
South China Sea	8%	10%	10%	6%	0%	5%	18%	7%
Arabian Sea	12%	3%	7%	3%	0%	5%	18%	7%
Red Sea	2%	3%	21%	11%	7%	5%	9%	7%
Black Sea	3%	7%	3%	6%	7%	19%	9%	7%
Barents Sea	4%	3%	7%	6%	0%	8%	9%	5%
Baltic Sea	3%	0%	3%	3%	0%	3%	0%	2%

Note: This table uses participants' first choice of Strategic Objective to parse the results.

Drilling Locations by Career Stage

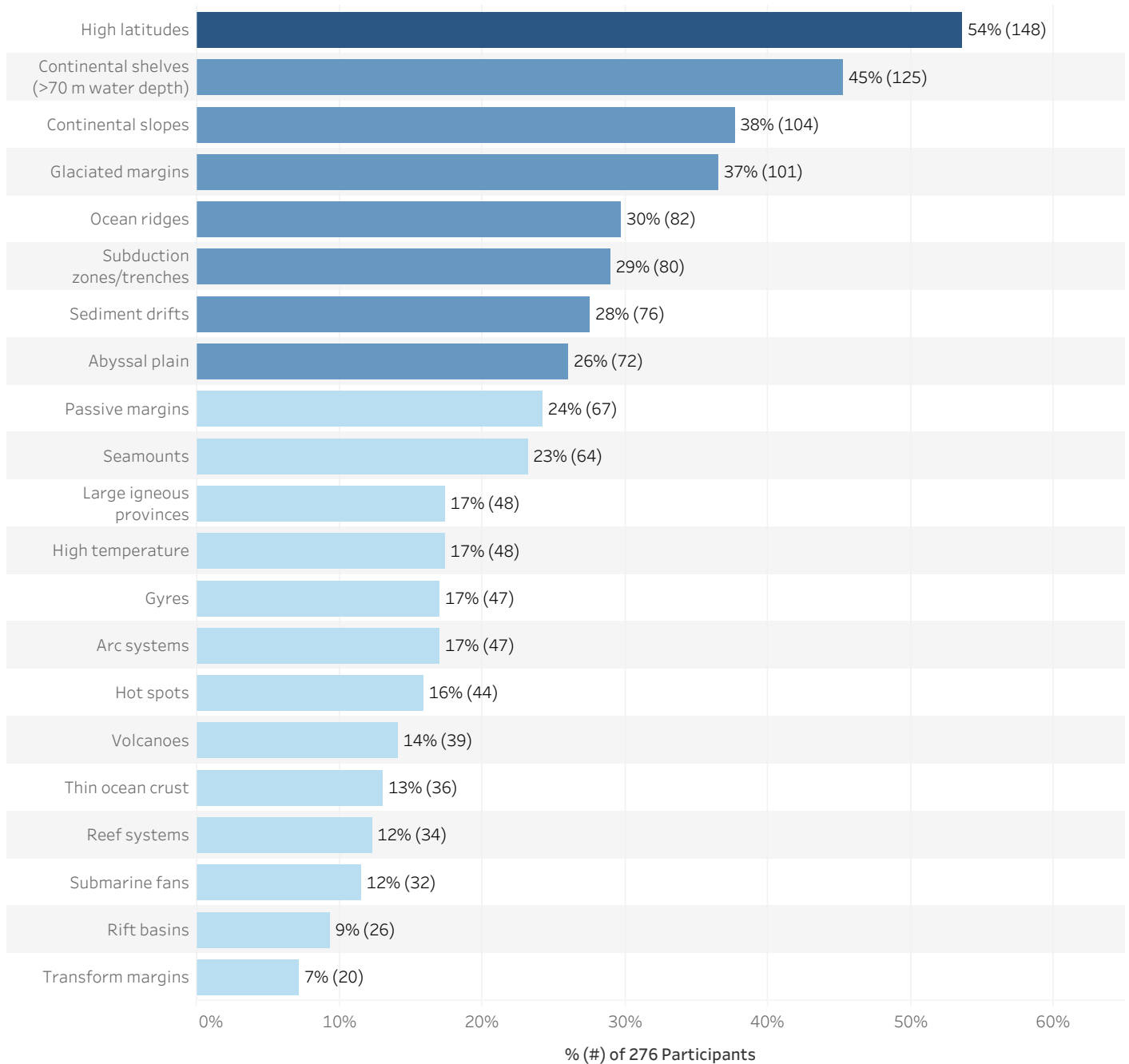
Where are the most important geographic drilling locations for the components of the 2050 Science Framework you selected? Select up to 6.

	Student	Recent grad or post doc	Early career	Middle career	Senior scientist	Retired/ Emeritus	Other	Grand Total
Pacific Ocean	62%	46%	77%	70%	65%	83%	33%	64%
Arctic Ocean	59%	57%	59%	52%	50%	50%	67%	54%
Antarctic Waters	62%	67%	59%	55%	45%	25%	33%	54%
Atlantic Ocean	53%	30%	49%	50%	53%	50%	67%	47%
Southern Ocean	53%	48%	56%	39%	43%	58%	33%	47%
Indian Ocean	26%	33%	31%	43%	31%	50%	0%	33%
Greenland Sea	29%	22%	8%	16%	21%	17%	67%	20%
Mediterranean Sea	18%	11%	13%	16%	21%	8%	33%	16%
Caribbean Sea	9%	9%	26%	9%	21%	17%	0%	15%
US EEZ	6%	7%	26%	18%	14%	25%	33%	15%
Gulf of Mexico	21%	9%	15%	16%	14%	8%	33%	14%
Bering Sea	3%	15%	8%	11%	20%	17%	0%	13%
Sea of Japan	6%	17%	13%	7%	10%	0%	0%	10%
Labrador Sea	12%	11%	0%	16%	10%	0%	0%	10%
South China Sea	15%	7%	5%	5%	7%	8%	0%	7%
Arabian Sea	3%	9%	8%	11%	7%	0%	0%	7%
Red Sea	3%	4%	5%	5%	12%	8%	0%	7%
Black Sea	15%	6%	0%	11%	3%	8%	33%	7%
Barents Sea	9%	6%	3%	2%	6%	0%	0%	5%
Baltic Sea	6%	6%	0%	0%	1%	0%	0%	2%

Note: There were only three participants who indicated their career stage as "other."

Drilling Geological and Oceanographic Environments

Where are the most important geological and oceanographic environments for the components of the 2050 Science Framework you selected? Select up to 6.



% Participants Who Selected
 0% 75%

Drilling Geological and Oceanographic Environments by Strategic Objective

Where are the most important geological and oceanographic environments for the components of the 2050 Science Framework you selected? Select up to 6.

	Earth's Climate System	Tipping Points in Earth's History	Global Cycles of Energy and Matter	The Oceanic Life Cycle of Tectonic Plates	Natural Hazards Impacting Society	Habitability and Life on Earth	Feedbacks in the Earth System	Grand Total
High latitudes	74%	72%	33%	19%	20%	51%	82%	54%
Continental shelves (>70 m water depth)	58%	83%	30%	6%	33%	33%	73%	45%
Continental slopes	39%	45%	50%	11%	53%	31%	45%	38%
Glaciated margins	52%	55%	17%	11%	23%	31%	36%	37%
Ocean ridges	18%	14%	43%	72%	23%	36%	0%	30%
Subduction zones/trenches	4%	17%	37%	44%	87%	44%	9%	29%
Sediment drifts	49%	34%	7%	6%	13%	10%	45%	28%
Abyssal plain	32%	28%	23%	28%	13%	18%	36%	26%
Passive margins	26%	38%	7%	22%	30%	18%	36%	24%
Seamounts	16%	24%	17%	36%	17%	44%	9%	23%
Large igneous provinces	8%	10%	13%	56%	10%	21%	18%	17%
High temperature	9%	7%	27%	19%	10%	44%	18%	17%
Gyres	26%	17%	10%	3%	7%	21%	18%	17%
Arc systems	6%	0%	40%	36%	20%	26%	0%	17%
Hot spots	2%	3%	17%	50%	23%	26%	9%	16%
Volcanoes	3%	7%	23%	25%	20%	28%	9%	14%
Thin ocean crust	1%	0%	33%	36%	7%	21%	18%	13%
Reef systems	17%	17%	3%	0%	7%	15%	27%	12%
Submarine fans	13%	10%	17%	3%	17%	8%	18%	12%
Rift basins	6%	0%	13%	25%	10%	8%	9%	9%
Transform margins	1%	0%	23%	14%	17%	3%	9%	7%

Note: This table uses participants' first choice of Strategic Objective to parse the results.

Drilling Geological and Oceanographic Environments by Career Stage

Where are the most important geological and oceanographic environments for the components of the 2050 Science Framework you selected? Select up to 6.

	Student	Recent grad or post doc	Early career	Middle career	Senior scientist	Retired/ Emeritus	Other	Grand Total
High latitudes	57%	65%	58%	43%	49%	50%	67%	54%
Continental shelves (>70 m water depth)	51%	46%	45%	39%	49%	33%	0%	45%
Continental slopes	34%	28%	35%	36%	44%	58%	33%	38%
Glaciated margins	51%	33%	38%	41%	32%	25%	33%	37%
Ocean ridges	31%	33%	35%	27%	26%	33%	0%	30%
Subduction zones/trenches	17%	19%	33%	50%	28%	25%	33%	29%
Sediment drifts	26%	24%	25%	23%	32%	42%	33%	28%
Abyssal plain	23%	24%	35%	25%	23%	50%	0%	26%
Passive margins	20%	17%	20%	18%	35%	25%	33%	24%
Seamounts	17%	24%	25%	25%	26%	8%	0%	23%
Large igneous provinces	14%	20%	8%	9%	27%	8%	0%	17%
High temperature	23%	19%	25%	23%	7%	17%	67%	17%
Gyres	14%	28%	23%	20%	10%	0%	0%	17%
Arc systems	11%	13%	18%	20%	17%	33%	33%	17%
Hot spots	11%	17%	20%	7%	20%	17%	0%	16%
Volcanoes	3%	17%	23%	16%	11%	17%	33%	14%
Thin ocean crust	6%	7%	15%	18%	15%	17%	33%	13%
Reef systems	26%	7%	18%	7%	13%	0%	0%	12%
Submarine fans	11%	4%	8%	23%	14%	8%	0%	12%
Rift basins	11%	4%	13%	2%	14%	17%	0%	9%
Transform margins	6%	6%	8%	2%	10%	8%	33%	7%

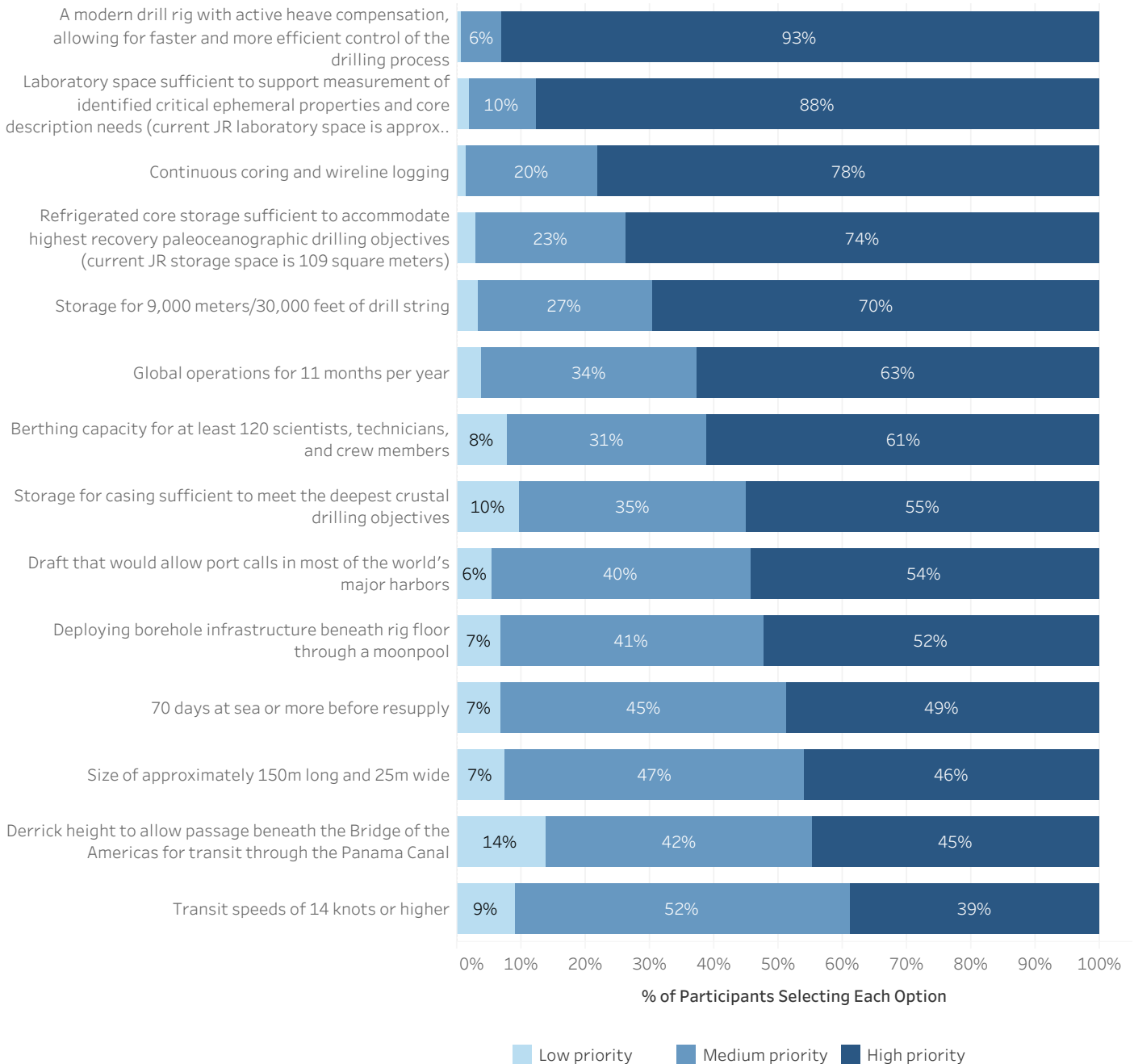
Note: There were only three participants who indicated their career stage as "other."

NEXT Report Priorities

The NEXT Report contains a number of general vessel recommendations. NSF would like the community to determine if these recommendations need revision in the context of SMRs that are in the best interests of the U.S. science community.

Indicate whether each of the following is a high, medium, or low priority.

Vessel with:



NEXT Report Priorities by Strategic Objective

Answers the Questions:

How are the NEXT recommendations prioritized for each Strategic Objective? (Columns)

How are the NEXT recommendations prioritized overall, across Strategic Objectives? (Grand totals)

% Participants Who Selected
25%  100%

	Earth's Climate System	Tipping Points in Earth's History	Global Cycles of Energy and Matter	The Oceanic Life Cycle of Tectonic Plates	Natural Hazards Impacting Society	Habitability and Life on Earth	Feedbacks in the Earth System	Grand Total
A modern drill rig with active heave compensation, allowing for faster and ..	92%	90%	97%	94%	100%	90%	91%	93%
Laboratory space sufficient to support measurement of identified critical e..	96%	79%	87%	77%	69%	97%	91%	88%
Continuous coring and wireline logging	81%	68%	87%	82%	86%	61%	80%	78%
Refrigerated core storage sufficient to accommodate highest recovery pal..	91%	71%	60%	46%	55%	82%	73%	74%
Storage for 9,000 meters/30,000 feet of drill string	63%	63%	67%	86%	71%	79%	64%	70%
Global operations for 11 months per year	72%	57%	53%	54%	48%	64%	82%	63%
Berthing capacity for at least 120 scientists, technicians, and crew members	61%	74%	57%	54%	54%	63%	82%	61%
Storage for casing sufficient to meet the deepest crustal drilling objectives	48%	48%	63%	71%	54%	64%	27%	55%
Deploying borehole infrastructure beneath rig floor through a moonpool	45%	41%	70%	62%	55%	59%	30%	52%
70 days at sea or more before resupply	53%	50%	53%	49%	31%	47%	50%	49%
Size of approximately 150m long and 25m wide	51%	48%	55%	35%	42%	46%	18%	46%
Derrick height to allow passage beneath the Bridge of the Americas for tra..	50%	48%	41%	51%	36%	34%	36%	45%
Transit speeds of 14 knots or higher	51%	36%	40%	34%	34%	21%	30%	39%

Percentages are the number of participants who indicated that the specific recommendation is a high priority, out of the total number of participants who selected the specific Strategic Objective, e.g., *92% (90) of the 98* participants who selected Earth's Climate System indicated that A modern drill rig is a high priority.*

Grand totals are the number of participants who rated the recommendation as a high priority (regardless of Strategic Objective) out of the total number of participants who answered the question, e.g., *93% (252) of 271* total participants indicated that A modern drill rig is a high priority.*

Note:

*Some participants selected a Strategic Objective but did not rate the NEXT recommendations. Totals are out of the number of participants who answered the NEXT questions.

These results use participants' first choice of Strategic Objective as the sorting variable.

Because most participants rated most recommendations as high priorities, the color scale has been adjusted to better highlight differences among recommendations agreed to be high priorities. It now bases the colors on a scale from 25% to 100% agreement rather than from 0% to 75% agreement.

NEXT Report Priorities by Career Stage

Answers the Questions:

How are the NEXT recommendations prioritized for each Career Stage? (Columns)

How are the NEXT recommendations prioritized overall, across Career Stages? (Grand totals)

% Participants Who Selected

 25% 100%

	Student	Recent grad or post doc	Early career	Middle career	Senior scientist	Retired/ Emeritus	Other	Grand Total
A modern drill rig with active heave compensation, allowing for faster and mo..	71%	94%	95%	98%	98%	91%	100%	93%
Laboratory space sufficient to support measurement of identified critical eph..	83%	92%	85%	95%	86%	73%	100%	88%
Continuous coring and wireline logging	79%	71%	68%	81%	84%	91%	50%	78%
Refrigerated core storage sufficient to accommodate highest recovery paleoc..	80%	75%	78%	81%	68%	45%	100%	74%
Storage for 9,000 meters/30,000 feet of drill string	63%	71%	79%	69%	69%	55%	100%	70%
Global operations for 11 months per year	57%	58%	63%	63%	66%	73%	50%	63%
Berthing capacity for at least 120 scientists, technicians, and crew members	57%	67%	74%	74%	47%	55%	100%	61%
Storage for casing sufficient to meet the deepest crustal drilling objectives	74%	54%	60%	53%	49%	36%	50%	55%
Deploying borehole infrastructure beneath rig floor through a moonpool	50%	50%	49%	56%	52%	55%	100%	52%
70 days at sea or more before resupply	51%	44%	49%	36%	51%	82%	100%	49%
Size of approximately 150m long and 25m wide	50%	37%	36%	44%	54%	64%	50%	46%
Derrick height to allow passage beneath the Bridge of the Americas for transi..	35%	38%	47%	43%	52%	45%	50%	45%
Transit speeds of 14 knots or higher	47%	33%	28%	39%	44%	36%	50%	39%

Percentages are the number of participants who indicated that the specific recommendation is a high priority, out of the total number of participants in that career stage, e.g., 71% (25) of the 35* students indicated that *A modern drill rig* is a high priority.

Grand totals are the number of participants who rated the recommendation as a high priority (regardless of career stage) out of the total number of participants who answered the question, e.g., 93% (252) of 271* total participants indicated that *A modern drill rig* is a high priority.

Note:

*Some participants did not rate the NEXT recommendations. Totals are out of the number of participants who answered the NEXT questions.

There were only three participants who indicated their career stage as "other"; only two answered this question.

Because most participants rated most recommendations as high priorities, the color scale has been adjusted to better highlight differences among recommendations agreed to be high priorities. It now bases the colors on a scale from 25% to 100% agreement rather than from 0% to 75% agreement.