



2022 Service Academy Gender Relations Survey

Statistical Methodology Report

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Acknowledgments

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Policy officials contributing to the development of this survey include Dr. Nathan Galbreath (Sexual Assault Prevention and Response Office) and Mr. Cyrus Salazar (Office of Diversity, Equity, and Inclusion). Individuals who contributed to the development of this survey include Mr. W. Xav Klauberg, Ms. Kasmita "Kimi" Mirani, Mr. Alex Fernandes, Dr. Becky Lane, and Ms. Amanda Barry (Fors Marsh, LLC).

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2022 SERVICE ACADEMY GENDER RELATIONS SURVEY: STATISTICAL METHODOLOGY REPORT

Introduction

The Office of People Analytics (OPA), conducts both web-based and paper-and-pen surveys to support the personnel information needs of the Under Secretary of Defense for Personnel and Readiness (USD[P&R]). These surveys assess the attitudes and opinions of the entire Department of Defense (DoD) community on a wide range of personnel issues. Health and Resilience (H&R) surveys are in-depth studies on sensitive topics, which impact the health and well-being of military populations.

This report describes the statistical methodologies for the *2022 Service Academy Gender Relations Survey (2022 SAGR)*. The SAGR is designed to track unwanted sexual contact and sexual harassment issues at the Military Service Academies (MSA). The U.S. Code, Title 10, Armed Forces, as amended by Section 532 of the John Warner National Defense Authorization Act (NDAA) for Fiscal Year 2007, codified an assessment cycle at the Academies that consists of alternating surveys and focus groups. This requirement applies to the DoD Academies (U.S. Military Academy [USMA], U.S. Naval Academy [USNA], and U.S. Air Force Academy [USAF]). The first assessment in this series was conducted in 2004 by the DoD Inspector General (IG). Responsibility for subsequent assessments was transferred in 2005 to the H&R Division within OPA.

Although not covered by the requirement of U.S. Code 10, U.S. Coast Guard Academy (USCGA) leadership requested they be included beginning in 2008 in order to evaluate and improve their programs addressing sexual assault and sexual harassment. The USCGA is surveyed under the authority of U.S. Code 14, Section 1.

The United States Merchant Marine Academy (USMMA), within the Department of Transportation (DOT), is also not required to participate in the assessments codified by U.S. Code 10. The Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 required the Secretary of Transportation and USMMA to address sexual assault and harassment at the Academy, including assessment. USMMA officials requested they be included in the *SAGR* beginning in 2012 in order to evaluate and improve their programs addressing sexual assault and sexual harassment.

The DoD Preparatory Schools are also not covered by the requirement of U.S. Code 10. However, officials at the U.S. Military Academy Preparatory School (USMAPS), U.S. Naval Academy Preparatory School (USNAPS), and U.S. Air Force Academy Preparatory School (USAFAPS), requested they be included in the *SAGR* beginning in 2014 in order to evaluate and improve their programs addressing sexual assault and sexual harassment.

As the *SAGR* surveys are scheduled to field in the spring of even-numbered years (a complementary qualitative assessment is conducted with the MSAs in odd-numbered years), OPA prepared the *2020 SAGR* to begin data collection in March 2020. As the DoD issued orders restricting non-essential travel in response to the COVID-19 pandemic, the OPA research team stood down, the *2020 SAGR* postponed, and was eventually cancelled as travel restrictions were

extended past viable timetables for survey execution. Historically, OPA reports make statistical comparisons to the last survey iteration. Because of the cancellation of the *2020 SAGR*, we present comparisons to the *2018 SAGR* here and in other *2022 SAGR* publications.

The *2022 SAGR* administered at USMA, USMAPS, USNA, USNAPS, USAFA, USAFAPS, USCGA, and USMMA fielded in March, April, and August 2022. Section 1 defines statistical terminology in this report. Section 2 discusses the sample design and selection of the sample. Section 3 describes the weighting and variance estimation. Section 4 discusses the statistical tests used for the *2022 SAGR*. Section 5 describes the calculation of contact, cooperation, and response rates for the full sample and population subgroups. Section 6 discusses nonresponse bias. Survey estimates for all questions are found in the *2022 SAGR: Tabulations of Responses* (OPA, 2023a). Information about administration of the survey and detailed documentation of the survey dataset is found in the *2022 SAGR: Administration, Datasets, and Codebook* (OPA, 2023b).

Section 1: Definitions

OPA defines below survey and statistical terminology used in this report. After the survey, all sampled members are classified as either record ineligible (defined in Table 2), known eligible, or unknown eligible. Complete sampled members are a subset of known eligible sampled members.

- *Cases of known eligibility*: Sampled members who through their interaction with the survey website or communications with OPA (or contract team) identify that they are in the target population (i.e., eligible) or not in the target population (i.e., ineligible).
- *Cases of unknown eligibility*: Sampled members who do not reply to the survey or inform OPA of their eligibility status (e.g., phone call) so OPA cannot confirm if they are eligible or ineligible.
- *Complete eligible respondent*: Sampled members who respond to the survey and meet all criteria to be considered a complete respondent.
- *Ineligibility rate*: This percentage is calculated by dividing the ineligible sampled members by the sample members with known eligible status. This rate is represented as ‘e’ in Section 5 in formulas such as $e(NC + O)$.¹
- *Response rate*: This percentage is calculated by dividing the complete sampled members by the summation of known eligible sampled members and the estimated number of eligible sampled members among people with unknown eligibility status.

¹ The AAPOR Standard Definition uses the term ‘e’ to represent the eligibility rate. OPA’s calculations use the ineligibility rate, OPA’s formulas are mathematically equivalent to the AAPOR definition.

Section 2: Sample Design and Selection

Target Population

The 2022 *SAGR* was designed to represent all students attending the following schools:

- U.S. Military Academy (USMA)
- U.S. Military Academy Preparatory School (USMAPS)
- U.S. Naval Academy (USNA)
- U.S. Naval Academy Preparatory School (USNAPS)
- U.S. Air Force Academy (USAFA)
- U.S. Air Force Academy Preparatory School (USAFAPS)
- U.S. Coast Guard Academy (USCGA)
- U.S. Merchant Marine Academy (USMMA)

Sampling Frame

As the *SAGR* is a census, the entire population of the Academies and Preparatory Schools were sampled. Thus, the sampling frame consisted of 15,282 students on rosters provided to OPA by each school. Students were scheduled by each school to attend one of the briefing sessions. They were checked-in for their session to ensure eligibility and received a mandatory briefing about the survey by the project team, but participation in taking the survey was voluntary.

Sample Design

The 2022 *SAGR* was a census of males and females on rosters provided by the five Academies and three Preparatory Schools who were present on the days the survey was administered. This sample design is consistent with the design in 2014, 2016, and 2018. For the 2022 *SAGR*, the final sample (population) of 15,282 consisted of 11,097 males and 4,185 females. Table 1 shows the distribution of students by school, sex, and class year.

Table 1.
Sample (Total Eligible Population Roster Size) by Sex and Class Year

Sex/Class Year	Total	USMA	USNA	USAFA	USCGA	MMA	USMAPS	NAPS	USAFA Prep
Total	15,282	4,359	4,338	3,998	1,013	950	197	244	183
Male	11,097	3,333	3,097	2,836	603	741	172	189	126
2022	2,647	793	786	739	151	178	-	-	-
2023	2,469	736	750	682	147	154	-	-	-
2024	2,721	910	772	699	139	201	-	-	-
2025	2,773	894	789	716	166	208	-	-	-
2026	487	-	-	-	-	-	172	189	126
Female	4,185	1,026	1,241	1,162	410	209	25	55	57
2022	983	255	317	263	96	52	-	-	-
2023	925	216	262	274	108	65	-	-	-
2024	1,068	267	342	317	95	47	-	-	-
2025	1,072	288	320	308	111	45	-	-	-
2026	137	-	-	-	-	-	25	55	57

Data were collected in March and April 2022 for all Academies except USMMA, where a final survey administration was conducted in August to collect data from midshipmen at sea in the spring. A trained research team of OPA and contracted researchers administered the anonymous paper-and-pen survey in group sessions. Separate sessions were held for male and female students at each school. After checking in, each student was handed a survey, an envelope, a pen, and an Academy-specific information sheet of sexual assault/sexual harassment support resources. The information sheet included details on where students could obtain help if they became upset or distressed while taking the survey or afterwards. Students were briefed on the purpose and details of the survey and the importance of participation. If students did not wish to take the survey, they could leave the session at the completion of the mandatory briefing. Students returned completed or blank surveys (depending on whether they chose to participate) in sealed envelopes into a bin as they exited the session; this process was monitored by the survey proctors as an added measure for protecting students’ anonymity.

OPA received roster counts from each of the schools that contained the number of students by sex, which were used to create an accountability file recording attendance to survey administration. The frame contained 15,282 students (Table 1). OPA collected 15,016 questionnaires (not 15,282) during the *SAGR* survey administration because 266 students did not check-in. The effective contact rates were comparable between 2018 and 2022 at 98.5% and 98.3%, respectively. More information on the contact rate can be found in Section 4 and **Table 7**.

Section 3: Weighting

OPA created analytical weights for the 2022 *SAGR* to account for varying response rates among population subgroups (school, sex, and class year). Sampling weights defined as the

inverse of the selection probabilities took the value of one (1) for all cadets/midshipmen because the survey was a census. The sampling weight was then adjusted for nonresponse. The first step of the weighting process was to determine case dispositions for all sampled cadets/midshipmen.

Case Dispositions

As the first step in the weighting process, case dispositions were assigned based on eligibility for the survey and on completion of the questionnaire. Execution of the weighting process and computation of response rates both depended on this classification.

OPA determined final disposition codes and calculated weights for the number of complete eligible respondents, which are defined as providing at least one valid response to the Military Equal Opportunity (MEO) violation questions (Q4, Q7, Q10, Q13, Q16, Q19, Q22, Q25, Q29, Q32, Q34, Q36, or Q39), and a valid response to the unwanted sexual contact question (Q49). Final disposition codes for the *2022 SAGR* are shown in Table 2 and Table 3. Prior *SAGR* surveys used an additional criterion in determining eligible survey completion: the response to at least 50% of those questionnaire items that would be asked of all survey participants. This criterion was dropped from the weighting of *2022 SAGR* in the interest of matching survey completion criteria of other WGR projects and implementing consistent methodology across OPA research projects where possible. Survey responses from the *2018 SAGR* were re-coded for disposition and re-weighted to ensure accuracy of trend analysis comparisons. All 2018 data in this report reflect updated weights and dispositions. Appendix A provides an overview of the minimal impact of the re-coding on the 2018 weights.

Table 2.
Case Dispositions for Weighting

Case Disposition	Information Source	Conditions	Sample Size
Eligible, complete response	Survey Return	Respondent provided at least one valid response to the MEO questions, and a valid response to the unwanted sexual assault question.	12,304
Eligible, incomplete response	Survey Return	Respondent provided no valid response to any MEO question or no valid response to the unwanted sexual assault question.	760
Nonrespondent	Survey returned blank	Survey was returned blank.	1,952
Unaccounted for/Excused	No response	Population members represented in population counts but did not receive a survey.	266
Total			15,282

Table 3.
Case Dispositions for Weighting by School

Case Disposition	Sample Size			
	DoD Academies	USCGA	USMMA	DoD Preparatory Schools
Eligible, complete response	10,328	839	722	415
Eligible, incomplete response	610	34	69	47
Nonrespondent	1,594	122	113	123
Unaccounted for/Excused	163	18	46	39
Total	12,695	1,013	950	624

Imputation and Correction of Missing or Incorrect Class Year

The sex and school were known for all sample members from their administrative data, however, class year was not known for all eligible respondents and required imputation to facilitate weighting. A total of 164 eligible respondents at the Service Academies (exclusive of preparatory schools) did not supply a class year (1.3% of the eligible respondents).

Eligible respondents at Service Academies with missing class year had their class year probabilistically imputed. Doing so required a two-step process. The first step was to take population counts for school by sex and class year and, from them, subtract counts from eligible respondents who indicated a class year. The remaining counts represent the distribution of academy by sex and class year for non-respondents and eligible respondents who did not indicate a class year. The second step was to probabilistically impute to a class year based on the distribution of class year from this calculated distribution for the respondent’s school and sex. For example, 19 females at USMA did not provide a class year when they responded to the survey. The distribution of non-respondents and eligible respondents who did not indicate a class year was 36 in the class of 2022, 23 in the class of 2023, 31 in the class of 2024, and 33 in the class of 2025. Therefore, each of the 19 surveys had a probability of $36/(36+23+31+33)=36/123=.293$ of being assigned a class year of 2022. Table 4 shows that 7 were assigned to 2022. Table 4 also shows all other results of the imputation process.

Additionally, 17 eligible respondents at preparatory schools identified either did not identify a class year or indicated one other than 2026, which were errant responses. Their class year was set to 2026 for weighting purposes.

Table 4.
Data on Imputation of Missing Class Year

School by Class Year	Non-Respondents + Respondents w/ Unknown Class Year		Imputed	
	Female	Male	Female	Male
Army 2022	36	73	7	7
Army 2023	23	79	3	6
Army 2024	31	81	5	14
Army 2025	33	61	4	7
Navy 2022	25	126	5	6
Navy 2023	9	120	1	6
Navy 2024	17	166	1	6
Navy 2025	20	192	6	6
Air Force 2022	78	235	6	10
Air Force 2023	72	269	5	4
Air Force 2024	77	295	3	7
Air Force 2025	81	305	6	6
Coast Guard 2022	8	15	1	2
Coast Guard 2023	10	23	0	0
Coast Guard 2024	9	40	4	2
Coast Guard 2025	15	67	0	4
Merchant Marine 2022	6	58	1	2
Merchant Marine 2023	12	67	2	3
Merchant Marine 2024	7	65	2	2
Merchant Marine 2025	2	55	0	2

Complete Eligible Cases for Weighting

Table 5 shows the total number of complete eligible cases for weighting by school, sex, and class year after imputation and correction of class year.

Table 5.
Complete Eligible Cases for Weighting by Sex and Class Year

Sex/Class Year	Total	USMA	USNA	USAFA	USCGA	MMA	USMAPS	NAPS	USAFA Prep
Total	12,304	3,995	3,700	2,633	839	722	106	172	137
Male	8,640	3,073	2,517	1,759	466	535	88	121	81
2022	2167	727	666	514	138	122	-	-	-
2023	1960	663	636	417	124	120	-	-	-
2024	2105	843	612	411	101	138	-	-	-
2025	2118	840	603	417	103	155	-	-	-
2026	290	-	-	-	-	-	88	121	81
Female	3,664	922	1,183	874	373	187	18	51	56
2022	850	226	297	191	89	47	-	-	-
2023	810	196	254	207	98	55	-	-	-
2024	942	241	326	243	90	42	-	-	-
2025	937	259	306	233	96	43	-	-	-
2026	125	-	-	-	-	-	18	51	56

OPA typically uses a common statistical practice called weight trimming. This reduces the variance of estimates and prevents any survey respondent from exerting too much influence on an estimate, but introduces some bias. OPA applies weight trimming during the known eligibility status adjustment by constraining the factor to a maximum of 66.7, which equates to a minimum predicted known eligibility status adjustment of 1.5% (i.e., $1 / 0.015 = 66.7$). For example, if a survey respondent has a model-predicted known eligibility propensity of 0.01, OPA replaced the known eligibility status adjustment of 100 (i.e., $1/0.01$) with 66.7. For the 2022 SAGR, the largest eligibility status adjustment did not exceed this threshold so weight trimming was not necessary.

Nonresponse Adjustments and Final Weights

All sampling weights for the 2022 SAGR took the value of one (1) because the survey was conducted as a census. The sample weights were adjusted for nonresponse in two steps within 38 cells formed by the cross classification of school (8), sex (2), and class year (5) as shown in Table 6:

- Step 1: Adjust weights for nonresponse based on complete survey returns as follows:
 - Transfer the weight of the 2,978 members (rows 3 through 5 from Table 2) to the 12,304 complete eligible respondents (row 2 from Table 2). To create this adjustment factor, OPA formed a ratio of the roster size divided by the survey respondents (completes only) within each of the 38 cells.

- Step 2: Assign weights to other records as follows:
 - OPA set the final weights for other records to null (.).

The final weight for eligible respondents indicates the number of students that a complete respondent represents at the school within the same sex and class year. For example, a USMA male respondent from the class of 2022 represents 1.09 males to ensure that the weighted total of USMA male respondents from the class of 2022 sum to the population total (Table 1). The final weights by school, sex, and class year are shown in Table 6. Final weights ranged from 1.02 to 1.95. This represents greater variability than we had in 2018 where weights ranged from 1.00 to 1.78 (see Appendix A). However, that is solely due to much lower-than-average response rates from males at USMAPS. The next highest weight was 1.72, in line with 2018.

Table 6.
Final Weights by School, Sex and Class Year

Sex/Class Year	USMA	USNA	USAFA	USCGA	MMA	USMAPS	NAPS	USAFA Prep
Male								
2022	1.09	1.18	1.44	1.09	1.46	-	-	-
2023	1.11	1.18	1.64	1.19	1.28	-	-	-
2024	1.08	1.26	1.70	1.38	1.46	-	-	-
2025	1.06	1.31	1.72	1.61	1.34	-	-	-
2026	-	-	-	-	-	1.95	1.56	1.56
Female								
2022	1.13	1.07	1.38	1.08	1.11	-	-	-
2023	1.10	1.03	1.32	1.10	1.18	-	-	-
2024	1.11	1.05	1.30	1.06	1.12	-	-	-
2025	1.11	1.05	1.32	1.16	1.05	-	-	-
2026	-	-	-	-	-	1.39	1.08	1.02

Section 4: Multiple Comparisons

To support the 2022 SAGR reports and briefings, OPA conducts a large number of statistical tests to identify significant differences across demographic groups or compare estimates with prior years. This is known in statistical hypothesis testing as the multiple comparisons problem. Numerous techniques have been developed to reduce the false positives associated with conducting multiple statistical tests. It should be noted that there is no universally accepted approach for dealing with the problem of multiple comparisons. To protect against erroneous statistically significant results during the 2022 SAGR, OPA used a p-value of 0.01 for within-year and across year comparisons. OPA chose this cut-off after empirically

testing a statistical method called False Discovery Rate correction (FDR) developed by Benjamini et al. (1995) in several prior OPA population-based surveys.

When comparing groups, a hypothesis whether there are no statistically significant differences (null hypothesis) versus there are statistically significant differences (alternative hypothesis) is tested. OPA mainly uses independent two sample t-tests and the conclusions are usually based on the p-value associated with the test-statistic. If the p-value is less than the critical value, then the null hypothesis is rejected. Anytime a null hypothesis is rejected (a conclusion that estimates are significantly different), it is possible this conclusion is incorrect. In reality, the null hypothesis may have been true and the significant result may have been due to chance. A p-value of 0.01 usually means there is a 1% chance of finding a difference as large as the observed result if the null hypothesis were true, but OPA uses this threshold to approximately control the family-wise error rate at 0.05 per prior FDR research.

Section 5: Contact, Cooperation, and Response Rates

Contact, cooperation, and response rates were calculated in accordance with the recommendations of the American Association for Public Opinion Research (AAPOR, 2016), which estimates the proportion of eligible respondents among cases of unknown eligibility (SAMP_DC=10,11).

The *contact rate* uses the concepts of AAPOR standard formula CON2 and is defined as:

$$\text{CON3} = \frac{\text{contacted sample}}{\text{eligible sample}}$$

The *cooperation rate* uses the concepts of AAPOR standard formula COOP2 and is defined as:

$$\text{COOP4} = \frac{\text{complete eligibles}}{\text{contacted sample}}$$

The *response rate* uses the concepts of AAPOR standard formula RR4 and is defined as:

$$\text{RR6} = \frac{\text{complete eligibles}}{\text{eligible sample}}$$

Table 7 shows the calculation of the three rates. The final response rate is the product of the contact rate and the cooperation rate. Table 8 shows response rates by school for the 2022 SAGR.

Table 9 shows response rates by school, sex, and class year. Note that because the sample design was a census, all students have a sampling weight of one (1), and therefore unweighted and weighted response rates are the same. Table 7 and Table 8 also include comparisons to updated 2018 rates (see Appendix A). Overall cooperation rates and response rates were about 10 percentage points higher in 2022 than in 2018, but response rates by school

varied appreciably year over year. The final response rate is the product of the contact rate and the cooperation rate. Table 8 shows both unweighted and weighted contact, cooperation, and response rates for the 2022 SAGR. The final weighted response rate for the survey was 80.5%.

Table 7.
Contact, Cooperation, and Response Rates

Type of Rate	Computation	2022 Calculation	2022 Weighted Rates	Updated 2018 Weighted Rates
Contact (3)	Contacted sample/Eligible sample	15,016/15,282	98.3%	98.5%
Cooperation (4)	Complete eligible responses/Contacted sample	12,304/15,016	81.9%	72.9%
Response (6)	Complete eligible responses/Eligible sample	12,304/15,282	80.5%	71.8%

Table 8.
Weighted 2022 and 2018 Response Rates by School

School	2022 Response Rate	Updated 2018 Response Rate
USMA	92%	75%
USMAPS	54%	80%
USNA	85%	68%
USNAPS	70%	82%
USAFAs	66%	66%
USAFAPS	75%	78%
USCGA	83%	79%
USMMA	76%	87%

Table 9.
Weighted Response Rates by School, by Sex, and by Class Year

Sex/Class Year	Total	USMA	USNA	USAFA	USCGA	MMA	USMAPS	NAPS	USAFA Prep
Total	81%	92%	85%	66%	83%	76%	54%	70%	75%
Male	78%	92%	81%	62%	77%	72%	51%	64%	64%
2022	82%	92%	85%	70%	91%	69%	-	-	-
2023	79%	90%	85%	61%	84%	78%	-	-	-
2024	77%	93%	79%	59%	73%	69%	-	-	-
2025	76%	94%	76%	58%	62%	75%	-	-	-
2026	60%	-	-	-	-	-	51%	64%	64%
Female	88%	90%	95%	75%	91%	89%	72%	93%	98%
2022	86%	89%	94%	73%	93%	90%	-	-	-
2023	88%	91%	97%	76%	91%	85%	-	-	-
2024	88%	90%	95%	77%	95%	89%	-	-	-
2025	87%	90%	96%	76%	86%	96%	-	-	-
2026	91%	-	-	-	-	-	72%	93%	98%

Section 6: Nonresponse Bias

Survey nonresponse has the potential to introduce bias in the estimates of key outcomes. To the extent that nonrespondents and respondents differ on observed characteristics, OPA can use weights to adjust the sample so the weighted respondents match the full population on the most critical characteristics. This eliminates the portion of nonresponse bias (NRB) associated with those observed variables if these variables are strongly associated with the behaviors being estimated. When all NRB can be eliminated in this manner, the missingness is called *ignorable* or *missing at random* (Little et al., 2002). The more observable demographic variables that are incorporated into the weights, the more plausible it is to assume that the weights eliminate any NRB.

Nonresponse bias occurs when survey respondents are systematically different from nonrespondents. The bias in a respondent mean is a function of the response rate and the relationship (covariance) between response propensity and the estimated statistic. The formula is written as:

$$\text{Bias}(\bar{y}_r) = \frac{\sigma_{yp}}{\bar{p}} = \left(\frac{\rho_{yp}}{\bar{p}} \right) \sigma_y \sigma_p$$

The abbreviations within this formula are:

\bar{y}_r = estimated response mean

σ_{yp} = covariance between y and response propensity

\bar{p} = mean propensity over the sample

ρ_{yp} = correlation between y and p

σ_y = standard deviation of y

σ_p = standard deviation of p

NRB can occur with high or low survey response rates. In the past decade, the decrease in overall survey response rates for DoD surveys, as well as civilian studies, has resulted in a greater focus on potential NRB. Studies of NRB can be accomplished either by 1) conducting a follow-up survey of nonrespondents or 2) by using the survey responses and characteristics of the respondents to assess NRB. Two survey outcomes are critical in assessing NRB: response rates and the expected difference between respondents and nonrespondents on survey estimates.

It is common that survey quality is judged by response rates; they are the most visible measure of survey quality. However, response rates do not necessarily provide an accurate measure of survey bias. Low response rates are only indicative of the possibility of survey bias. A number of research studies have found little relationship between the level of nonresponse and bias (e.g., Keeter et al., 2000). Where bias is found, adjusting survey weights for nonresponse and raking using variables that are correlated with the response characteristics can significantly reduce that bias.

While OPA has not detected significant levels of NRB in prior *2022 SAGR* analyses, OPA considers NRB likely the largest source of error in the survey estimates. When the essential survey conditions such as method of contact, survey mode, target population, and response rates stay relatively constant, the level of and direction of NRB should also remain constant. Therefore, OPA does not conduct an NRB study for each iteration of the survey. Instead, OPA conducts NRB studies either the second or third iteration of the survey based on an established schedule. OPA will next assess NRB on the *2023 SAGR*.

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Appendix A. 2018 Weighting Updates

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2018 Weighting Updates

Table 10.
2018 Weights Update Summary Table

School by Class Year	Male		Female	
	Original Weight	Revised Weight	Original Weight	Revised Weight
Army 2018	1.35	1.34	1.07	1.06
Army 2019	1.54	1.52	1.14	1.14
Army 2020	1.46	1.44	1.04	1.04
Army 2021	1.45	1.44	1.09	1.08
Army 2022 (Prep School)	1.36	1.33	1.00	1.00
Navy 2018	1.55	1.52	1.37	1.35
Navy 2019	1.83	1.77	1.50	1.45
Navy 2020	1.46	1.43	1.37	1.34
Navy 2021	1.51	1.45	1.22	1.20
Navy 2022 (Prep School)	1.21	1.17	1.37	1.34
Air Force 2018	1.79	1.78	1.29	1.28
Air Force 2019	1.74	1.72	1.44	1.42
Air Force 2020	1.53	1.51	1.27	1.24
Air Force 2021	1.52	1.50	1.22	1.21
Air Force 2022 (Prep School)	1.53	1.43	1.00	1.00
Coast Guard 2018	1.33	1.30	1.19	1.19
Coast Guard 2019	1.31	1.30	1.28	1.26
Coast Guard 2020	1.54	1.50	1.06	1.04
Coast Guard 2021	1.37	1.36	1.11	1.10
Merchant Marine 2018	1.30	1.25	1.38	1.33
Merchant Marine 2019	1.24	1.22	1.06	1.06
Merchant Marine 2020	1.05	1.03	1.19	1.16
Merchant Marine 2021	1.16	1.16	1.15	1.11

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Table 11.
2018 Population Counts Summary Table

School by Class Year	Male	Female
Army 2018	782	204
Army 2019	767	231
Army 2020	901	251
Army 2021	876	286
Army 2022 (Prep School)	174	46
Navy 2018	800	265
Navy 2019	780	294
Navy 2020	802	301
Navy 2021	873	325
Navy 2022 (Prep School)	171	63
Air Force 2018	779	213
Air Force 2019	742	262
Air Force 2020	728	299
Air Force 2021	820	313
Air Force 2022 (Prep School)	150	51
Coast Guard 2018	133	83
Coast Guard 2019	167	82
Coast Guard 2020	172	103
Coast Guard 2021	194	90
Merchant Marine 2018	167	36
Merchant Marine 2019	168	35
Merchant Marine 2020	185	43
Merchant Marine 2021	228	39

Table 12.
2018 Eligible Respondent Count Summary Table

School by Class Year	Male		Female	
	Original Count	Revised Count	Original Count	Revised Count
Army 2018	579	582	190	192
Army 2019	497	505	203	203
Army 2020	616	625	241	242
Army 2021	604	607	263	264
Army 2022 (Prep School)	128	131	46	46
Navy 2018	517	528	194	197
Navy 2019	427	441	196	203
Navy 2020	548	562	219	224
Navy 2021	579	601	266	271
Navy 2022 (Prep School)	141	146	46	47
Air Force 2018	434	437	165	167
Air Force 2019	426	431	182	184
Air Force 2020	475	481	236	241
Air Force 2021	541	546	256	259
Air Force 2022 (Prep School)	98	105	51	51
Coast Guard 2018	100	102	70	70
Coast Guard 2019	127	128	64	65
Coast Guard 2020	112	115	97	99
Coast Guard 2021	142	143	81	82
Merchant Marine 2018	128	134	26	27
Merchant Marine 2019	135	138	33	33
Merchant Marine 2020	177	179	36	37
Merchant Marine 2021	196	197	34	35

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