

Mariner Survey Pre-Test

Supporting Statement Part A

Maritime Administration (MARAD)

U.S. Department of Transportation

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SUPPORTING STATEMENT PART A

INTRODUCTION

The Department of Transportation is requesting a one-year approval for a new information collection, Mariner Survey Pre-Test (OMB Control No. 2133-NEW). This Mariner Survey Pre-Test information collection is limited to cognitive interviews and a pilot survey of a sample of appropriately credentialed U.S. merchant mariners to validate and improve the design of the questionnaire and other survey components for a subsequent full Mariner Survey.

Upon completion of the Pre-Test collection and analysis, Maritime Administration (MARAD) intends to submit a separate request for a three-year approval for the full biennial Mariner Survey after issuing new 60-day and 30-day notices in the Federal Register. The Mariner Survey will be a biennial voluntary survey of all appropriately credentialed U.S. merchant mariners to determine the number of qualified mariners who are available and willing to serve on short notice on U.S. government-owned or privately-owned vessels to support future periods of National Need. The most recent survey of this scope was completed in 2002. This lag of almost two decades highlights the critical void for the U.S. national security vis-à-vis reliable and current estimates on the number of mariners willing to fulfill such needs, including serving in times of war, armed conflict, or national emergency.

The current Merchant Mariner Licensing and Documentation (MMLD) database system, developed and maintained by the United States Coast Guard (USCG), was designed for the sole purpose of issuing mariner credentials. The MMLD database is updated daily and contains certain information on every mariner that has been issued a Merchant Mariner Credential. However, the MMLD does not collect any information on mariner willingness to serve or their availability at times of need. The MMLD also does not include the capability to provide complete details of mariner sea service once the credentials are issued.

The proposed Mariner Survey initiative will help the Maritime Administration (MARAD) meet its national security mission. The subsequent full Mariner Survey will provide the Agency and the Department of Transportation with more granular information necessary to assess the availability of sealift-qualified mariners who are willing to serve at times of National Need as recommended by the 2018 Maritime Workforce Working Group Report¹ and the 2015 United States Government Accountability Office (GAO) Report 15-666, Cargo Preference Increases Food Aid Shipping Costs, and Benefits are Unclear.²

¹ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/mariners/1026/mwwg-report-congress-finalr3.pdf>

² <https://www.gao.gov/assets/680/672181.pdf>

A. JUSTIFICATION

A.1 Importance of Information

MARAD is an agency of the Department of Transportation (DOT) and its mission is to foster, promote, and develop the maritime industry of the United States to meet the Nation's economic and security needs.

The Secretary of Transportation has delegated to MARAD the authority to survey mariners. Title 46, United States Code (USC), Section 50102(a) states: "(a)In General -The Secretary of Transportation shall survey the merchant marine of the United States to determine whether replacements and additions are required to carry out the objectives and policy of section 50101 of this title." 46 USC Section 50104 is also applicable. In addition, National Security Directive 28 directs DOT to "ensure that the U.S. maintains the capability to meet sealift requirements in the event of crisis or war," and states that DOT is "responsible for determining whether adequate manpower is available to support the operation of reserve ships during a crisis." (Please see Appendix 1.a for the aforementioned documentation.)

In the event of a war, armed conflict, or national emergency (hereafter collectively called "National Need"), mariners would be needed on short notice to serve on U.S. government-owned ships, referred to as MARAD's Ready Reserve Force (RRF) vessels and the Military Sealift Command (MSC) surge sealift vessels, while simultaneously maintaining maritime commerce, both domestic and international, to support the nation's economy. Thus, the availability of qualified merchant mariners sufficient to achieve these goals is vital to the country's ability to respond to a national crisis. The USCG is responsible for validating the competencies earned by mariners and issuing them the appropriate mariner credentials based on current domestic and international requirements. The MMLD database serves as the nation's sole repository of such credentials issued by the USCG and is updated regularly. However, identifying the availability, preparedness, and willingness of appropriately qualified mariners essential to crew the nation's strategic sealift vessels is not part of the USCG mission and hence, not addressed by the MMLD. Additionally, a key component of mariner qualifications for service aboard strategic sealift vessels is recent sailing experience, which correlates to proficiency of skills needed aboard RRF and MSC surge sealift vessels. The MMLD database is not designed to consistently track recent sailing experience and cannot provide the necessary data to assess the recency of mariner experience.

The 2015 GAO Report 15-666 recommended "that the Secretary of Transportation direct the Administrator of MARAD to study the potential availability of all qualified mariners needed to meet a full and prolonged activation of the reserve sealift fleet."

In 2017, a Congressionally mandated Working Group consisting of multiple government agencies including the USCG and the Department of Defense, and industry stakeholders, chaired by MARAD, estimated the number of sealift qualified mariners with recent sailing experience available in the commercial sector and verified this estimate with the number of mariners reported by maritime labor unions and non-union maritime employers. However, these data do not include any estimate of mariner availability or their willingness to serve.

In this context, it should be noted that a recent international regulation related to mariner credentialing that was implemented by the USCG with effect from January 1, 2017 has elevated the requirements and the costs associated with acquiring such credentials. Simultaneously, the documented decline in the number of large U.S.-flag ships in recent years has reduced the employment opportunities for mariners holding or seeking those credentials, thereby disincentivizing their desire for the level of credentialing required for operating the RRF vessels.

The 2018 Maritime Workforce Working Group (MWWG) Report,³ in response to FY 2017 National Defense Authorization Act (NDAA) Section 3517, 2017, recommended that “A periodic survey of the U.S. citizen mariner pool qualified to crew U.S. government reserve vessels should be undertaken to measure mariner availability – Since merchant mariner employment is voluntary, the number of people willing to sail in times of National Need is unknown.” Accordingly, MARAD plans to conduct regular mariner surveys with biennial periodicity as recommended by the MWWG Report to help build a useful data source for estimating the number of qualified mariners who would be available and willing to sail on U.S. government reserve vessels if called upon to do so.

The recurring nature of this study is of critical importance, given the need for teasing out true intentions of serving from what mariners may state during any given single survey. By relying on a rotating panel design, whereby a subset of mariners will be recontacted for future surveys, it would be possible to estimate the extent stated willingness to serve passes the test of time. Specifically, using Bayesian techniques it will be possible to calibrate initial estimates (priors) based on confirmations that would be secured during future surveys (posteriors). In particular, Hierarchical Bayes models can be used to improve the external validity of estimates for intention to serve for different subgroups or specific Needs.⁴

This information collection supports the DOT Strategic Objective to “support the development of appropriately skilled and prepared transportation workers, and develop strategies to meet emerging workforce challenges”⁵ and MARAD’s Strategic Goal (Objective 2.1) of ensuring that “U.S. mariner requirements for economic and national security are identified and met.”⁶

The information collected during the Mariner Survey Pre-Test will be analyzed to validate and improve the design of the subsequent Mariner Survey components. Pre-tests are often conducted to test the “mechanics” of a survey before the full data collection process commences. In particular, pre-tests are used to check the wording of questions and response categories and ensure that the skip logics of a survey instrument have been programmed correctly. Moreover, such tests are used to assess the various yield rates that are initially based on guesstimates. These include rates of response, as well as estimates of burden or time-to-completion. Furthermore, it is important to note that one of the most essential recommendations from the *stated preference*

³ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/mariners/1026/mwwg-report-congress-final3.pdf>

⁴ Allenby, Greg M., Neeraj Arora, and James L. Ginter (1995), “Incorporating Prior Knowledge into the Analysis of Conjoint Studies,” *Journal of Marketing Research*, 32, 152-162.

⁵ <https://www.transportation.gov/sites/dot.gov/files/docs/mission/administrations/office-policy/304866/dot-strategic-planfy2018-2022508.pdf>

⁶ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/docs/resources/3606/marad-strategic-plan-2017-2021-20170119-final-signed.pdf>

literature⁷ and a best practice for any survey effort is to conduct a pre-test of the survey instrument prior to fielding. This best practice is even more vital when obtaining information through hypothetical questions.

A.2 Purposes and Uses of Data

In their comprehensive review of the *stated preference* literature and studies to date, Johnston et al. (2017)⁸ note that the sufficiency of the survey design components depends on respondents' understanding and perceptions. This insight is necessary to ensure that respondents understand the scenarios and response options as intended. Two types of pretesting of survey materials are recommended: qualitative pretesting such as focus groups, cognitive interviews, or other small-group methods, and quantitative pretesting using pilot studies.^{9,10,11} Strategic Research Group, MARAD's survey contractor, plans to conduct both types of pretesting through cognitive interviews and a large pilot test.

The Mariner Survey Pre-Test will first conduct qualitative pre-testing consisting of 45-minute cognitive interviews (15 minutes for the survey and 30 minutes for the interview) with approximately 40 mariners. The information collected during the cognitive interview pre-testing will be used to ensure respondents are understanding the survey questions and providing accurate responses, identifying any needed improvements in the process.

Once the cognitive interviews are completed, a pilot test survey with approximately 650 mariners will be conducted to test the proposed data collection methods. The pilot test survey results will be analyzed to further validate and improve the survey design components of the subsequent biennial Mariner Survey main studies, which are not part of this information collection request. Upon completion of the Mariner Survey Pre-Test analysis, MARAD intends to submit a separate information collection request for the subsequent biennial Mariner Survey main studies.

The proposed Mariner Survey questionnaire will collect information from mariners to estimate the number of qualified merchant mariners who, on short notice, could and would serve during a period of National Need. This estimate would be used by MARAD to assess the maritime workforce's ability to support both sealift operations and maritime commerce during surge operations. The results of the full biennial Mariner Survey will be used to respond to inquiries from the United States Transportation Command, Congress, and other stakeholders, and explore

⁷ Johnston, R., Boyle, K., Adamowicz, W., Bennett, J., Brouwer, R., Cameron, T., Hanemann, W., Hanley, N., Ryan, M., Scarpa, R., Tourangeau, R., & Vossler, C.A. (2017). Contemporary Guidance for Stated Preference Studies. *Journal of the Association of Environmental and Resource Economists*, 4, 319–405.

⁸ Johnston et al. 2017.

⁹ Arrow, K., Solow, R., Portney, P. R., Leamer, E. E., Radner, R., & Schuman, H. 1993. Report of the NOAA panel on contingent valuation. *Federal Register* 58:4601–14.

¹⁰ Bateman, I. J., Carson, R. T., Day, B. H., Hanemann, W. M., Hanley, N., Hett, T., Jones-Lee, M., Loomes, G., Mourato, S., Özdemiroglu, E., & Pearce, D. W. 2002. *Economic valuation with stated preference techniques: A manual*. Cheltenham: Edward Elgar.

¹¹ Champ, P. A., Boyle, K., & Brown, T. C., eds. 2017. *A primer on nonmarket valuation*. Amsterdam: Springer Science & Business Media.

future courses of action when government-owned ships as well as commercial ships are required to meet our national security needs.

The proposed Mariner Survey questionnaire is comprised of two sections. Section 1 obtains key information about mariners' experience and potential availability in the event of a National Need. The information asked in Section 1 is not available from the MMLD or any other sources.

Section 2 assesses mariners' willingness to volunteer to serve in the event of a National Need, and the conditions under which they might be willing to volunteer to serve, as well as a few other questions related to volunteering. Mariners will be asked to respond to six scenarios; depending on their answers, they will be asked to respond to up to three additional questions.

The remainder of this section provides the rationale for including each of the survey questions. A copy of the Mariner Survey questionnaire can be found in Appendix 1.b.

Mariner Survey Section 1: Mariner Experience and Availability – Questions and Rationale for Inclusion

Q1. What BEST describes your current merchant mariner status?

A mariner's current sailing status is likely related to both their availability and willingness to volunteer to serve in the event of a National Need. Responses to this question will allow MARAD to ascertain the size of the actively sailing mariner pool. Mariners who are currently sailing have valid credentials, have medical clearance, and could theoretically join a ship at short notice if they were willing to do so. Mariners who have quit sailing are unlikely to be available to serve on short notice and are potentially less likely to be willing to volunteer. Additionally, responses to this question determine eligibility for Q2.

Q2. Are you currently employed by the U.S. Government as a Civil Service Mariner (CIVMAR) to sail on vessels operated by the Military Sealift Command (MSC) or National Oceanic and Atmospheric Administration (NOAA) or U.S. Army Corps of Engineers (USACE)?

It is important to ascertain whether actively sailing mariner respondents (captured in Q1) are currently employed as a CIVMAR because these mariners may state they are *willing* to volunteer to serve, but are unlikely to be *available* to volunteer, as they will already be obligated to serve under the terms of their current employment with the U.S. Government. Analysis of the responses to the items in Section 2 will be conducted separately for those who are CIVMARs and those who are not.

Q3. Do you currently belong to a Reserve Component or National Guard?

Similar to Q2, Q3 provides information about a mariner's likely availability (or unavailability) in the event of a National Need. It is important to ascertain whether actively sailing mariner respondents (captured in Q1) currently belong to a Reserve Component or National Guard because these mariners may state they are *willing* to volunteer to serve, but are unlikely to be *available* to volunteer, as they will already be obligated to serve in another capacity under the terms of their commitment to the Reserve Component or National Guard.

Analysis of the responses to the items in Section 2 will be conducted separately for those who belong to a Reserve Component or National Guard and those who do not.

Q4. Do you currently hold any rating (unlicensed) endorsements?

Q4a. For each rating endorsement below, indicate whether you have EVER sailed under that rating.

Q4b. For each rating endorsement below, please enter the four-digit year you LAST sailed under that rating. If you are unsure of the exact year, please provide your best guess.

These three questions capture information about the experience of unlicensed mariners. Those who say “yes” to Q4 will be asked to select the ratings under which they have ever sailed and the year they last sailed under that rating. Those who say “no” to Q4 will skip to Q5.

The crew for merchant marine vessels that trade internationally is broken into two main categories, officers and ratings. This structure is similar to that of the U.S. armed services, where commissioned officers and non-commissioned officers are the two main categories. For domestic credentials, which are issued for mariners who are not credentialed in accordance with international regulations but are otherwise eligible to sail domestically, the terms are licensed and unlicensed. Unlicensed is not a reflection of whether a mariner is eligible to sail; rather, it indicates the capacity in which they are credentialed to serve. Typically, the officers, or licensed crew, serve in leadership roles and are responsible for cargo operations, navigation, and engineering. Ratings, or unlicensed crew, are responsible for the day-to-day operations such as routine vessel and engine maintenance, hands-on steering of the vessel, lookout functions, and culinary requirements.

Q5. Do you hold a DECK officer MMC endorsement, whether active, inactive, or expired?

Q5a. For each position below, indicate whether you EVER sailed in that position.

Q5b. For each position below, please enter the four-digit year you LAST sailed in that position. If you are unsure of the exact year, please provide your best guess.

These three questions capture information about the experience of deck officers. Those who say “yes” to Q5 will be asked to select the positions under which they have ever sailed and the year they last sailed in that position. Those who say “no” to Q5 will skip to Q6.

Q6. Do you hold an ENGINEER officer MMC endorsement, whether active, inactive, or expired?

Q6a. For each position below, indicate whether you EVER sailed in that position.

Q6b. For each position below, please enter the four-digit year you LAST sailed in that position. If you are unsure of the exact year, please provide your best guess.

These three questions capture information about the experience of engineer officers. Those who say “yes” to Q6 will be asked to select the positions under which they have ever sailed

and the year they *last* sailed in that position. Those who say “no” to Q6 will skip to Section 2.

Q7. Do you currently live with a spouse or a partner?

Q8. How many children, under the age of 19, are living with you at least two days a week?

Q9. What is the age of the youngest child living in your household at least two days a week?

Q7-Q9 capture information about mariners’ familial obligations. Responses to these questions will help MARAD understand whether these demographic characteristics are related to mariners’ willingness to serve.

Q10. In the last six months, how difficult has it been for your household to pay for the usual household expenses, including but not limited to food, rent or mortgage, car payments, medical expenses, student loans, and so on?

This question taken from the U.S. Census Bureau’s Household Pulse Survey (adapted to reference a longer timeframe appropriate for this survey) captures mariners’ level of financial hardship. Responses to this question will help MARAD understand whether financial hardship is related to mariners’ willingness to serve. Additionally, responses to this question will be cross-tabulated with Q18 and Q19 in Section 2, to assess whether financial hardship is related to whether government reimbursement for administrative requirements or Standards of Training, Certification and Watchkeeping (STCW) course requirements would impact willingness to serve for those mariners who indicated some uncertainty about their willingness to serve.

Mariner Survey Section 2: Willingness to Volunteer – Questions and Justification for Inclusion

This section of the survey focuses on gathering information on whether mariners would be willing to serve in a time of National Need and under which circumstances (e.g., which vessels they would serve on, which billet they would accept, how long a tour they would serve).

Because these questions are hypothetical in nature, it is important to follow best practices from prior research to determine how best to ask these questions in a way that minimizes the bias that can result from asking what a respondent would do in a hypothetical situation. Much of the guidance for best practices for asking hypothetical questions can be found in the literature on *stated preference* studies.

Stated preference studies emerged from economic practices to better determine how much consumers would be willing to pay for a product and which attributes they prefer. This literature evolved to also include methods for determining which of a variety of options, with different attributes, should be offered to achieve the most usage.^{12,13} Indeed, many environmental studies

¹² Johnston, R., Boyle, K., Adamowicz, W., Bennett, J., Brouwer, R., Cameron, T., Hanemann, W., Hanley, N., Ryan, M., Scarpa, R., Tourangeau, R., & Vossler, C.A. (2017). Contemporary Guidance for Stated Preference Studies. *Journal of the Association of Environmental and Resource Economists*, 4, 319–405.

use a stated preference approach to determine how citizens value enacting an environmental practice or whether they would utilize a public recreational area or activity.

However, the goal of the Mariner Survey questionnaire is not to determine which sailing scenarios mariners would *prefer* if they were to volunteer to serve in a time of National Need. The goal is to determine if they would be willing to sail under all potential scenarios. Determining which scenarios (different attributes and levels of attributes) are preferable does not answer the fundamental question of whether mariners would actually show up to serve under even the most preferred scenarios should an activation be needed. Nevertheless, we are still able to apply best practices from the *stated preference* literature that are vital to reducing the potential for bias in mariners' responses to these hypothetical scenarios.

A main concern of the stated preference literature is ensuring that the respondents fully understand the scenarios they are asked to form decisions about, including aspects of risk or uncertainty. One particular area of concern in the *stated preference* literature is the omission of relevant risk information from scenarios, which could lead to empirical value estimates that do not reflect true welfare change. Thus, it is important to adequately convey risk or uncertainty in terms that are clearly understood by respondents.¹⁴ To address these important aspects of designing questions to ascertain responses to hypothetical situations, this section of the survey offers respondents a link to a description of risks as well as benefits mariners could face when serving in a time of National Need. (This information was drawn from the Summary of Merchant Mariner Risk and Compensation Factors, which is provided in Appendix 1.c.)

Guidance from the *stated preference* literature states that attributes and levels should be selected based on a combination of the values needed to support decision making, feasibility of implementation, plausibility to respondents, and statistical efficiency.¹⁵ The most salient aspect here is feasibility of implementation as MARAD has little leeway to alter sailing scenarios based on mariner preferences. Thus, all relevant scenarios must be offered to mariners in order to collect sufficient data on mariner willingness to serve – while still minimizing respondent burden to the extent possible. To this end, MARAD identified the following two attributes and corresponding levels as most important in drafting the questionnaire:

1. Type of Vessel, with three levels: (1) Privately-owned vessel engaged in commercial trade, (2) Privately-owned vessel on a military mission, and (3) Government-owned vessel on a military mission
2. Number of Tours, with two levels: (1) One tour of four months, and (2) At least two tours of four months each (with two months off between tours)

¹³ Champ, P. A., Boyle, K., & Brown, T. C., eds. 2017. *A primer on nonmarket valuation*. Amsterdam: Springer Science & Business Media.

¹⁴ Lundhede, T., Jacobsen, J. B., Hanley, N., Strange, N., & Thorsen, B. J. 2015. Incorporating outcome uncertainty and prior outcome beliefs in stated preference. *Land Economics* 91, 296–316.

¹⁵ Johnston, F. Reed, E. L., Marshall, D., Kilambi, V., Mühlbacher, A., Regier, D. A., Bresnahan, B. W., Kanninen, B., & Bridges, J. F. P. 2013. Constructing experimental designs for discrete choice experiments: Report of the ISPOR conjoint analysis experimental design good research practices task force. *Value in Health* 16, 3–13.

Service in the merchant marine is strictly voluntary, and as such, mariners are free to choose how they wish to serve. Generally, the mariner chooses to sail based on the two attributes above based on personal preference. Most mariner jobs are through labor unions, which utilize the concept of a “sailing board” to offer employment. Based on seniority and qualification levels, mariners will be assigned to a vessel only if they choose it. If a mariner is not interested in a position on a particular vessel, they will pass and await a position that is more favorable to them. In general, three types of vessels as described in attribute 1 are available for employment. Further, mariner jobs are typically available for rotations of three to four months. A mariner can immediately complete one tour and report to the union, ready for another. Conversely, a mariner could choose to take paid time off in accordance with the contract. There is no requirement to report for duty immediately. Since a contingency may last longer than four months, the number of tours a mariner is willing to serve is an important attribute.

All combinations of these attributes and levels result in six possible scenarios. Mariners will be asked to report their degree of likelihood to volunteer in each scenario. Each scenario will be phrased as such: “In the event of a National Need, assuming that any necessary training would be provided, how likely would you be to volunteer to serve as a paid crew member in the following scenario?” Then the specific levels of each attribute for that scenario will be provided. For example:

Vessel: Government-owned vessel on a military mission
Tours: One tour of four months

When presenting respondents with different scenarios, choice sets have been found to be most effective in obtaining accurate responses when respondents have advanced notification that they will face multiple valuation questions and some information on the range of situations they will be asked to consider.¹⁶ Therefore, the introduction to this section of the survey will include an explanation to mariners that they will be asked to provide their honest assessment on whether they would choose to serve in a series of scenario and an acknowledgement that respondents’ answers will reflect their current thinking and that circumstances may change in the future.

Following these six scenarios, all mariners except those who answered “Very Unlikely” to all six scenarios will be asked one additional question (Q17), “If you were to volunteer to serve in a paid position aboard a vessel during a period of National Need, how long would it take you to report to an assigned vessel?” Response choices will offer a series of timeframes, plus an “Unsure” option. This information is important to obtain because while volunteers would be needed on a very short-term basis in the event of a National Need, the ability to sustain operations also will be critical.

All mariners except those who answered “Very Likely” to all six scenarios will be asked two follow-up questions gauging whether mariners would be more likely to volunteer to serve if 1) the government were to reimburse them for the required fees for all administrative requirements

¹⁶ Bateman, I. J., Cole, M., Cooper, P., Georgiou, S., Hadley, D., & Poe, G. L. 2004. On visible choice sets and scope sensitivity. *Journal of Environmental Economics and Management* 47, 71–93.

(physical examination fee, TWIC renewal fee, and MMC renewal fee) to maintain their MMC in active status (Q18), and 2) the government were to reimburse them to take all STCW required courses to maintain their MMC credential with their last active highest office or rating endorsement (Q19). These questions will show the potential impact of offering government incentives on the willingness of mariners to volunteer to serve.

The **cognitive interviews** will assist with testing the Mariner Survey questionnaire. The Cognitive Interview Guide (included in Appendix 1.d) will include questions about whether there were any terms or phrases that mariners found confusing, whether mariners thought the six scenarios regarding willingness to volunteer were easy to understand and respond to, whether they felt they thought they had sufficient information in order to accurately respond, and whether they gave serious consideration to the questions when responding. Additional questions will ask about the survey instructions, response choices to certain questions, and general experience completing the survey.

A.3 Improved Information Technology (Reduction of Burden)

The cognitive interviews during the Mariner Survey Pre-Test will be conducted either telephonically or via an online meeting application. The pilot survey for the Mariner Survey Pre-Test will be administered primarily via an online survey instrument. This survey mode was chosen in part due to the mobile nature of the merchant mariner population; it is expected that a notable percentage of the sampled respondents will be working aboard vessels during the data collection phase. As such, a telephone or mail survey is not practical for these mariners. An online survey allows for respondents to complete it at a time and place convenient for them, on any type of device with an internet connection. Additionally, online surveys tend to take less time for respondents to complete than mail and telephone surveys. Hence, an online survey is the least burdensome survey format for this population.

Some mariners, however, may not have access to reliable internet, and some may not prefer to complete the survey online. Furthermore, an email address is not available for approximately eight percent of merchant mariners and some number of email addresses will be invalid. A paper version of the survey will be mailed to mariners who do not have a valid email address and who do not complete the survey after receiving an invitation via mail to take the online survey, as well as mariners who request a paper copy be sent by mail.

It is expected that over 85 percent of records in the MMLD will include email address; as such, it is estimated that at least 85 percent of the surveys will be completed electronically (online), and that the remainder of the surveys will be completed via a paper survey returned via regular mail.

The results of the Mariner Survey Pre-Test will not be made available to the public. The purpose of this data collection effort is to validate and improve the design of the questionnaire and other survey components for a subsequent full Mariner Survey.

A.4 Efforts to Identify Duplication

This data collection is not duplicative of other information collection efforts by any other organization.

The MMLD system, developed and maintained by the USCG, is the only repository for information on the number and types of Merchant Mariner Credentials issued by the USCG. The MMLD is efficient at meeting its core function of issuing the credentials; however, it does not have the capability to estimate the number of sealift qualified mariners, their proficiency status, or their availability and willingness to serve at times of National Need. The MWWG Report highlighted these limitations and recommended strongly that MARAD initiate a biennial Mariner Survey to augment their analysis of mariner availability.

MARAD collaborated with the Bureau of Transportation Statistics in previously conducted Mariner Surveys administered in 2001 and 2002. Although those surveys gave useful findings at that time, extrapolating them for current analysis in a radically altered geopolitical environment and after a long gap of eighteen years is inappropriate. Even from a simple one-dimensional perspective, a continued decline in the number of U.S.-flag vessels has led to premature retirements and depleted the number of mariners serving in senior ranks. Furthermore, increased cost of maintaining and upgrading credentials to meet international STCW regulations, escalated twice since 2002 and most recently in January 2017, has further stressed the mariner pool. As a result, the data from these earlier surveys cannot be used to estimate the size or willingness of today's mariner pool.

Furthermore, reliable and accurate historic information is not readily available on those who answered past calls for volunteers, which last occurred nearly 30 years ago during Operations Desert Shield and Desert Storm. Revealed preference of mariners from the previous times of National Need cannot be determined due to the nature of record keeping both in government and industry. Specifically, MARAD contacted partners in maritime labor unions and searched internal records for any useful information and had no success. Data on mariner preferences are not available from maritime labor and industry. It is believed that such records, historically maintained in hard copy, did not make the transition to the digital era. One could also question the utility of such thirty-year old data in addressing contemporary crewing and operational challenges in contested water operations with near peer competitors who did not even exist during those years. Analysis of this past data, if recovered after considerable time, effort, and cost, would also be of little value due to the substantial change in make-up of the mariner pool. Additionally, internal government record searches revealed no reliable information on mariner preferences. Extensive research of government archives would be required at great expense and time, and as in the case of any information from maritime labor, the information obtained would be of little value.

Even if it was available, the revealed preferences of mariners from the early 1990s are no longer valid, since there have been major changes to mariner credentialing requirements under the International Convention on Standards of Training, Certification and Watchkeeping (STCW) since that time. Without current STCW certification, which requires additional costly training, mariners are not authorized to sail internationally. Because of the training cost and time,

mariners who are not in an active sailing status are not likely to obtain and/or maintain international qualifications unless required for current or anticipated employment. What has aggravated this outcome is the decline in number of U.S.-flag ships that would employ sealift-qualified mariners, which would have incentivized them to keep their USCG credentials current.

More detailed information can be found in Appendix 1.e, Summary of Available Historical Revealed Data from Past Major Mariner Mobilizations.

A.5 Minimizing Burden for Small Entities

This survey will not have a significant impact on small businesses or other small entities.

A.6 Frequency of Data Collection

The Mariner Survey Pre-Test will only be conducted once. This request is for a one-time information collection.

Upon completion of the Mariner Survey Pre-Test, MARAD will submit a separate request for the follow-on biennial Mariner Survey. If the Mariner Survey is not conducted, MARAD will not be able to estimate the number of qualified mariners available and willing to serve on short notice in the event of a war, armed conflict, or national emergency (i.e., “National Need”). As a result, MARAD’s ability to meet its national security mission will remain unknown.

The pool of qualified and willing mariners is dynamic. Mariners leave this pool in various ways, including by allowing credentials and endorsements to expire, retiring, becoming incapacitated, dying, or becoming unwilling to sail during a National Need. Mariners enter this pool when they become qualified and become willing to crew a U.S. vessel during surge operations. The subsequent mariner survey with biennial periodicity will help MARAD build a time series database over the years to respond to questions related to trends in the number of sealift qualified mariners, and their availability and willingness to serve at times of National Need. This is essential for MARAD to execute its national security mission.

A.7 Special Circumstances

No special circumstances exist in the information collection plan for the Mariner Survey Pre-Test that would require unique or unusual manners of data collection. None of the special circumstances identified in the Paperwork Reduction Act Guide apply to the Mariner Survey Pre-Test.

A.8 Compliance with 5 CFR 1320.8

MARAD published a 60-day notice and request for comments on this information collection in the Federal Register on September 14, 2021 (86 FR 51224), indicating comments should be

submitted on or before November 15, 2021 to MARAD on the docket. MARAD received no comments related to the cost and burden of the proposed information collection.

In addition, a 30-day notice was published in the Federal Register on January 26, 2022 (Vol. 87 FR 4099) to invite submittal of public comments on this information collection on or before February 25, 2022 to OMB on the docket.

Efforts were made to consult with persons outside of MARAD to obtain their views on the availability of data, frequency of collection, the clarity of instructions and record keeping, disclosure, reporting format, and on the data elements to be recorded, disclosed or reported. These efforts were undertaken by MARAD's contractor, Strategic Research Group (SRG). MARAD provided SRG with a list of potential stakeholders comprised of individuals from the U.S. Congress; the U.S. Navy; the U.S. Coast Guard; labor representatives; U.S. Merchant Marine Academy and State Academies; Owner Representatives of United States Flag Fleet, Coast wise Trade; Owner Representatives of United States Flag Fleet, International Trade; Subject Matter Experts; MARAD; and other relevant stakeholders identified by MARAD. SRG sent out 48 email invitations asking these potential stakeholders if they wished to participate in a telephone discussion and offer feedback regarding the Mariner Survey methodology. Seventeen individuals from 13 agencies responded and participated in the feedback discussions.

One common theme that arose during the discussions was which mariners would be eligible to take the survey. Several stakeholders expressed that they thought that there were 200,000 mariners and wondered why only a small number was being included in the target population. Conversely, several other stakeholders felt that MARAD should streamline the target population to those mariners who are especially needed and those who are most willing. Along similar lines, it was suggested by several stakeholders that the survey effort focus on "upper-level mariners," especially engineers and engineers of steam vessels, or those most willing to sail, such as those who are retiring or leaving the fleet.

MARAD drafted a response that was provided to the stakeholders who participated in the feedback discussions, in order to clarify the target population and provide a rationale for the target population. MARAD's updated response to this issue is as follows:

All mariners employed aboard United States (U.S.) merchant vessels greater than 100 Gross Register Tons (Domestic Tonnage), except operators of uninspected passenger vessels, are required to have a valid U.S. Coast Guard (USCG) issued Merchant Mariner Credential (MMC). Mariners obtain credentials to perform a very wide range of shipboard duties, from serving as entertainers and bartenders on cruise ships to being the Master or Chief Engineer of a globally trading supertanker. The USCG Merchant Mariner Licensing and Documentation (MMLD) System contains information on credentials for over 200,000 people; this includes all mariners who possess any USCG-issued credential. The requirements to obtain a credential with specific qualifications are also wide ranging, from "no experience or exams" to complex sea-time requirements and rigorous testing by the USCG. There are additional training and certification requirements for mariners working on internationally trading vessels, issued in compliance with internationally mandated standards.

Clearly, not all credentialed mariners are qualified to work on the large oceangoing vessels of the type used for military sealift and large-scale humanitarian aid.

Mariners that are credentialed to only operate specialized or limited size vessels (e.g., a harbor tugboat) are unlikely to have the training or the competence for the safe and reliable operation of larger oceangoing ships. Therefore, a mariner qualified for crewing the larger oceangoing ships is defined as one who holds a current and valid unlimited tonnage or unlimited horsepower or oceans credential and meets the required international Standards for Training, Certification, and Watchkeeping (STCW); a current and valid Transportation Worker Identification Credential (TWIC); and a current and a valid USCG STCW Medical Certificate. Accordingly, this survey is targeted toward such mariners. MARAD estimates that around 100,000 of the 200,000 credentialed mariners meet these basic requirements to some degree. Also, because an MMC is valid for five years after the date of issue, it does not imply that the person is, or has been, employed on a vessel. It is important to reiterate that with the exception of those directly employed by the U.S. Navy's Military Sealift Command, these mariners serve voluntarily; as such, their availability when called upon requires clarification. Thus, the Mariner Survey will help determine the supply of willing and available appropriately credentialed U.S. merchant mariners who will serve on board U.S. government-owned sealift ships or commercial ships on short notice during a period of National Need.

A.9 Payments or Gifts to Respondents

As part of the Mariner Survey Pre-Test, approximately 40 mariners will be asked to take part in a 45-minute cognitive interview. Because offering an incentive is essential for obtaining productive participation in these cognitive interviews, mariners who participate in such interviews will be offered an incentive of \$50.

Upon completion of the cognitive interview analysis, a pilot survey will be conducted during the Mariner Survey Pre-Test with approximately 650 mariners who will not be offered any incentive or payment.

The subsequent Mariner Survey main study respondents, which will be covered by a subsequent information collection request, will not be offered any incentive or payment.

A.10 Assurance of Confidentiality

The Mariner Survey Pre-Test plan for protecting the security and confidentiality of data conforms with the following regulations and policies: The Privacy Act of 1974 (5 U.S.C. 20, § 552a), DOT Order 1351.18 Privacy Risk Management Policy, and the Federal Information Security Management Act of 2002 (44 U.S.C. § 3541) (FISMA).

The plan for maintaining confidentiality includes signed non-disclosure agreements from all personnel who will have access to individually identifiable data. Personnel will also be trained

on handling Personally Identifiable Information (PII). Furthermore, the plan for maintaining confidentiality involves assigning unique passcodes to respondents to minimize the storage of PII on public facing servers, controlled and protected access to data for specific personnel, and server security and IT protocols that comply with FISMA security guidelines, security guidelines from NIST SP 800-53, and the requirements of NIST Special Publication 800-171. All participant data will be secured in a locked file cabinet within a locked office by the research team. No one outside of those privileged individuals will have access to it.

All letters and other materials sent to respondents will describe the voluntary nature of this survey. The materials sent will describe the study and indicate to mariners the extent to which their identities and responses will be kept confidential. The following statement will appear on the front cover of the paper surveys as well as one of the introductory screens of the online survey:

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2133-NEW. Public reporting for this collection of information is estimated to be approximately 20 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are voluntary. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Maritime Administration, MAR-390, W26-494, 1200 New Jersey Avenue, SE, Washington, DC 20590.

OMB No. 2133-NEW. Approval Expires MM-DD-YYYY

A.11 Sensitive Questions

The Mariner Survey Pre-Test does not include any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, or other matters commonly considered private. The survey also does not include questions about race or ethnicity.

A.12 Estimates of Burden

During the Mariner Survey Pre-Test, cognitive interviews will be conducted with 40 mariners to understand how certain survey questions are being interpreted. The interviews are expected to take 45 minutes (the estimated time to complete the survey and participate in the interview). Next, a pilot test of the survey will be conducted with 650 mariners, to identify any methodological issues with the survey. This pretest will take 20 minutes for each mariner (the estimated time to complete the survey).

The Table A.12.1 below provides the total burden to respondents in terms of hours and cost for each component of the pre-test (cognitive interviews and pilot survey). Given that a mix of mariners from different subpopulations will be used during the Mariner Survey Pre-Test, the blended average hourly rate was used to calculate respondent cost. The total respondent cost for this survey effort is \$16,814.

Table A.12.1. Total Burden Estimates for all Components of the Mariner Survey Pre-Test

Survey Component	Number of Mariners participating	Average burden per respondent (hours)	Total Burden (hours)	Average Hourly Wage Rate¹	Total Salary Cost	Total Respondent Cost²
Mariner Survey Pre-Test Cognitive Interviews	40	0.75 ³	0	\$48.62	\$1,459	\$2,043
Mariner Survey Pre-Test Pilot Survey	650	0.333	217	\$48.62	\$10,551	\$14,771
Total Respondent Burden	690		247		\$12,010	\$16,814

¹ Average Hourly Wage Rate was calculated from multiple sources: <https://sealiftcommand.com/storage/app/media/2019EastCoastPayCharts13AUG2019.pdf>, <https://www.mercer.us/our-thinking/career/2019-united-states-compensation-planning-survey-key-findings.html>, <https://www.imercer.com/articleinsights/march-2021-us-compensation-planning-pulse-survey-results>, https://www.bls.gov/oes/current/oes_stru.htm#53-0000, and RRF Collective Bargaining Agreement Data from MARAD (not publicly available)

² Total Cost = Salary Cost times 1.4 to reflect fringe benefits.

³ Includes 15 minutes (0.25 hours) for the survey and 30 minutes (0.50 hours) for the interview

A.13 Total Annual Cost Burden

Other than the burden associated with participating in the cognitive interviews and the pilot survey (estimated above in Section A.12), the Mariner Survey Pre-Test imposes no additional cost to respondents.

A.14 Estimated Cost to the Federal Government

The estimated total cost to the government, including the \$30,835 cost of contractor and the \$6,673 internal MARAD cost as detailed below, is \$37,508.

1. Contractor Cost

MARAD has a fixed price contract with Strategic Research Group (SRG) to conduct the Mariner Surveys. Based on the Pre-Test deliverables in the contract, the total contractor cost to the Federal Government for conducting the Mariner Survey Pre-Test as described in the current request is \$30,835.

2. MARAD’s internal costs

MARAD’s estimated internal annual cost for providing oversight and review of the Mariner Survey contractor’s effort for the Mariner Survey Pre-Test is provided in the table below.

Table A.14.1. MARAD Internal Cost for the Mariner Survey Pre-Test.

Employee Grade	Office Code	Activity	Total Hours	Hourly Salary^{1,2}	Salary Cost	Total Cost³
GS-15	MAR-600.32	Coordinate, Review	32	\$78.27	\$2,505	\$3,506
GS-14	MAR-650	Review	8	\$66.54	\$532	\$745
GS-15	MAR-650	Review	8	\$78.27	\$626	\$877
GS-15	MAR 232	Review	8	\$78.27	\$626	\$877
SES	MAR-600.3	Review	6	\$79.50	\$477	\$668
TOTAL			0	\$ 76.87	0	0

¹ GS hourly salary is based upon the Step-5 hourly basic rate in the [Salary Table 2021-DCB](#).

² SES hourly salary is based upon 2087 hours/year and the mean SES annual salary for agencies with a certified SES Performance Appraisal System in the [Salary Table No. 2021-ES](#).

³ Total Cost = Salary cost times 1.4 to reflect fringe benefits.

The annual internal MARAD cost in 2022 is estimated to be \$6,673.

A.15 Program Changes or Adjustments

This is a new program.

A.16 Plans for Tabulation and Publication

The results of the Mariner Survey Pre-Test will not be published.

Table A.16.1 provides the time schedule for data collection and other key actions.

Table A.16.1. Time Schedule for the Mariner Survey Pre-Test Data Collection and Other Key Actions

Activity	Estimated Timeline
Publish 60-day Federal Register Notice	September – November 2021
30-day Federal Register Notice	January – February 2022
OMB Review and approval	March – May 2022
Programming and Testing Web-Based Mariner Survey questionnaire	June 2022
Selection of Pre-Test Sample for Cognitive Interviews and Pilot Test	June 2022
Mariner Survey Pre-Test Cognitive Interviews and Analysis	July – August 2022
Mariner Survey Pre-Test Pilot Test Survey	September – November 2022
Complete Pre-Test Analysis	December 2022
Finalize Survey Components for biennial Mariner Survey main studies	December 2022

The pre-test responses will be analyzed to improve the design of the full biennial Mariner Survey. Upon completion of the pre-test analysis, MARAD intends to submit a separate request for a three-year approval for the full biennial Mariner Survey after issuing new 60-day and 30-day notices in the Federal Register.

A.17 Display OMB Expiration Date

The OMB expiration date will be displayed on all data collection and recruitment materials.

A.18 Exceptions of Certification Statement

No exceptions are requested to the “Certification for Paperwork Reduction Act Submissions” of OMB Form 83-I.