



Aqua Alert Notification System: Pilot Program Implementation (2024)

Report to Congress
November 19, 2024



U.S. Coast Guard

Foreword

November 19, 2024

I am pleased to present the following report, “Aqua Alert Notification System: Pilot Program Implementation (2024),” prepared by the U.S. Coast Guard.

The Don Young Coast Guard Authorization Act of 2022 directs the submission of a report on the implementation a pilot program to improve the issuance of alerts to facilitate cooperation with the public to render aid to distressed individuals.

Pursuant to Congressional requirements, this report is provided to the following members of Congress:

The Honorable Maria Cantwell
Chair, Senate Committee on Commerce, Science, and Transportation

The Honorable Ted Cruz
Ranking Member, Senate Committee on Commerce, Science, and Transportation

The Honorable Sam Graves
Chairman, House Committee on Transportation and Infrastructure

The Honorable Rick Larsen
Ranking Member, House Committee on Transportation and Infrastructure

Should you require additional assistance, please do not hesitate to contact my Senate Liaison Office at (202) 224-2913 or House Liaison Office at (202) 225-4775.

Sincerely,



Linda L. Fagan
Admiral, U.S. Coast Guard
Commandant





Aqua Alert Notification System: Pilot Program Implementation 2024

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I. Legislative Language

This report responds to the language set forth in Section 11207 of the Don Young Coast Guard Authorization Act of 2022 (Pub. L. No. 117-263), which reads:

SEC. 11207. AQUA ALERT NOTIFICATION SYSTEM PILOT PROGRAM

(a) **IN GENERAL.**—Not later than 2 years after the date of enactment of this Act, the Commandant shall, subject to the availability of appropriations, establish a pilot program to improve the issuance of alerts to facilitate cooperation with the public to render aid to distressed individuals under section 521 of title 14, United States Code.

(b) **PILOT PROGRAM CONTENTS.**—In carrying out the pilot program established under subsection (a), the Commandant shall, to the maximum extent possible—

- (1) include a voluntary opt-in program under which members of the public, as appropriate, and the entities described in subsection (c), may receive notifications on cellular devices regarding Coast Guard activities to render aid to distressed individuals under section 521 of title 14, United States Code;
- (2) cover areas located within the area of responsibility of 3 different Coast Guard sectors in diverse geographic regions; and
- (3) provide that the dissemination of an alert shall be limited to the geographic areas most likely to facilitate the rendering of aid to distressed individuals.

(c) **CONSULTATION.**—In developing the pilot program under subsection (a), the Commandant shall consult—

- (1) the head of any relevant Federal agency;
- (2) the government of any relevant State;
- (3) any Tribal Government;
- (4) the government of any relevant territory or possession of the United States; and
- (5) any relevant political subdivision of an entity described in paragraph (2), (3), or (4).

(d) **REPORT TO CONGRESS.**—

- (1) **IN GENERAL.**—Not later than 2 years after the date of enactment of this Act, and annually thereafter through 2026, the Commandant shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives a report on the implementation of this section.
- (2) **PUBLIC AVAILABILITY.**—The Commandant shall make the report submitted under paragraph (1) available to the public.

II. Report

The Coast Guard conducted an assessment of its current alerting capabilities to enhance collaboration with the public in aiding distressed individuals. The Coast Guard currently lacks the means to disseminate notifications to the broader public beyond those equipped with marine radios. The Coast Guard examined various potential solutions, including a short message service-based system targeting subscriber devices and an app-based approach for push notifications to users of a dedicated mobile application. Ultimately, the Coast Guard decided to evaluate the effectiveness of leveraging existing tools provided by the Federal Emergency Management Agency (FEMA).

Solution

The Integrated Public Alert and Warning System (IPAWS) serves as the FEMA-led comprehensive national capability for disseminating emergency alerts and warnings from authorized local, state, territorial, tribal, and federal entities to the public across various communication channels. Its primary purpose is to swiftly deliver critical information messages sent by authorized users to the public during emergencies including natural disasters, public safety threats, and other hazardous situations to ensure public safety and facilitate timely response and action.

The Coast Guard can harness IPAWS either by working with FEMA to become an authorized alerting authority or by working with already-authorized state, local, tribal, and territorial authorities to transmit alerts on the Coast Guard's behalf. In particular, Wireless Emergency Alerts (WEA), a channel for the delivery of emergency alerts to the public on their mobile devices, serves as a tool to inform and motivate the public to aid the Coast Guard in rendering aid to distressed individuals. Wireless providers that participate in WEA push WEA alerts from cell towers that transmit radio frequency signals that may extend to coastal and marine areas of interest to the Coast Guard.

The decision to integrate IPAWS into existing emergency communication systems is strategic and multifaceted. IPAWS integration capitalizes on existing FEMA technology infrastructure, reducing costly development and implementation of new systems. By utilizing existing proven technologies, the Coast Guard can expedite deployment of IPAWS capabilities and minimize financial investment and technical challenges.

The Coast Guard already funds and is familiar with software capable of IPAWS integration. This existing software is BlackBerry's AtHoc, known within the Coast Guard as the Alert Warning System, which is currently used as an internal and external emergency communication tool. Internally, AtHoc is used to inform Coast Guard members of emergency situations, provide operation situational awareness, and as a two-way communication tool to aid accountability. Externally, AtHoc is used to inform the maritime industry of Maritime Security Level changes and port conditions, such as port conditions during a hurricane. By leveraging allocated resources, existing contractual relationships, and infrastructure, the Coast Guard can optimize budgetary allocations and accelerate implementation, enhance overall readiness, and increase response capabilities.

Another advantage of IPAWS integration is eliminating the need to sign up for a specific alert service. WEA-capable mobile devices are configured to receive WEA messages by default. Alert messages are automatically delivered to compatible devices within a target area, without requiring prior registration or opt-in from recipients. This broad reach ensures critical information reaches as many people as possible, enhancing public safety and emergency response effectiveness.

When evaluating IPAWS integration costs versus outcomes the benefits of improved situational awareness, enhanced public safety, and expedited response times are weighed against associated expenses. While an initial investment may be required for system integration and training, the potential lives saved, and property preserved in emergency situations underscores the value and return on investment of implementing IPAWS as part of a comprehensive emergency management strategy.

Despite its numerous advantages there are considerations and risks associated with IPAWS integration. For example, WEA does not align with statutory language provided in requirement (1), “include a voluntary opt-in program,” as it does not provide members of the public the opportunity to “opt-in”. While the ability to opt-in is not provided, this solution will be more effective in saving lives and eliminates the need for a public outreach campaign.

Additionally, “spillover” or overshoot concerns, where non-relevant alerts may inadvertently reach unintended recipients, highlight the importance of robust testing, protocols, and communication strategies to mitigate unintended consequences and optimize IPAWS integration effectiveness. To comport with Federal Communications Commission rule requirements to deliver WEA messages to 100 percent of cell phones within a targeted area, participating wireless providers may transmit WEA messages from cellular sites at significant distances from the targeted area as cell phones are not always connected to the nearest cell site. Advancements in mobile device technology such as Device Based Geo-Fencing (DBGF), help to limit overshoot. DBGF-equipped cell phones can compare their location to the coordinates specified in the alert to determine if it is in the targeted area. If it is, the device will present the alert. If not, the device will suppress presentation of the message. Mobile device users can, however, disable this feature by disabling location services on their device. Older mobile devices, which lack DBGF, also are more likely to experience overshoot

Progress Made

The Coast Guard is making progress implementing the Aqua Alert pilot program. To fulfill the requirement to conduct pilot tests within the areas of responsibility of three distinct Coast Guard sectors across diverse geographic regions, the Coast Guard chose Sector Long Island Sound, Sector Los Angeles / Long Beach, and Sector Eastern Great Lakes for the pilot program.

The Coast Guard moved forward with administrative actions required to install and configure the Coast Guard Alert Warning System (BlackBerry AtHoc system) to send alerts via IPAWS. Memorandum of Agreement with the FEMA IPAWS Program Office is required to recognize the Coast Guard as an Alerting Authority authorized to use IPAWS to send emergency alerts and warnings to the public. An update to or a new Authority to Operate for the Coast Guard Alert Warning System may be required. These approvals must be completed prior to installing and configuring required software onto Coast Guard workstations.

Aqua Alert system efficacy was substantiated through Proof-of-Concept testing conducted in collaboration with the Coast Guard Research and Development Center and FEMA within Sector Long Island Sound. A total of 45 test alerts were broadcasted to three designated test areas surrounding Long Island and Long Island Sound in the Spring of 2024. Test results demonstrated the system's capability to improve alert issuance, bolstering operational effectiveness, and potentially improving response outcomes through facilitated public cooperation. Further testing will aim to advance the Coast Guard's understanding of the solution's effectiveness and limitations.

Path Forward

Moving forward involves a focus on augmenting data collection efforts, particularly regarding targeting efficacy. Proactive engagement with wireless carriers is paramount. By extending invitations for their participation in further testing initiatives, the Coast Guard aims to foster collaborative partnerships that can enrich understanding and enhance the robustness of the Aqua Alert system.

Procuring BlackBerry's AtHoc licenses for the three pilot units marks a critical milestone in progression; however, before proceeding with software installation and configuration, the Coast Guard must complete certain administrative prerequisites (e.g., Authority to Operate, Memorandums of Agreement, Interconnection Security Agreements). Additionally, the Coast Guard was neither appropriated resources for the Aqua Alert pilot nor for expansion and sustainment of the solution past the current pilot initiative. Pending successful testing and resourcing, the Coast Guard will be positioned to procure required licenses, configure software, and expand operational use.

Continued data collection is a cornerstone of the Coast Guard's forward trajectory. By diligently capturing and analyzing usage data from pilot units, the Coast Guard can glean insights into system performance and operational effectiveness. This iterative process serves as a foundation for evidence-based decision-making and strategic refinement.

The next annual submission of this report will provide a comprehensive update, incorporating fresh insights gleaned from new test data and real-life usage scenarios encountered after pilot program implementation. By synthesizing this information, the Coast Guard can offer stakeholders a comprehensive overview of Aqua Alert's evolving efficacy, validated through empirical testing and real-world application.

III. Conclusion

As of Summer 2024, the Coast Guard leveraged existing technology through FEMA to confirm proof of concept for an “opt out” emergency notification system. The “opt out” approach allows for strategic and multifaceted advantages to improve alert notifications and facilitate cooperation with the public to render aid during emergencies. The Coast Guard also identified three initial Sector units to conduct pilot testing. Once pending administrative tasks are addressed, pilot testing will begin, and results will be discussed in the next annual report to Congress.

By leveraging pilot program insights, the Coast Guard can refine strategies, optimize system performance, and ultimately enhance public safety and emergency response effectiveness if an enterprise solution is implemented. The Coast Guard’s commitment to evidence-based decision-making ensures our efforts remain grounded in empirical testing and real-world application.

Appendix: Abbreviations

Abbreviations	Definition
DBGF	Device Based Geo Fencing
FEMA	Federal Emergency Management Agency
IPAWS	Integrated Public Alert and Warning System
WEA	Wireless Emergency Alert