



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention

Print Date: 7/31/24

**Title:** Use and Acceptability of the Model Aquatic Health Code (2023)

**Project Id:** 0900f3eb8231ffe5

**Accession #:** NCEZID-DWASHEPI-2/29/24-1ffe5

**Project Contact:** Pallavi A Kache

**Organization:** NCEZID/DFWED/WDPB/DWASHEPI

**Status:** **Project In Progress**

**Intended Use:** **Project Determination**

**Estimated Start Date:** 05/01/2024

**Estimated Completion Date:** 06/30/2026

**CDC/ATSDR HRPO/IRB Protocol #:**

**OMB Control #:** 0920-0879

## Determinations

Determination	Justification	Completed	Entered By & Role
HSC: Does NOT Require HRPO Review	Not Research / Other <i>45 CFR 46.102(l)</i> Program Evaluation	3/6/24	Peterson_James M. (iy1) CIO HSC
PRA:			

PRA Applies		3/7/24	Vice_Rudith (nhr9) OMB / PRA
ICRO: PRA Applies	OMB Approval date: 8/29/23 OMB Expiration date: 8/31/26	3/7/24	Zirger_Jeffrey (wtj5) ICRO Reviewer

## Description & Funding

### Description

**Priority:** Standard

**Date Needed:** 03/15/2024

**Priority Justification:**

**CDC Priority Area for this Project:** Not selected

**Determination Start Date:** 02/29/24

**Description:**

The Model Aquatic Health Code (MAHC) is a comprehensive guidance document that provides scientifically based recommendations to help ensure healthy and safe experiences in pools, hot tubs, and splash pads. The MAHC was first released in 2014, and addresses the design, construction, operation, and management of aquatic facilities open to the public. State, tribal, local, and territorial (STLT) public health partners can voluntarily use all or parts of the MAHC to create or update their codes to reduce the risk of illness and injury at public aquatic facilities. Since the MAHC's release, CDC has focused on developing and keeping the MAHC current and in line with the scientific literature. As such, the document undergoes a thorough review and revision every 3 years. However, to date, CDC has not formally assessed jurisdictional use of the MAHC, and whether it meets the needs of aquatic-focused public health programs across the United States. Through focus groups and a quantitative survey of STLT partners, CDC aims to characterize MAHC use, MAHC acceptability across the nation, and identify facilitators and barriers to MAHC utilization. Results from this assessment will inform decision-making regarding MAHC activities and help optimize the MAHC as a resource for STLT public health and environmental health partners.

**IMS/CIO/Epi-Aid/Lab-Aid/Chemical Exposure Submission:** No

**IMS Activation Name:** Not selected

**Submitted through IMS Clearance Matrix:** Not selected

**Primary Scientific Priority:** Not selected

**Secondary Scientific Priority (s):** Not selected

**Task Force Responsible:** Not selected

**CIO Emergency Response Name:** Not selected

**Epi-Aid Name:** Not selected

**Lab-Aid Name:** Not selected

**Assessment of Chemical Exposure Name:**

Not selected

**Goals/Purpose**

The overarching goals of this project are to characterize MAHC use, MAHC acceptability, as well as facilitators and barriers to MAHC use and implementation. Results from this assessment will inform decision making regarding MAHC activities and help optimize the MAHC as a resource for STLT public health partners. For the purposes of this project, we define MAHC #use# as MAHC language being incorporated into the jurisdiction#s pool code; or the MAHC being used as a reference to address a gap or need that is not addressed directly in the jurisdiction#s code. #Implementation# is being defined as the operationalization of code changes, once MAHC language has been incorporated into a jurisdiction#s pool code (e.g., training of pool inspectors and operators; updating inspection forms; educating health officials and operators on new guidelines). In the 10 years since the MAHC#s release, CDC has focused on developing and keeping the MAHC current and in line with the scientific literature. However, the agency has thus far taken a passive approach to understanding stakeholder use of the MAHC. The MAHC is currently written in #code language# so that individual jurisdictions can readily use all or parts of the MAHC language, revise the MAHC code as needed to meet their unique needs, or choose not to use the MAHC at all. Based on anecdotal reports from across the United States, CDC is aware of multiple states incorporating MAHC code into their pool regulations or using the MHAC or MAHC Annex as reference. There is a need to characterize the use and acceptability of MAHC and assess the contextual factors that contribute to or serve as barriers for MAHC use and implementation. This activity falls under Objective 1 of WDPB#s 2024 strategic objectives: to prevent and control WASH-related outbreaks. Within NCEZID#s Domestic Water, Sanitation, and Hygiene Epidemiology (DWASHE) Team, this work establishes a baseline understanding of partners# level of understanding or engagement with WASH-related policies, regulations, and prevention behaviors.

**Objective:**

The primary objective of this project is to characterize the use and acceptability of the MAHC among state health department partners and assess the facilitators and barriers to MAHC use and implementation. Within this broader objective, we outline several sub-objectives: 1. Conduct key informant interviews/focus groups with aquatic-focused public health programs to explore MAHC use, as well as key needs and perceptions across varying levels of MAHC use (e.g., STLT partners that do not use the MAHC; STLT partners that are considering to use the MAHC; STLT partners that infrequently use the MAHC; and STLT partners that frequently use the MAHC). 2. Conduct a quantitative survey to further explore overall MAHC use, as well as facilitators and barriers to MAHC use and implementation. This will be done to capture a broader range of input from stakeholders that were not involved in the more in-depth focus groups. 3. Use results to inform CDC decision-making regarding MAHC activities and help optimize the MAHC as a more usable and widely accepted resource for STLT public health partners. 4. Develop case studies of jurisdictions to model strategies for MAHC use and implementation. 5. Present results to MAHC stakeholders (e.g. CDC leadership and aquatic-focused public health officials and aquatics sector representatives) and publish results in peer-reviewed scientific literature.

**Does your project measure health disparities among populations/groups experiencing social, economic, geographic, and/or environmental disadvantages?:**

No

**Does your project investigate underlying contributors to health inequities among populations /groups experiencing social, economic, geographic, and/or environmental disadvantages?:**

No

**Does your project propose, implement, or evaluate an action to move towards eliminating health inequities?:**

No

**Activities or Tasks:**

New Collection of Information, Data, or Biospecimens ; Programmatic Work

**Target Populations to be Included/Represented:**

Businesses

**Tags/Keywords:**

Public Health ; Policy ; Swimming ; Swimming Pools ; Needs Assessment

**CDC's Role:**

Activity originated and designed by CDC staff, or conducted at the specific request of CDC, or CDC staff will approve study design and data collection as a condition of any funding provided ; CDC employees or agents will obtain data by intervening or interacting with participants ; CDC employees or agents will obtain or use anonymous or unlinked data or biological specimens ; CDC employees will participate as co-authors in presentation(s) or publication(s) ; CDC is the sole institution conducting activity

**Method Categories:**

Focus Group; Hybrid Study Design; Individual Interviews (Qualitative); Survey

**Methods:**

This investigation will use a two-phase, mixed-methods study design. In Phase I, we will conduct focus groups stratified across levels of MAHC use and implementation and a quantitative survey (amongst both state/territorial and local-level STLT partners). In Phase II, we will conduct an in-depth case study analysis for STLT partners. Across both phases, the respondent universe will comprise of STLT government staff and delegates that act on behalf of an agency in providing essential public health services. Phase I will allow us to capture information on MAHC use and implementation nationwide. Here, focus groups will be administered among STLT public health programs with different levels of MAHC use and implementation. Surveys will be distributed to STLT partners across 55 states and territories. To reach local level partners, we will distribute the survey via email lists administered by the National Environmental Health Association and National Association of County and City Health Officials in a convenience sampling approach. If response rates remain low one month after distribution, we will also explore a contact tracing approach, in which STLT partners provide the contact information for other states that may be interested in participating. Survey results will be analyzed through descriptive statistics and parametric/non-parametric statistical tests. Based on quantitative survey results, we will conduct focus groups across three different levels of MAHC use (i.e., no use, infrequent use, and frequent use). We will recruit 3#6 STLT representatives per level. Partners will be recruited into each level based on survey responses, in which participants will be asked to approximate the extent to which their jurisdiction#s public swimming pool regulations use MAHC language. Analytic methods for the focus groups will include thematic analyses in MAXQDA to interpret key and emerging themes from the interviews and to highlight illustrative quotes. Findings will be used to contextualize and support results from the survey. In Phase II, we propose a [multi] case study design. This will offer rich, in-depth information about the interactions between MAHC use and implementation and its socio-political context for #case# jurisdictions (Schoch). Cases will be bound by time and place (or setting), and we will collect detailed information using a variety of data collection procedures over a sustained period# (Stake, et. al) (Creswell). A descriptive [multi] case study approach will be used as opposed to an explanatory approach (looking to explain why or how certain conditions have come to be); or an exploratory approach (identifying new ideas to be used in subsequent research studies). This descriptive focus is essential, as it allows us to develop a deep, comprehensive understanding of the MAHC's impact. The objective of case study analysis is transferability. Such transferability will allow us to make transferable claims about MAHC use and implementation from insights gained from a few cases (i.e., jurisdictions). We assert that the understanding gathered from the in-depth study of four local-level jurisdictions and how they interact with the MAHC will be transferable to other jurisdictions. The [multi] case study analysis uses purposeful sampling of 1-4 units. By being specific about which jurisdictions select as cases, this purposeful sampling will allow us to gather data from a variety of sources for a specific jurisdiction.

**Collection of Info, Data or Biospecimen:**

In Phase I, data collection methods will include focus groups and a quantitative survey. Focus group guides will be developed by MAHC subject matter experts across NCEZID, NCEH, and NCIPC. Focus group facilitation will be led by experts with the Behavioral Science Unit within the Health Promotion and Communication Team in the Waterborne Diseases Prevention Branch and supported by co-investigators on the project. The survey instrument will comprise a series of Likert and #select all that apply# questions to assess use, acceptability, and implementation of the MAHC and corresponding Annex. Select questions will be adapted from previous MAHC questionnaires. New questions, and the resulting survey instrument will be distributed to a small number of partners and validated with respect to content and construct validity. Content validity will ensure that the instrument contains all essential questions and eliminates undesirable items within a construct domain (Lewis et al., 1995); while construct validity will assess how well the intended concepts were operationalized within the questionnaire (Taherdoost 2016). In Phase II, data collection will be conducted in the form of key-informant interviews across multiple stakeholders within a given jurisdiction (e.g., epidemiologists, environmental health professionals, policy specialists). Additional qualitative research methods may include policy and legislative document analysis (i.e., local jurisdiction aquatic code review), as well as stakeholder and timeline mapping.

WDPB does not anticipate that this data collection will yield generalizable data. Rather, results will be used to better understand the

**Expected Use of Findings/Results and their impact:**

range of experiences among STLT participants, and serve as one of many data inputs into MAHC program management and decision making. Specifically, we expect that results will indicate which sections of the MAHC are most useful to STLT partners (including supplemental resources available on the CDC website including the MAHC Annex, mini-MAHCs, etc.). We aim to learn where the MAHC could be streamlined or reformatted; and what further supporting resources may need to be developed to facilitate MAHC use and implementation. Further, we will gain an understanding of why the MAHC may not be used or implemented by a jurisdiction (e.g., the jurisdiction already has comprehensive code that is in agreement with the MAHC). Finally, we aim to put forth case studies of jurisdictions to provide strategies for MAHC use and implementation.

**Could Individuals potentially be identified based on Information Collected?** No

## Funding

Funding yet to be added .....

## HSC Review

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### HSC Attributes

**Program Evaluation** Yes

## Regulation and Policy

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**Do you anticipate this project will need IRB review by the CDC IRB, NIOSH IRB, or through reliance on an external IRB?** No

**Estimated number of study participants**

**Population - Children**

Protocol Page #:

**Population - Minors**

Protocol Page #:

**Population - Prisoners**

Protocol Page #:

**Population - Pregnant Women**

Protocol Page #:

**Population - Emancipated Minors**

Protocol Page #:

**Suggested level of risk to subjects**

**Do you anticipate this project will be exempt research or non-exempt research**

### **Requested consent process wavers**

<b>Informed consent for adults</b>	No Selection
<b>Children capable of providing assent</b>	No Selection
<b>Parental permission</b>	No Selection
<b>Alteration of authorization under HIPAA Privacy Rule</b>	No Selection

### **Requested Waivers of Documentation of Informed Consent**

<b>Informed consent for adults</b>	No Selection
<b>Children capable of providing assent</b>	No Selection
<b>Parental permission</b>	No Selection

### **Consent process shown in an understandable language**

<b>Reading level has been estimated</b>	No Selection
<b>Comprehension tool is provided</b>	No Selection
<b>Short form is provided</b>	No Selection
<b>Translation planned or performed</b>	No Selection
<b>Certified translation / translator</b>	No Selection
<b>Translation and back-translation to/from target language(s)</b>	No Selection
<b>Other method</b>	No Selection

### **Clinical Trial**

<b>Involves human participants</b>	No Selection
<b>Assigned to an intervention</b>	No Selection

Evaluate the effect of the intervention No Selection

Evaluation of a health related biomedical or behavioral outcome No Selection

Registerable clinical trial No Selection

### Other Considerations

Exception is requested to PHS informing those bested about HIV serostatus No Selection

Human genetic testing is planned now or in the future No Selection

Involves long-term storage of identifiable biological specimens No Selection

Involves a drug, biologic, or device No Selection

Conducted under an Investigational New Drug exemption or Investigational Device Exemption No Selection

## Institutions & Staff

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### Institutions

Will you be working with an outside Organization or Institution? No

Institutions yet to be added .....

### Staff

Staff Member	SIQT Exp. Date	CITI Biomedical Exp. Date	CITI Social & Behavioral Exp. Date	CITI Good Clinical Practice Exp. Date	Staff Role	Email	Phone	Organization
Amy Freeland	12/19 /2026		09/08/2026		Program Lead	igc3@cdc.gov	--	Waterborne Disease Prevention Branch
Brian Hubbard	06/28 /2026				Co-Investigator	bnh5@cdc.gov	770-488-8	WATER FOOD AND ENVIRONMENTAL HEALTH SERVICES BRANCH
Candace Rutt	06/26 /2026		05/02/2025		Co-Investigator	awr8@cdc.gov	--	Health Promotion & Communication Team

Joseph Laco	08/18 /2026				Co-Investigator	htr6@cdc.gov	770-488-3955	SAFE WATER
Pallavi Kache	08/02 /2026	07/16/2017	07/11/2026		Co-Investigator	xlq2@cdc.gov	404-471-8395	Domestic WASH Epi Team
Tessa Clemens	08/28 /2026		01/07/2027		Co-Investigator	opr7@cdc.gov	404-498-5997	SAFETY PROMOTION TEAM

## Data

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### DMP

**Proposed Data Collection Start Date:** 4/1/24  
**Proposed Data Collection End Date:** 12/31/25  
**Proposed Public Access Level:** Restricted

*Restricted Details:*

**Data Use Type:** Data Sharing Agreement

**Data Use Type URL:**

**Data Use Contact:**

**Public Access Justification:**

The primary objective of this project is to inform CDC decision-making regarding programmatic activities; therefore, we propose that public access to this data remains restricted. Additionally, there could be political sensitivities around the MAHC for certain jurisdictions and STLT public health partners, which would increase the importance of including a data request process in which requestors identify their affiliation and the intended use of the data. To maintain transparency, we will publish our results in the scientific literature and present findings at public health and aquatics conferences.

STLT government officials will be asked questions about only their professional duties as they relate to the MAHC. If asked to provide any identifiable information, it will relate to their official duties (e.g., title, professional email address, number of months /years that they have worked in their professional role). While quotes will be used in the manuscript, they will not be identifiable to any individual. All identifiable information will be securely stored. All results will be reported in the aggregate with all identifiable information excluded. Data may be linked to additional data sources by non-personal identifiers (state, county, city names, etc.) to increase the overall utility of data collection. Survey results will be gathered electronically through a CDC-managed software program, such as Epi Info# Web Survey System (Epi Info). Epi Info will allow our team to collect information from participants via the internet. Survey forms will be published to the CDC web server. When published, Epi Info will create a survey-specific website

**How Access Will Be Provided for Data:**



address. Our investigation team can distribute the URL over email. Participants will access the web survey and submit their responses through a web browser or mobile device. After the participant submits the response, the survey designer downloads the response directly into the original Epi Info# 7 project for analysis. Final research products will include a scientific manuscript published in the Journal of Environmental Health or the Journal of Public Health Management. Results may also be shared with STLT public health partners at conferences including the Council for State and Territorial Epidemiologists (CSTE).

Data will be securely imported onto the CDC server from the Epi Info web platform with the web survey key, organization key, and security token. Within the Epi Info program, the #READ# command will allow us to save the survey results as an MS Excel 2007 Workbook. This datasheet will be saved within the project folder on the CDC securely stored on the CDC server in accordance with federal standards found in the E-Government Act and the Paperwork Reduction Act. The Privacy Act does not apply to this data collection. State government agency officials will be speaking from their official roles. If asked to provide any identifiable information, it will relate to their official duties (e.g., title, professional email address). All identifiable information will be securely stored. All results will be reported in the aggregate with all identifiable information removed. Audio files and transcripts of the in-depth interviews will be also securely stored on the CDC server in accordance with federal privacy standards found in the E-Government Act and the Paperwork Reduction Act. All results will be reported in the aggregate with all identifiable information removed.

**Plans for Archival and Long Term Preservation:**

**Spatiality**

Spatiality (Geographic Locations) yet to be added .....

**Dataset**

Dataset Title	Dataset Description	Data Publisher /Owner	Public Access Level	Public Access Justification	External Access URL	Download URL	Type of Data Released	Collection Start Date	Collection End Date
Dataset yet to be added...									

**Supporting Info**

Current	CDC Staff Member and Role	Date Added	Description	Supporting Info Type	Supporting Info
	Zirger_Jeffrey (wtj5)	03/07/2024	NOA 0920-0879 (2023)	Notice of Action	<a href="#">NOA 0920-0879_2023.pdf</a>

	ICRO Reviewer				
	Peterson_James M. (y1r1) CIO HSC	03/06/2024	N/A	HS Research Determination Memo	030624PK-NR-signed.pdf
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Email invitation for survey.	Other	MAHCAssessment_EmailInvitation_V1_03052024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Survey draft.	Data Collection Form	MAHCAssessment_SurveyV3_03042024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Reminder email for survey.	Other	MAHCAssessment_ReminderEmail_V1_03052024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Consent form for survey.	Consent Form	MAHCAssessment_SurveyConsent_V1_03052024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Draft of virtual focus group guide.	Protocol	MAHC_FocusGroupGuide_DraftV3.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Focus group consent form.	Consent Form	MAHC_FocusGroup_ConsentForm_V1_03052024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Focus group recruitment email.	Other	MAHC_FocusGroup_EmailInvitation_V1_03052024.docx
	Kache_Pallavi (xlq2) Project Contact	03/06/2024	Focus group confirmation email.	Other	MAHC_FocusGroup_ConfirmationEmail_V1_03052024.docx

