MAHC Listening Post
The Future of Aquatics Health & Safety: Data Needed to Improve the MAHC

NEHA AEC
San Antonio, Texas
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The MAHC 1st Edition Code & Annex

**The Code** – 316 pgs, 243 model code language

**The Annex** – 371 pgs, scientific rationale, explanatory text, references for code
The Conference for the Model Aquatic Health Code (CMAHC)

- What is CMAHC?
  - 501c(3) non-profit organization

- Why does it exist?
  - Established in 2013 to manage updates to the MAHC

- Administration & Operation
  - Bylaws, Board of Directors, Executive Director
  - Committees include Technical Review Committee and Ad Hoc Committees
The Conference for the Model Aquatic Health Code (CMAHC)

- **Role**
  - Conduit for funneling advice and data-driven, science-based information from public health and aquatic industry experts to CDC
  - Support use of MAHC

- **Vision**
  - To keep the MAHC up-to-date, science-based, sustainable, easily understood and implemented by pool programs across the U.S. so as to support healthy and safe aquatic experiences for everyone.
The Conference for the Model Aquatic Health Code (CMAHC)

Mission

- Collect, assess, and relay input on MAHC revisions back to CDC for final acceptance
- Provide advocacy and needed support to health departments and other partners on using the MAHC
- Solicit, coordinate, and prioritize research needs
AGENDA

- Long range goals of the MAHC
- Items in the MAHC for potential revision
- Group discussion/input
Purpose of the MAHC

- Reduce the risk of disease, injury, and drownings in public aquatic facilities
MAHC is Intended to Make Pools Safer: Risk Management Approach

- Understanding & identifying risk
  - Drowning
  - Disease
  - Injury

- Developing methods to manage the risk
  - Physical methods (DESIGN)
  - Operational methods (TRAINING)
  - Management methods (PLANNING & AUDITING)

- Assessing compliance
Purpose of the MAHC

- Reduce the risk of disease, injury, and drownings in public aquatic facilities
  - Are there areas that need improvement?
    - Existing requirements?
    - Issues not yet addressed?
How does the CMAHC ensure there is a visionary group(s) looking at where U.S. aquatics should be 10, 20, 30 years from now?

- Must overcome the tendency to only react or continually tweak the MAHC without a long range goal to improve overall system
  - Excellence vs. perfection
  - Data arguments to promote vs. stop progress
  - Should be planning where entire system should be moving and incrementally submit CRs and research data to get us there (e.g., filtration-recirc, air handling, advance water treatment)

Need a proactive strategy so we advance MAHC vs. just finesse wording

- Will never have true advances if we don’t
MAHC Content to Consider Revising

- **Design related:**
  - Shape
  - Bottom slope
  - Underwater benches, ledges, and shelves
  - Depth markings
  - Lighting and glare
  - Ventilation
  - Recirculation
    - Flow rates
    - Mixing
    - Skimmers/gutters
    - Suction outlets
MAHC Content to Consider Revising

- Design related (Continued):
  - Filtration
    - Types
    - Performance criteria
  - Disinfection
    - Feeder sizing
    - Cyanuric acid (use and levels)
    - Free & combined chlorine-levels
    - Secondary disinfection – where required?
MAHC Content to Consider Revising

- Design related (Continued):
  - Decks
  - Fences/barriers
  - Venue types-anything missing?
MAHC Content to Consider Revising

- **Policies and Management:**
  - Qualified operators
    - Training requirements
    - Where required
  - Bather supervision
    - Qualifications/training (lifeguard/lifeguard supervisor)
    - Where/when required
MAHC Content to Consider Revising

- Others?
  - Existing content
  - Missing content
GROUP DISCUSSION/INPUT

- Preliminary steps to help focus and identify possible Change Requests (CR’s) for 2017 MAHC VOTE on the Code Biennial update Process
- First, some examples submitted in 2015 that did not pass but consider revisiting:
  - Underwater benches
  - Diving platform access
  - Where lifeguards are required—include where alcohol is sold/served
CHANGE REQUEST 24
CR24-Issue: Drowning Prevention

- 4.5.16.3 Maximum Water Depth

UNDERWATER BENCHES may be installed in areas of varying depths, but the maximum POOL water depth in that area shall not exceed three feet (0.9 m) five feet (1.5 m). The surface of the bench shall be marked “No Standing” in red letters at least 4 inches high spaced not more than 10 feet apart.

- The Annex of the MAHC indicates that the five foot depth restriction is to address the potential safety issue of stepping or otherwise moving off a bench into deep water.
When I look at children between the ages of 1-5 years old, drowning has moved from the 3rd to the 1st leading cause of unintentional injury deaths. I believe to reverse this trend more must be done with respect to the design of swimming pools to make them more safe for these young children.
The Redwoods Group aquatic investigations have shown that approximately 70% of the drowning incidents that they have investigated have occurred between the 3 ft to 5 ft depths.
Deep water was historically defined as water depths greater than 5 ft to delineate the diving areas from the swimming areas.

In the 1991 ANSI/NSPI-1 Standard for Public Swimming Pools, the shallow end of the swimming area was a minimum of 3 ft while young non-swimmers were confined to beginners’ areas of the pool that were visually set apart from the shallow end of the swimming area with a float line, depth markers, and a warning stripe.
CR24-Issue: Drowning Prevention

- Data from CDC Wonder appears to indicate the rate of drowning and submersion deaths associated with swimming pools for young children has been trending higher since 1999.
- WHO guidance indicates:

  Minimize unintentional immersion and enable self-recovery (especially for non-swimmers) (2)

  Avoid unauthorized access, isolation fencing (enclosing the pool only) at least 1.2 m high with self-closing, self-latching gate is recommended for pools where children could obtain unsupervised access.

  Avoid abrupt changes in depth, especially in shallow (e.g. <1.5 m depth) waters.

  Changes in depth identified by use of colour-contrasted materials. Side and end walls vertical for a minimum of 1 m. Steps/ladders for easy access in and out of pool.
CR24-Issue: Drowning Prevention

- Small children often stand on benches where the depth of the swimming pool is too deep for them to stand. Allowing underwater benches at depths up to and including five feet places these children at increased risk of drowning if they accidently step off the bench. Restricting benches to water depths of 3 ft or less reduces their risk of drowning.

| Date | Age | Pool | "Spot" | Water Location | Rescue Description | Ad
|------|-----|------|-------|----------------|-------------------|---
| 6/25 | 2   | Leisure | 2     | Just to the right of chair | Fell off bench, couldn't swim, jets pushed him out, triple whistle | near
| 6/27 | 7   | Leisure | 2     | Just to right of the chair | Fell off bench, couldn't swim, jets pushed him out, triple whistle, Sitt... | near
| 7/1  | 4yr | Leisure | 2     | Just to right of chair | Jumped off bench, bobbing. I went in | near
| 7/14 |     | Leisure | 2     | Just to right of chair | Jumped off bench, couldn't swim, triple whistle, save | near

Water Rescue- "Scoops" Report

Describe: Swimmer (distressed, active, passive) & Rescue (simple, reach, throwing, verticle, horizontal)
Discussion on CR 24 Issue: Drowning Prevention-Water Depth for Underwater Benches

- Drowning Prevention-water depth for underwater benches
  - Was the problem adequately defined?
    - Was there sufficient evidence/data to support the existence of a widespread issue?

- Proposed code change
  - Was there sufficient data to support the proposed revision?
    - If not, what is needed to collect the data?
CHANGE REQUEST 52
4.8.2.2.4 Tall Platforms

Diving stands or platforms that are 1 meter or higher two meters (6.6 ft) or higher must have guard rails with the top rail at least 36 inches (0.9 m) above the board and a second rail approximately half the distance from the platform to the upper rail. Diving boards or platforms greater than 1 meter (3.3 ft) in height shall be accessed by a stairway. The stair railing and diving board or platform guard rails shall be designed to prevent falls and extend past the pool edge.

There have been many injuries and multiple deaths associated with falls from the ladder or board at 3 meter stands. Many of these injuries and deaths could be eliminated through design changes that can make these diving boards safer by removing the vertical ladder replacing it with a stairway and improving the guardrails at the diving board.
There have been many injuries from falls and multiple deaths associated with falls from 3 meter boards and I found reference to at least one large award in a lawsuit.
CR52-Issue: Injury Prevention

The photo is from an inspection this summer. On the inspection I almost fell due to the inconsistent spacing of the rungs. While every other rung is slightly offset, the top rung leaves a hole of over 8”.
Discussion on CR 52 Issue: Injury Prevention-Access to Tall Platforms/Diving Boards

- Injury Prevention-access to tall platforms/diving boards
  - Was the problem adequately defined?
    - Was there sufficient evidence/data to support the existence of a widespread issue?

- Proposed code change
  - Was there sufficient data to support the proposed revision?
    - If not, what is needed to collect the data?
Change Request #124

- **Submitter presentation:** TRC

- **Summary:** Requires any facility serving alcohol to have a lifeguard
### 6.3.2.1 List of Aquatic Facilities Requiring Qualified Lifeguards

**Note:** This list includes but shall not be limited to the following:

1. For new construction occurring from the date of acceptance of this CODE, any AQUATIC VENUE deeper than five feet (1.5 m) at any point;
2. Any AQUATIC VENUE that allows for unsupervised children under the age of 14 years;
3. Any AQUATIC VENUE while it is being used for the recreation of youth groups, including but not limited to childcare usage or school groups;
4. Any AQUATIC VENUE while it is being used for group training must have a dedicated lifeguard on deck for class surveillance, including but not limited to competitive swimming and/or sports, lifeguard training, exercise programs, and swimming lessons;
5. Any AQUATIC VENUE with a configuration in which any point on the AQUATIC VENUE surface exceeds 30 feet (9.1 m) from the nearest DECK;
6. Any AQUATIC VENUE with an induced current or wave action including but not limited to WAVE POOLS and LAZY RIVERS;
7. Waterslide LANDING POOLS; and
8. Any AQUATIC VENUE in which bathers enter the water from any height above the deck including but not limited to diving boards, drop slides, starting platforms, and/or climbing walls. This does not include POOL SLIDES.
9. Any AQUATIC VENUE in which bathers enter the water from any height above the deck including but not limited to diving boards, drop slides, starting platforms, and/or climbing walls. This does not include POOL SLIDES.
10. Any aquatic venue that sells or serves alcohol.

### TRC recommending modified Code/Annex language to original CR submission?

<table>
<thead>
<tr>
<th>Yes:</th>
<th>No:</th>
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<tbody>
<tr>
<td></td>
<td>✓</td>
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</table>
Supporting information:

According to the Centers for Disease Control and Prevention, alcohol use is involved in up to 70% of deaths associated with water recreation. Alcohol influences balance, coordination, and judgment and its effects are heightened by sun exposure, wind, wave action, sun glare, and heat. Some people have drowned in shallow water when they lost their balance and were unable to stand up after consuming alcohol. Individuals may also take risks, such as diving into shallow water, which he or she may not normally take. Alcohol can also reduce swimming skills, even those of an excellent swimmer.

(CMAHC_request_Form- 6.3.2.1 Attachment 1)
- Alcohol depresses central nervous system processing and impairs balance and coordination.
- Alcohol lowers inhibitions and judgment and can lead to risky behaviors.
- Alcohol can dilate blood vessels increasing the risk of hyperthermia.
- Alcohol can contribute to fatigue or loss of consciousness.
- Alcohol reduces attention span and the effective supervision of children in and around water.
<table>
<thead>
<tr>
<th>If yes, TRC recommended code language as follows:</th>
<th>Review Process and Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary of the pros/cons or benefits/deficits of the CR and the thought process of the TRC review of the CR:</strong></td>
<td>TRC agrees with the author that any facility serving alcohol should require certified lifeguards on site during all hours of operation.</td>
</tr>
<tr>
<td>TRC recommendation to Board of Directors:</td>
<td>TRC recommends approval.</td>
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<tr>
<td>Recommended Future Action:</td>
<td>N/A</td>
</tr>
</tbody>
</table>
CR 124 –did not pass
Member Comment:

- As proposed, this CR does not define the parameters of what “an aquatic venue that serves or sells alcohol means.” A stand-alone swimming pool or aquatic venue that serves or sells alcohol is easy to identify, but what about hotels where alcohol is served and a swimming pool is on property? Also, the CR does not address venues where alcohol is allowed to be brought in by patrons, which may be more problematic because there is no oversight at all in these situations. The concept is sound, but needs more clarification and definition before being adopted into the MAHC.
Discussion on CR 124 Issue: Alcohol & Bather Supervision

- Drowning/Injury Prevention-alcohol & bather supervision
  - Was the problem adequately defined?
    - Was there sufficient evidence/data to support the existence of a widespread issue?

- Proposed code change
  - Was there sufficient data to support the proposed revision?
    - If not, what is needed to collect the data?
Group Discussion
Input from Group to Identify/Discuss Items in the MAHC for Potential Revision

- For each Item identified:
  - Define the problem
    - Is there evidence/data to support the existence of a widespread issue?

- Propose code language to address the problem
  - Is there data to support the proposed revision?
    - If not, what is needed to collect the data?
Next Steps

- Prepare list of items for CR submission for 2017
  - Who will submit CR?
  - Who will identify & collect supporting data (defining the problem and proposed revision)?
  - How to coordinate the effort - webinars, conference calls, other?
MEMBERSHIP:
HOW TO BECOME A CMAHC MEMBER
MODEL AQUATIC HEALTH CODE
The MAHC is the only all-inclusive national model pool code. It is based on scientific data and best practices gathered by public health and aquatics industry experts. Thus, it is easier to adopt and implement. Unlike legislation, the MAHC is voluntarily adopted, wholly or in part, and driven by your expertise. It is free, accessible to all, and backed by the Centers for Disease Control and Prevention (CDC).

WHY SHOULD I VOTE? BE HEARD!
The MAHC is unique in that it is kept sustainable, current and complete because the people who use it vote on its content every other year – this year! – via membership in CMAHC. The MAHC is written by the best experts in our industry – you!

HOW DO I VOTE? SO EASY!
Join CMAHC
Membership is only $40 for two years. CMAHC is unique in that it exists solely to promote and sustain the MAHC for adoption. We are also your direct conduit to the CDC.
This is the year CMAHC invites you to attend Vote on the Code 2015 for discussion on new and updated content for the MAHC. Members vote electronically on how we will advise the CDC. Voting starts one month after the Vote on the Code 2015 conference ends.

Why Attend Vote on the Code 2015
Further educate yourself by hearing discussion and rationale behind the 157 proposed changes on which we'll vote. Also a good opportunity to mingle. Registration for the 2-day meeting is only $220. Vote on the Code 2015 immediately precedes the World Aquatic Health™ Conference in the same location.
Get Involved. Become a Member

The MAHC, unlike other codes, is kept sustainable, current and complete because the people who use it vote on its content every other year. Through membership in the CMAHC.

The MAHC is written by the best experts in our industry - CMAHC members! Members have the ability to submit proposed changes to the MAHC to be evaluated by a Technical Review Committee. And only CMAHC members can provide comments and vote on proposed changes to the MAHC. This is your year to Vote on the Code; there are over 157 changes proposed. We need your vote, and your attendance at the Vote on the Code Biennial Conference.

CMAHC membership is only $40 for two years - the membership is kept low, based on feedback during the 2014 CMAHC Organizational Meeting. We want to encourage broad and extensive membership by everyone involved with aquatics. It is your expertise that drives the CMAHC.

The CMAHC is unique in that it exists solely to promote and sustain the MAHC for adoption. We are also your direct conduit to the CDC.

Join us as a Member today and your membership will be valid through the CMAHC Vote on the Code 2017 Biennial Conference. After that point, all memberships will cover a single biennial conference cycle from initial change request submissions to final voting.

Sign up using our secure form.