



Legislation Details (With Text)

File #: 2021-0128 **Version:** 1 **Name:**

Type: Action Item **Status:** Filed

File created: 2/17/2021 **In control:** Board of Port Commissioners

On agenda: 6/15/2021 **Final action:** 6/15/2021

Title: SHELTER ISLAND YACHT BASIN DISSOLVED COPPER TOTAL MAXIMUM DAILY LOAD:
A. INFORMATIONAL UPDATE ON THE STATUS OF THE PROGRAM, INCLUDING WATER QUALITY RESULTS, LOAD REDUCTION EFFORTS AND COORDINATION WITH THE SAN DIEGO REGIONAL WATER QUALITY CONTROL BOARD ON TMDL IMPLEMENTATION ACTIONS; AND
B. DIRECTION TO STAFF ON INITIATING AN IN-WATER HULL CLEANING PILOT STUDY THAT WOULD REQUIRE A TEMPORARY PAUSE OF IN-WATER HULL CLEANING OF VESSELS WITH COPPER-BASED PAINT IN SIYB FOR AN EIGHT-WEEK PERIOD STARTING APPROXIMATELY MID-DECEMBER 2021 AND CONTINUING THROUGH MID-FEBRUARY 2022; AND
C. DIRECTION TO STAFF ON DETERMINING A VOLUNTARY OR MANDATED IMPLEMENTATION APPROACH FOR AN IN-WATER HULL CLEANING PILOT STUDY.

Sponsors:

Indexes:

Code sections:

Attachments: 1. 13. 2021-0128 Attachment A, 2. 13. 2021-0128 Attachment B, 3. 13. 2021-0128 Attachment C, 4. 13. 2021-0128 Attachment D, 5. 13. 2021-0128 Attachment E

Date	Ver.	Action By	Action	Result
6/15/2021	1	Board of Port Commissioners	direction to staff	Pass

DATE: June 15, 2021

SUBJECT:

SHELTER ISLAND YACHT BASIN DISSOLVED COPPER TOTAL MAXIMUM DAILY LOAD:
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C. DIRECTION TO STAFF ON DETERMINING A VOLUNTARY OR MANDATED IMPLEMENTATION APPROACH FOR AN IN-WATER HULL CLEANING PILOT STUDY.

EXECUTIVE SUMMARY:

In 2005, the San Diego Regional Water Quality Control Board ("Regional Board") set a Dissolved Copper Total Maximum Daily Load ("TMDL") for the Shelter Island Yacht Basin ("SIYB"). A TMDL is

the maximum amount of a pollutant that a waterbody can receive and still attain water quality objectives and protection of designated beneficial uses. In establishing the SIYB TMDL, the Regional Board found that dissolved copper levels in SIYB violate water quality objectives and thereby threaten and impair the designated beneficial uses of marine habitat and wildlife habitat in this area.

The Regional Board attributed approximately 98 percent of all copper loading to SIYB to copper-based antifouling paints applied to the hulls of recreational boats. The Regional Board found that a 76 percent overall reduction of residual copper loading to SIYB is required to meet the SIYB TMDL.

The Regional Board adopted a 17-year compliance schedule period with a final copper loading reduction of 76 percent from the 2005 baseline by December 1, 2022, with interim loading targets of 10 percent and 40 percent by 2012 and 2017, respectively. The Regional Board named the District, SIYB marina owners and operators, underwater hull cleaners, and boat owners as dischargers responsible for meeting copper reductions set forth in the TMDL.

On March 11, 2011, the Regional Board issued Investigative Order No. R9-2011-0036 to the District. The Investigative Order requires that the District annually assess TMDL implementation progress and provide written compliance reports (herein referred to as Progress Report) to document the actions taken to comply with the TMDL, reduce copper loading into the Basin and improve water quality.

The District and other named responsible parties are well into the final phase of the TMDL compliance period. As in previous years, a variety of Best Management Practices (“BMPs”) were implemented by the District to reduce dissolved copper loading and improve water quality, including maintaining a copper-free fleet of District vessels. Stakeholder engagement also occurred via several forums including a newly formed SIYB Port Marina Working Group, IWHC behavior surveys, email blasts and maintaining a copper reduction webpage with information on water quality reports, hull cleaning templates and educational information on alternative paints.

The most recent Progress Report’s vessel tracking data indicates that there has been an estimated 48 percent (approximately 1008 kg/yr) reduction in copper loading when compared with the TMDL baseline of 2100 kg/yr, a slight improvement from 2019 (45.7 percent). Notably, the continuation of the 40 percent interim TMDL compliance requirement continues to be achieved.

The Progress Report also reported water quality results from the annual TMDL sampling. The basin average for dissolved copper was reported to be 8.3 µg/L, which is equivalent to the 2008 baseline average. Additionally, the basin’s water quality and toxicity continued to remain relatively consistent over the past six years, despite the reductions in loading. A supplemental winter monitoring event was added to the SIYB TMDL Monitoring Program to evaluate the seasonal variability of dissolved copper levels in SIYB. The basin-wide average concentration of dissolved copper measured in February 2021 was 7.0 µg/L, which is slightly lower than the 2019 and 2020 summer monitoring events, but still above the 3.1µg/L water quality standard. This disconnect between loading reduction and dissolved copper in the water has highlighted a potential need to further evaluate sources of direct copper loading into SIYB.

Additional actions are needed to achieve the final 2022 TMDL compliance requirement. A 2019 technical review of the TMDL Conceptual Loading Model suggested IWHC was one source that may have a greater impact on copper concentrations than originally estimated. However, exactly how IWHC directly and indirectly impacts water quality is uncertain. In addition, stakeholder feedback

from 2019 public engagement sessions encouraged the District to better understand this relationship prior to embarking on further policy or management actions.

Staff is considering a IWHC pilot study that will further explore the relationship between IWHC activities and water quality conditions in SIYB. The IWHC pilot study would temporarily pause IWHC of vessels with copper-based paint in SIYB for an eight-week period occurring this coming winter 2021-2022 while concurrently conducting weekly water sampling for dissolved copper before, during, and after the IWHC pause. The IWHC pilot study and temporary cleaning pause could be conducted either through voluntary means or via ordinance. The IWHC pilot study is consistent with stakeholder feedback encouraging further water quality studies and the SIYB Port-Marina Working Group's mission and vision statements to improve water quality. In addition, initial discussions with Regional Board staff indicated that their agency would find the information valuable and are supportive of the approach.

During the Board meeting, staff will be seeking Board direction on the IWHC pilot study concept as well as the implementing mechanism. Staff will also be providing an update on the Copper Reduction Program and TMDL activities completed, to date. A copy of the draft Board presentation for this item is included as Attachment A.

RECOMMENDATION:

Receive presentation from staff regarding the status of the Shelter Island Yacht Basin TMDL and the District's Copper Reduction Program including water quality results, load reduction efforts and coordination with the Regional Water Quality Control Board on TMDL implementation actions and provide direction to staff in regards to initiating an in-water hull cleaning pilot study and conducting stakeholder engagement for the study.

FISCAL IMPACT:

This item is for presentation purposes only and has no fiscal impact.

COMPASS STRATEGIC GOALS:

This agenda item supports the District's strategic goals by seeking copper reductions throughout San Diego Bay and working to improve water quality, with an emphasis on SIYB.

This agenda item supports the following Strategic Goal(s).

- A Port that the public understands and trusts.
- A Port with a healthy and sustainable bay and its environment.

DISCUSSION:

Regulatory Overview

In 1996, high concentrations of copper in the water of SIYB prompted the Regional Board to add SIYB to the state's Clean Water Act Section 303(d) List of Water Quality Limited Segments. The Regional Board found that copper concentrations in SIYB ranged from three to eight micrograms per liter (µg/L), thereby exceeding the water quality objective of 3.1 µg/L. A TMDL is the maximum

amount of a pollutant that a waterbody can receive and still attain water quality objectives and protection of designate beneficial uses. It is a regulatory tool that the State and Regional Boards can use to bring impaired waters into attainment of beneficial uses.

In 2005, the Regional Board set a TMDL for the SIYB basin, setting a target 76 percent reduction of copper loading by 2022, with interim compliance phases requiring loading reduction targets of 10 percent and 40 percent by 2012 and 2017, respectively. In establishing the SIYB TMDL, the Regional Board found that dissolved copper levels in SIYB violate water quality objectives and thereby threaten and impair the designated beneficial uses of marine habitat and wildlife habitat in this area. The Regional Board attributed approximately 98 percent of all copper loading to SIYB to copper-based antifouling paints applied to the hulls of recreational boats. Passive leaching of copper from boat hulls and in-water hull cleaning of the copper-based antifouling paints were identified as the primary mechanisms for the copper loading into the water.

The Regional Board found that a 76 percent overall reduction of residual copper loading to SIYB is required to meet the SIYB TMDL. Additionally, the Regional Board named the District, SIYB marina owners and operators, underwater hull cleaners, and boat owners as dischargers responsible for meeting copper reductions set forth in the TMDL.

To implement the TMDL, the Regional Board found that it will (1) coordinate with governmental agencies having legal authority over the use of copper-based antifouling paints, which are registered pesticides; (2) regulate the discharge of copper to SIYB waters through the issuance of Waste Discharge Requirements (“WDRs”), Waivers of WDRs, and/or adoption of Waste Discharge Prohibitions; and (3) require that discharges of copper into SIYB waters not increase via the City of San Diego’s municipal separate storm sewer system from existing loadings.

In March 2011, the Regional Board issued Investigative Order No. R9-2011-0036 to the District. This Investigative Order outlines the SIYB TMDL annual reporting requirements and requires the development of monitoring and BMP implementation plans to guide activities over the course of the TMDL. The Investigative Order also requires that the District annually assess TMDL implementation progress and provide a written Progress Report to document the actions taken to comply with the TMDL.

In 2018 the California Department of Pesticide Regulation (DPR) established a maximum leach rate for copper-based antifouling paints used on recreational vessels (“DPR Rule”) to protect aquatic environments from the effects of exposure to the paint. The rule, which went into effect on July 1, 2018 set a maximum leach rate of 9.5 µg/cm²/day. The DPR Rule also included a three-year grace period for boatyards to use any existing stockpiles of products that do not meet the leach rate; this grace period expires July 2021. As such, moving forward only copper-based anti-foulant paints meeting the 9.5 µg/cm²/day maximum leach rate can be applied on recreational boats.

Copper Reduction Program Background

In 2009, the Board of Port Commissioner’s adopted Resolution 2009-230 (Attachment B). This resolution memorialized strategies aimed at removing dissolved copper in and around San Diego Bay. As a result, staff has been implementing a multi-faceted Copper Reduction Program to achieve the TMDL’s load reductions and reduce copper throughout the Bay. The Copper Reduction Program focuses on the largest source contributions and identifies a strategic approach of planning and implementing several BMPs to effectively achieve regulatory compliance, while balancing economic

and public interests. It is comprised of five elements, as follows:

1. Testing and Research
2. Hull Paint Transition
3. Education and Outreach
4. Policy Development / Legislation
5. Monitoring and Data Assessment

The District provides annual written Progress Reports to the Regional Board that present information related to TMDL compliance, water quality, load reduction efforts, and initiatives that have occurred or are in progress. In addition, District staff provides an annual progress update to this Board and seeks direction for programmatic adjustments, studies, and policy actions based upon the Program's findings.

SIYB TMDL - 2020 Findings

The 2020 Progress Report was submitted to the Regional Board in March 2021 and summarizes activities from the 2020 reporting period. The Progress Report discusses BMP implementation in SIYB and San Diego Bay and provides information on vessel conversions along with water quality and toxicity monitoring results (Attachment C). Several activities and BMPs were implemented during 2020, including education and outreach, coordination with state agencies, and continued IWHC efforts. These actions assisted in reducing copper loads into SIYB. Notable District BMPs include, but are not limited to, maintaining a copper-free fleet of District vessels, inspecting and enforcing IWHC Permits, encouraging transitions to alternative (i.e. non-copper) hull paints, and pursuing alternative methods for copper reduction via the District's Blue Economy Incubator. Marinas and yacht clubs also implemented BMPs during this reporting period.

Copper Load Estimates

The annual copper load reported in 2020 was approximately 1,008 kg/yr. When compared with the TMDL baseline of 2,100 kg/yr, the annual copper loading reduction for 2020 was 48 percent, which achieved the TMDL's interim reduction requirement of 40 percent. Continued loading reductions are attributed to the efforts in areas such as vessel tracking, hull paint transitions to low copper or non-copper paints (both voluntary and a result of DPR regulations) and BMP implementation. To continue progress towards 2022 TMDL compliance, a greater downward trend in loading needs to occur.

2020 Summer Water Quality Monitoring Event

Results from the 2020 annual TMDL monitoring event showed that the average dissolved copper level in the basin's surface waters was 8.3 µg/L. This was equivalent to the baseline average (8.3 µg/L) from 2008. Consistent with results from previous years, five of the six SIYB sampling stations exceeded the 3.1 µg/L water quality standard. Only station SIYB-6, adjacent to the Harbor Police dock and closest to the mouth of the basin, was below the water quality standard at 0.77 µg/L. The Harbor Police vessel fleet is coated with non-copper paints. The bay's two reference stations (outside of SIYB) also were below the water quality objectives at 0.29 and 1.0 µg/L, respectively. One station (SIYB-1, the station farthest inside the basin) had toxicity effects on mussel larvae. This is consistent with findings from previous years.

2021 Winter Water Quality Monitoring Event

In February 2021, a supplemental winter monitoring event was added to the SIYB TMDL Monitoring

Program to assess the seasonal variability of dissolved copper levels in SIYB. Dissolved copper concentrations are expected to be lower in the winter due to the cooler sea surface temperatures and the lower frequency of hull cleaning and vessel usage relative to the summer months. The basin-wide average concentration of dissolved copper measured in February 2021 was 7.0 µg/L, which was slightly lower than that observed in during the previous two summer monitoring events (2019 and 2020), but still above water quality objectives. Like the summer, the same five of the six stations exceeded the water quality objectives and only SIYB-6 was below the standard. Larger decreases in dissolved copper were observed at the basin's innermost stations (i.e. those with higher vessel concentrations) during the 2021 winter monitoring event when compared to the 2020 summer monitoring event. Toxicity was observed in one of the six samples tested (SIYB-1) from within the basin, which was also observed during the summer sampling.

2019-2020 Copper Reduction Program Efforts

In 2020, due to the Covid-19 pandemic, a program update was not presented at a Board of Port Commissioners meeting. However, during the pandemic, programmatic advancements moved ahead consistent with the 2019 Board direction to look further into the best available science related to copper loading and IWHC, and evaluate policy initiatives that reduce loading of copper into San Diego Bay and support the attainment of water quality standards. A summary of those efforts is provided here for context:

SIYB TMDL Conceptual Model Technical Review

A Conceptual Model update using the best available science was completed in September 2019 (Attachment D). This technical evaluation found that while the TMDL's copper loading reduction compliance targets are consistent with the best available science, the TMDL's projected load contribution from in-water hull cleaning may be underestimated due in part to the manner in which the active and passive loading components are assessed. The Conceptual Model Update indicated that copper loading from periodic hull cleaning events may provide greater than the currently assumed 5% relative contribution to annual loading in SIYB over an estimated three-year paint life cycle. These findings emphasized the importance of changes in IWHC practices as a key strategy to achieve the required load reduction needed to meet the SIYB dissolved copper TMDL final compliance target in 2022.

District IWHC Ordinance - Review & Update Efforts

In September 2019, the District initiated an administrative review of *Port District Code Section 4.14, Regulation of In-Water Hull Cleaning*, and the associated In-Water Hull Cleaning Permit and Best Management Practices requirements. During the review process, the District sought public input from hull cleaners and others in the boating community to better understand their perspectives, concerns, and beliefs surrounding in-water hull cleaning.

In November 2019, District staff proposed amendments to *Port District Code Section 4.14* which included, but was not limited to, monthly cleaning frequencies, use of a standard set of cleaning tools, and the prohibitions of mechanical cleaning tools and the cleaning of ablative paints. Three public engagement sessions were held, and written comments were received through December 2019. One resounding theme from stakeholders voiced concern over the validity of the best available science and requested that additional IWHC data and water quality testing be collected in Shelter Island Yacht Basin prior to implementing new IWHC regulations.

As a result, staff shifted focus to addressing stakeholder concerns and better understanding the

relationship between IWHC and water quality prior to moving forward with additional policy approaches.

IWHC Surveys

An online survey was distributed to the boating community in March 2021 to learn more about IWHC activities in San Diego Bay. The surveys were intended to get a real-time perspective of the boating community's IWHC behaviors. The surveys covered topics that included hull paint usage, cleaning frequencies and IWHC tools.

The District received 450 survey responses from targeted respondents, including 401 boaters, 32 in-water hull cleaners, and 17 marina and yacht club managers. The responses provided diverse and representative perspectives on a range of IWHC information including vessel hull paint, current management procedures, vessel cleaning practices and IWHC tools utilized for cleaning. The information highlighted the importance of validating IWHC behaviors prior to policy changes and addressed one of the data gaps. A full summary of the IWHC Survey results is provided in Attachment E.

SIYB Port Marina Working Group Meetings

In May 2020, representatives from the marinas and yacht clubs in SIYB, the San Diego Port Tenants Association, District staff, and Commissioner Malcolm convened as the SIYB Port-Marina Working Group to collaborate on efforts aimed to improve water quality and achieve TMDL compliance. This group met bi-weekly through October 2020 and approximately monthly through the end of 2020 and into this year. The SIYB Port-Marina Working Group collectively established the following vision and mission to guide their efforts:

Vision: Water Quality First

Mission: A working group between the Port and Shelter Island Yacht Basin Marina Tenants to ensure close coordination on management strategies that meet TMDL compliance and preserve, protect, and enhance water quality in Shelter Island Yacht Basin and San Diego Bay.

The SIYB Port-Marina Working Group meetings fostered discussions on topics including the development of a scientific advisory panel, conceptual model discrepancies, IWHC approaches, water quality, TMDL monitoring and reporting, and state-level discussions on the TMDL. Discussions amongst this group also resulted in the successful implementation of the aforementioned winter water quality sampling event. In December 2020, the Regional Board was included to discuss the SIYB progress to date and challenges with the remaining timeline. The Regional Board is expected to be an integral part of these meetings for the final two TMDL years.

Regional Board Engagement

The District and Regional Board met frequently during the past year, both at a staff and an executive level, to discuss the SIYB TMDL. Also, as mentioned above, the Regional Board staff has committed to attending the SIYB Port-Marina Working Group meetings. Staff and executive level meetings have focused on the administrative challenges of the TMDL timelines, load allocation and model updates, and areas to align agency interests. Notably, the Regional Board staff agreed that the relationship between IWHC and water quality should be better understood before considering revisions to the TMDL. At a recent meeting, the Regional Board also agreed to collaborate with the District on water quality studies, including the IWHC Pilot Study on which staff is seeking direction at this time.

Addressing the Disconnect between Copper Loading and Water Quality

Since the initiation of the TMDL monitoring program, multiple copper load reduction strategies have been developed and implemented. While these strategies have resulted in a copper load reduction that has met TMDL interim compliance targets, annual water quality monitoring has not shown a corresponding decrease in dissolved copper levels.

Additional actions are needed to achieve the final 2022 TMDL compliance requirement. During the Covid-19 pandemic, staff began exploring options to analyze sources of copper and their relationship to water quality. As stated previously, one source that warranted further evaluation was IWHC activities. The 2019 technical review of the TMDL Conceptual Loading Model suggested IWHC may have a greater impact on copper concentrations than originally estimated. However, the level to which IWHC directly impacts water quality is still unknown. In addition, stakeholder feedback from 2019 public engagement sessions encouraged the District to better understand this relationship prior to embarking on further policy or management actions.

IWHC Pilot Study

Currently, staff is considering an IWHC pilot study to explore the relationship between IWHC activities and water quality conditions in SIYB. The IWHC pilot study would temporarily pause IWHC activities for vessels with copper-based paint in SIYB for an eight-week period with concurrent water quality testing before, during and after the pause. The recommended time frame to conduct this study would be this coming winter, starting in mid-December 2021 and continuing through mid-February 2022, coinciding with timeframes when cleaning tends to be less frequent (i.e. monthly or less). Staff would conduct stakeholder engagement with the SIYB boating community to explain the IWHC pilot study and encourage hull cleaners to adjust their cleaning practices before, during, and after the IWHC pause to reduce the impacts of missed monthly cleaning events.

The District would conduct weekly water quality monitoring for dissolved copper during the entire eight-week pause period as well as four-week periods before and after the pause. There would also be additional sample collection if a storm occurs during the IWHC Pilot Study pause period. District staff would be inspecting IWHC activities at marinas on a regular basis during that time to ensure cleaning activities are not occurring. Initial discussions with the Regional Board staff indicated that their agency would find the information valuable and are supportive of this approach.

District staff have also taken into consideration the means in which the IWHC pilot study could be implemented. Two options exist, either through voluntary efforts or mandatory actions. Voluntary implementation would rely on hull cleaners and marinas adjusting actions on their own accord. However, some may elect not to do so, and as a result, IWHC could still occur in SIYB during the pause period, which would limit the usefulness of the data generated from the IWHC pilot study. Conversely, if using a mandated implementation mechanism such as an ordinance, compliance would be required and penalties could be enforced if IWHC occurs during the pause period. This is the staff-recommended approach and offers greater certainty that IWHC would be paused.

At this time, staff requests Board direction to:

1. Move forward with the IWHC Pilot Study concept described above, and
2. Identify whether a voluntary or mandated implementing mechanism should be used.

If directed to move forward with the proposed IWHC Pilot Study concept, staff would begin engagement with the SIYB boating and IWHC community immediately following the Board meeting. A draft of the water quality testing plan and pause timeline would be developed as well as an

implementing mechanism. Both the water quality testing plan and implementation mechanism would be shared with the SIYB community to seek input. In addition, if a mandated approach is selected, staff would develop a draft ordinance for Board consideration. Following the public engagement, staff would return to seek Board approval via a public process at a future Board meeting prior to initiating the study. Staff would also engage with the stakeholders during the entire study period to encourage adjustments to cleaning schedules and during marina site walks that will occur during the cleaning pause. The water quality results will be shared with the Board and the stakeholders at a Board meeting following completion of the pilot study.

General Counsel's Comments:

The General Counsel's Office reviewed this agenda sheet as presented to it as to form and legality.

Environmental Review:

The proposed Board action for an informational presentation to include a progress report and a request for Board direction on the Shelter Island Yacht Basin Total Maximum Daily Load (TDML) regarding Investigative Orders (IO) issued by the California Regional Water Quality Board for copper released by in-water hull cleaning is Categorically Exempt, pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15306 (Information Collection) because as part of the action, data and monitoring information would be conveyed to the Board, as both an update and for Board direction. The requested Board action includes a presentation on current copper monitoring and a request for Board direction to conduct future pilot studies to fill in data gaps that still exist for water quality. Based on this, the action does not result in a serious or major disturbance to an environmental resource. Further, the District has determined that none of the six exceptions to the use of a categorical exemption apply to this project (CEQA Guidelines Section 15300.2), and no further action under CEQA is required.

In addition, the proposed Board action complies with Section 87 of the Port Act, which allows for the establishment, improvement, and conduct of a harbor, and for the construction, reconstruction, repair, maintenance, and operation of wharves, docks, piers, slips, quays, and all other works, buildings, facilities, utilities, structures, and appliances incidental, necessary, or convenient, for the promotion and accommodation of commerce and navigation, as well as for the establishment and maintenance of those lands for open space, ecological preservation, and habitat restoration. The Port Act was enacted by the California Legislature and is consistent with the Public Trust Doctrine. Consequently, this action is consistent with the Public Trust Doctrine.

The proposed Board action is considered an "excluded development" pursuant to Section 8.e. (Information Collection) of the District's Coastal Development Permit (CDP) Regulations. As part of this Board action, previous and on-going progress and monitoring information would be presented to the Board to guide the previously identified requested Board direction. This action would not result in a serious or major significant disturbance to an environmental resource.

Equal Opportunity Program:

Not applicable.

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Attachment(s):

- Attachment A: Preliminary Draft Staff Presentation for June 15, 2021 Board Meeting for Agenda File No. 2021-0128
- Attachment B: Resolution 2009-230 San Diego Unified Port District's Commitment to Take Actions to Reduce Copper Concentrations in San Diego Bay
- Attachment C: The 2020 Shelter Island Yacht Basin Dissolved Copper Total Maximum Daily Load Monitoring and Progress Report
- Attachment D: 2019 SIYB TMDL Conceptual Model Technical Review
- Attachment E: May 6, 2021 BPC Memorandum: IWHC Survey Results