ASC has hand-held marine radios to enhance safety as well as to help with coordination of vessels, communications, and operations. Marine radio use is regulated by the FCC and requires adherence to rules, regulations, and proper radio procedures. This guide is divided into several sections. The first section is a summary of FCC rules and regulations applicable to ASC when the radios are used within Ohio. The second section talks about marine radio procedures. The third section is an abbreviated guide to operating the Standard Horizon HX300 marine radios at ASC (the full manual for the Standard Horizon HX300 handheld marine radio is available online and a copy of the manual is available in the ASC office). The fourth section is an abbreviated guide to operating the Standard Horizon HX40 marine radios (the full manual is available online and a copy of the manual is available in the ASC office). The fifth section is an abbreviated guide for the Standard Horizon HX851 marine radios (the full guide is available online). The sixth section covers the supplemental radio antennae used at the beach.

Section 1. FCC Marine Radio Rules and Regulations summarized for ASC operations:

1. **A license is not required for ASC or individuals (ASC volunteers)** when using ASC's handheld marine radios as long as applicable FCC rules and regulations are followed. You are responsible for following FCC rules.
2. **The handheld marine radios used by ASC** are **"licensed by rule"** and must be operated in accordance with all applicable FCC rules, regulations, and procedures.
3. **On January 17th, 2017, it became legal** to use a handheld while on land (near shore only) when communicating with a vessel (any use on land was illegal prior to that date).
4. **It is illegal to** make fake or false distress calls, use improper channels, use profane language, to transmit on a channel while someone else is transmitting, use false identification, or call "All vessels" except in an emergency.
5. **Channel 16 is the Emergency Distress Channel** that is to be monitored when not otherwise communicating on another channel and is also a "hailing" (calling) channel. After hailing on channel 16 you must immediately switch to a working channel (no conversations allowed on channel 16). Note, hailing on channel 16 should be for less than 30 seconds each time and may be repeated up to three times at 2 minute intervals. Use Channel 16 as the Hail channel at ASC when not able to raise anybody on working channel 78A (or another working channel).
6. **Channel 9 is also a hailing/calling channel** (preferred/required in some areas due to congestion on channel 16). The same hail and switch to working channel procedure as described for channel 16 also applies to channel 9. Note, ASC should normally use channel 16, not channel 9, when hailing/calling is required in central Ohio. If you need to use Channel 9, press and hold the 16/9 Key until channel "9" is in the center of the display.
7. **You must use appropriate non-commercial channels** (and use those channels appropriately).
8. **Communications must be for marine operations and/or safety** related and must also be brief (remember, everybody shares the same few channels).
9. **You must identify your vessel/station in each transmission** (see more details and information undersection 2: Marine Radio Procedures).

Section 2. Marine Radio Procedures (with focus on ASC operations):

1. **Check charge level** before taking out a marine radio to use (charge level in upper right corner). When the HX300 is plugged in and charging the display will show "FL" when the radio has a full charge. **Make certain** the battery cover latch and the charging port cover are properly closed to ensure waterproofness of the radio. Note, there should not be any reason to open the battery compartment, just make sure the latch at the bottom is secure. Make certain there is no dirt, sand, or moisture near the charging port before closing the charging port cover.
2. **The radio with** the **Pink wrist strap** is reserved for the Beach use **(call ID: "ADAPTIVE SPORTS BEACH")**, it is kept near the board for the Boardmaster. The radio with the **Red wrist strap** is reserved for safety boat **(ID: "ADAPTIVE SPORTS SAFETY BOAT").** Radios with **Orange wrist straps** are for all other ASC boats **(call ID: "ADAPTIVE SPORTS KAYAK xx")** and the ASC operations center **(call ID: "ADAPTIVE SPORTS CENTER").** Note, the ASC operations center may not often have a radio but the Beach/Boardmaster will always have a radio. The colored straps will aid in locating a floating radio in the daytime. The radios have a light that flashes when the radio is in contact with water which can help locate floating radios at night or in reduced visibility.

3. **Be sure the Boardmaster notes "Radio"** with a circle around it by your boat number and name (including safety boat, sailboats, and SUPs) before you leave the beach area. Upon return to the beach make certain your boat, name, and the notation "Radio" are erased from the board. If you are on the water returning to the beach and no longer need the radio please check to see if an outbound boat would like a radio. If you do transfer the radio to another boat be sure to make contact with the Boardmaster and have them transfer the "Radio" designation to the new boat number and name <u>before</u> continuing in to the beach (not after arriving at the beach).

4. **Make certain the radio is set to US channels** ("U" or "US" should be in the top of the display, not Canadian channels "C" or International channels "I", see a manual or ASC staff for how to set to US channels if "U" or "US" is not showing near the top of the display).

5. **Set the volume of the radios used in kayaks as high as comfortable/practical** to make certain hails and messages are heard by you when your attention might be elsewhere. <u>The Beach/Boardmaster radio must be set to maximum volume</u> since it is often very busy and noisy near the board. <u>The radio for the Safety Boat also must be set to maximum volume</u> due to motor noise. See Section 3 for setting both Volume and Squelch.

6. **Channel 78A/1078 is the normal working channel for ASC marine radios and has been programmed in as both a Preset Channel and a Memory Channel**. If there is excessive usage/congestion on channel 78A then all ASC radios should use either channel 71 or 68. Note, the Leatherlips Yacht Club's (LYC) safety/crash boats use channel 69 as their working channel (as of the time this was written) and therefore although channel 69 is available there can be some congestion on channel 69 when the LYC safety/crash boats are operating.

7. **Set all ASC marine radios to the 5/6-watt high power setting (no "L" in the display) for a loud and clear signal**. Note, if you are doing a radio check between two radios, the radios should be set to the 1-watt power setting ("L" in the display above the volume indicator) for the radio check and the radios should be at least 20 feet apart when transmitting. Set the power back to the 5-watt setting (no "L" in display) after the radio check.

8. **Kayakers should improve radio reception by NOT laying radios in the bottom of the kayak**. Clip to your life jacket or deck bungee (higher is better for reception).

9. **ASC radios should be set to the Dual-Watch mode** (the radio watches channel 16 while on the working channel). If you do not see Channel "16" in the lower right corner with "DW" over the "16, make certain Channel "78A" is in the center of the main display by pressing "Preset" (to bring up channel 78A) then press and hold the SCAN/DW button until you see "DW" over "16" in the lower right hand corner. **Make certain you are on the working channel (usually channel 78A) when you transmit** unless you are responding to a hail on channel 16 or making a MAYDAY call on channel 16 (see below regarding MAYDAY calls)). Pressing the Preset key will bring up channel 78A. From there you can use the up and down arrows to go to another agreed upon working channel. Flickering channels on display means you are in scan mode. Briefly press SCAN/DW to get out of scan mode.

10. **Listen first,** it is an FCC requirement that you make certain you are not interrupting another transmission before transmitting. Press the PTT (Push-To-Talk) switch/button for one second before transmitting then speak in a clear and above normal voice with the microphone **1/2 INCH TO INCH FROM YOUR MOUTH** when transmitting.

11. **Identify your boat/station in each transmission**. Examples are: "ADAPTIVE SPORTS BEACH, this is ADAPTIVE SPORTS Kayak 26 (plus name), I am requesting _____, Over" or in response, "ADAPTIVE SPORTS BEACH, I _____, ADAPTIVE SPORTS Kayak 26, Over" when on a/the working channel. When hailing/calling on channel 16 the procedure would be "ADAPTIVE SPORTS BEACH, ADAPTIVE SPORTS BEACH, ADAPTIVE SPORTS BEACH (the vessel/station you are calling may be said 1, 2, or 3 times in a transmission to get their attention), this is ADAPTIVE SPORTS Kayak 26 over" then ASC Beach would reply "ADAPTIVE SPORTS Kayak 26, this is ADAPTIVE SPORTS BEACH, go to channel 78A (or another appropriate channel), Over".

12. **Under normal ASC operations all ASC radios should be on channel 78A** as the already established working channel and you may proceed with your message on channel 78A (following normal identification and message rules) without having to go through the hailing and channel change process. If a person/boat/station is not paying attention they can ask for the message to be repeated following normal identification procedures. If you do not receive a reply on the working channel after a reasonable period of time, and need to use an attention getting hail, that should be done on channel 16 then change back to the working channel (usually 78A) or other agreed upon working channel for the actual message/communication.

13. **Keep transmissions brief and marine safety or marine operations related** (remember others use the same few channels). For instance, you cannot have a discussion on a marine radio about what food somebody likes or what they are doing later but you can say "ADAPTIVE SPORTS Kayak xx, return to the beach by 12:30/now for _____" or "ADAPTIVE SPORTS Kayak xx, please inform all kayaks around you the kayaking session is over and

everybody needs to return to the beach as soon as possible" (can add explanations like "your ride/the bus/van is leaving in 10 minutes" but keep transmissions brief and to the point). Use the word "Over" when you are expecting a reply. When you have finished talking and no reply is expected use the word "Out" to let everyone on the channel know the conversation is finished and the channel is open for others to use.

14. **If there is a life-threatening emergency you should broadcast on Channel 16 (by pressing the 16 Key so that channel "16" is in the middle of the display) in the following scenario (as an example):**
    a. **"MAYDAY, MAYDAY, MAYDAY, THIS IS ADAPTIVE SPORTS Kayak 26, ADAPTIVE SPORTS Kayak 26, ADAPTIVE SPORTS Kayak 26, MAYDAY, THIS IS ADAPTIVE SPORTS Kayak 26" (Mayday then call sign said three times then MAYDAY repeated once along with your call sign to get everyone's attention, clear the channel, and identify yourself).**
    b. **"I am 100 feet west of the Dublin Road/Route 745 Twin Lakes bridge" (location of you and/or the emergency).**
    c. **"A person in ADAPTIVE SPORTS Kayak 20 has passed out for an unknown reason" (the nature of the emergency).**
    d. **"I am okay in kayak 26 and the second person in kayak 20 is okay. All kayaks are okay and NOT capsized" (status of people and boats involved).**
    e. **"We need the Safety Boat with anybody First Aid/CPR certified and EMS with an ambulance at Extraction Point Twin Lakes (2-XP-TL) right away" (what assistance is needed).**
    f. **"The person passed out is in DARK GREEN ADAPTIVE SPORTS Kayak 20 and I am in RED ADAPTIVE SPORTS Kayak 26, Over" (to aid in visual identification of boats/vessels/people in distress for people that are responding).**
    g. **If no response, repeat on channel 16 (typically giving 15 to 30 seconds for a response) then try the last working channel (or try channel 69 if you are in the open river and see the LYC safety boats on the river since they can respond quickly in a life-threatening emergency).**

15. **If you hear a "MAYDAY" or other distress call** you should determine if you can be of assistance without jeopardizing yourself and/or relay information if nobody else responds to the distress call within about 15 to 20 seconds (**Note, all boaters are required to assist anybody in distress if they are able to do so any without jeopardizing themselves or their vessel, this is not just a requirement for boaters with marine radios**).

16. **If an emergency is not life threatening** (such as a broken finger) then "MAYDAY" should not be said/used but the information format with regard to who, where, the nature of the emergency, the assistance needed/requested, and help in identification under the MAYDAY procedures should be followed on the established working channel or hail on Channel 16 and then change to an agreed upon working channel.

17. **In the event you, a person with a Marine Radio Endorsement, hear a radio call** but are not able to reach the radio or respond for some other reason, you may instruct a person without a marine radio endorsement to press the talk button and acknowledge the call by saying (for example) "ADAPTIVE SPORTS KAYAK xx, this is ADAPTIVE SPORTS BEACH, Standby and we will get back to you. Over", then hand the radio to you or some other person with a marine radio endorsement. In an emergency, everybody may handle radio communications until a person with a Marine Radio endorsement can take over without putting the person who made the radio call on "standby/hold" (to eliminate delays in emergency situations).

18. **NOAA Weather channels/alerts** are available on most ASC marine radios. See individual radio model instructions for WX use. **If you hear a loud/long beep it is a Weather Alert.** Pressing any key on most models clears the alert beep. Follow each model's instructions to be able to hear the weather alert message.

19. **Be sure to clean and dry the marine radios** after each use and return them to the proper place for the next person or for charging. If you are the last person using a marine radio for the day be sure to put it on a charger before you leave. Also, please help ASC by checking to make sure any other marine radios are also on chargers at the end of the day or an event before you leave. Verify the radio is charging by looking for the charge indicator after plugging in the charging cord or setting the radio on the charging base.

QUICK REFERENCE GUIDE

This transceiver is equipped with the E2O (Easy-To-Operate) system. You can do the basic operation in numerical order of the illustration below.

① Press and hold the ⏻ key to turn on or off the radio.

② Press the 🔲 key ("**VOL**" indicator blinks), then press the ▲ / ▼ key to adjust the speaker audio volume.

③ Press the ▲ / ▼ key to selects the operating channel.

④ Press the 🔲 key two times ("**SQL**" indicator blinks), then press the ▲ key to squelch or press the ▼ key to un-squelch the radio.

⑤ Press the 🔲 key to toggle the transmit power between High (5W) and Low (1W).

⑥ Press the 🔲 key briefly to recall channel 16.
Press and hold the 🔲 key for two seconds to recall channel 9.
Press the 🔲 key again to revert to the last selected channel.

⑦ Place your mouth about 1 inch (2.5 cm) away from MIC hole and speak in a normal voice level while pressing the **PTT** switch.

6.3 RECEPTION

1. Press and hold the ⏻ key for two seconds to turn the radio "on".
2. Press the 🔲 key twice ("**SQL**" will be blinking).
3. While "**SQL**" is blinking, press the ▼ key until the "**BUSY**" indicator will appear on the display, then press the 🔲 key.
4. Press the 🔲 key ("**VOL**" will be blinking).
5. While "**VOL**" is blinking, press the ▲ / ▼ key until the noise or audio from the speaker is at a comfortable level, then press the 🔲 key.
6. Activate the squelch adjusting mode by pressing the 🔲 key twice (the "**SQL**" indicator blinks). Press the ▲ key until the random noise disappears, then press the 🔲 key. This state is known as the "Squelch Threshold".
5. Press the ▲ or ▼ key to select the desired channel. Refer to section "**9. VHF MARINE CHANNEL ASSIGNMENTS**" for available channels.
6. When a signal is received, adjust the volume (press the 🔲 key, followed by the ▲ / ▼ key) to the desired listening level. The "**BUSY**" indicator in the LCD is displayed indicating that the channel is being used or the radio is not squelched.

Common and/or additional keys/functions:

The ▲ and ▼ Keys: Change channels unless VOL/SQL key is pressed first.

The SCAN/DW key: A brief press starts scanning channels (not the preferred mode). Another brief press stops scan mode.

The SCAN/DW key: Press and hold 2 seconds to activate Dual Watch mode. "DW" will appear on the display above the lower right channel number in this mode. **Use this mode.**

The PRESET key: Briefly press to call up the Preset channel(s). This will typically be channel 78A for ASC. "PRESET" will show near the top of the display. Press Preset again to return to the last selected channel.

The H/L key: Press to switch between High power (5 watts) and Low power (1 watt). An icon with an "L" in it is shown on the left side of the display in low power/1 watt mode (no icon for high power). Use Low power when close to another radio, otherwise use High power/5 watts.

CLR/WX key: A brief press to stop a Scan, Priority Scan, or Dual/Tri-Watch mode.

CLR/WX key: Press and Hold to bring up NOAA weather. Press and hold again to cancel.

Section 4. An abbreviated guide to operating the Standard Horizon HX40 marine radios (the full manual for the Standard Horizon HX40 marine radio is available online and a copy is also available in the ASC office).

1. The Standard Horizon HX40 marine radios are waterproof (to a shallow depth) BUT THEY DO NOT FLOAT. They must have a floating wrist strap securely attached to them before operating near/over water.
2. Make sure the antennae and the accessory mic/speaker cap are screwed on firmly before use. Otherwise, the radio is not waterproof.
3. Do not grab the radio by the antennae! Doing so can damage the antennae and require replacement.
4. The radio On/Off switch is the lower portion of the button on the side. Press and hold until you see the radio turn on, or turn off. Make sure the radio is off when you are done using it.
5. After turning the radio on, verify the display says "USA" for US channels (not "C" Canadian or "I" International). Verify the radio battery has a good charge (battery charge level indicator in top right of display). Verify the radio is set to High Power ("HI" in top line of display) unless operating close to other radios (use "soft" left and right keys to set other power levels).
6. Set squelch to lowest setting that eliminates background static/noise by pressing the SQL/VOL key until you see SQL in the lower display. While "SQL" is visible in the window, the up and down arrow keys will adjust the squelch setting.
7. Set the volume to a comfortable level, but loud enough to get your attention when there are background noises. Press the SQL/VOL key and while "VOL" is visible on the lower line use the up and down arrow keys to adjust the volume.
8. If the radio display does not already show channel "78" with "P-SET" in the top line, and DW 16 on the left side (the radio keeps the settings from when it was turned off), first use the left and right "soft" arrow keys to highlight P-SET and briefly press the "ENT/MENU" key to bring channel 78 up on the display with "P-SET" showing in the top line. AFTER that is done, if "DW 16" is not already showing on the left side of the display, use the left/right arrow "soft" keys to highlight "DW" and briefly press the "ENT/MENU" key. The radio should now be set for normal use at ASC (do not set to the SCAN mode, always set the radio to the DW 16/78 preset mode).
9. If the keys other than the SQL/VOL key, and the PTT (Push-To-Talk) key do not seem to work, the keys may be locked. Press and hold the "CLR/key" button long enough to toggle off/on the keypad lock function. The display will say either "KEY LOCK" or "UNLOCK".
10. Before transmitting, listen to make sure no one else is using the channel before talking (an FCC legal requirement). When transmitting, firmly press the PTT key on the side (above the on/off power key), wait one second, and in a clear and slightly above normal voice, **WHILE HOLDING THE MICROPHONE ½ INCH TO 1 INCH FROM YOUR MOUNTH (VERY IMPORTANT),** say your message as described in previous sections.
11. To hear the weather channel, briefly press the ENT key and use the left/right keys to move to WX and press ENT again to select a weather channel. If not receiving weather on the displayed weather channel, use the up/down arrow keys to select an appropriate weather channel for the area. To return to marine radio use, briefly press the ENT key and use the left/right arrow keys to highlight CH and briefly press the ENT once more to select CH which will return you to the last marine radio channel you were on.
12. If you hear a long alert tone, that is a weather alert. Press any key and follow instructions on the display. After listening to the weather alert, use the previous procedure to return to the marine radio mode.
13. After you are done using the radio, make sure it is clean and dried off. If you are returning the radios to the ASC office, make sure the radio is firmly on the base and the charge indicator is visible on the display.

Section 5. An abbreviated guide to operating the Standard Horizon HX851 marine radios (the full manual for the Standard Horizon HX851 marine radio is available online).

1. The Standard Horizon HX841 marine radios with the standard antennae are waterproof and are able to float by themselves. The HX851 with the pink float strap for use at the beach by the board with the BNC connector (for the external antennae) instead of the regular antennae is NOT waterproof because of that connector. DO NOT get it wet, or wash it off. Keep that HX851 radio dry.

2. Make sure the antennae, accessory mic/speaker cap, and battery compartment cover are securely in place before use. Otherwise, the radio is not waterproof.

3. Do not grab the radio by the antennae! Doing so can damage the antennae and require replacement.

4. The radio On/Off switch is the orange button on the lower left of the front Press and hold it until you see the radio turn on, or turn off. Make sure the radio is off when you are done using it.

5. After turning the radio on, verify the display says "USA" for US channels (not "C" Canadian or "I" International). Verify the radio battery has a good charge (battery charge level indicator will be displayed on the right side of the display when the battery charge is getting low). Verify the radio is set to High Power ("HI" in top line of display) unless operating close to other radios. If operating close to other marine radios, briefly press the H/L key until "LO" is in the display (1 watt setting). Return the power level to "HI" for normal operation. The M1 and M2 power settings are for intermediate power settings which we do not use at ASC.

6. Set squelch to lowest setting that eliminates background static/noise by pressing the SQL key. While "SQL" is visible and blinking in the window, the up and down arrow keys will adjust the squelch setting.

7. Set the volume to the highest setting for the Beach and Safety Boat radios where there are a lot of background noises and it is important to hear the radio over the background noises. If a spare HX851 is taken out on a kayak or sailboat the volume can be set to a more comfortable level. Set the volume by briefly pressing the VOL key then use the up/down arrows to adjust the volume while "VOL" is still flashing.

8. If the radio display does not already show channel "78" with "P-SET" in the top line, and TW-16 on the left side, press and hold the DW key (a short press activates SCAN which we do not use) until DW-16 or TW-16 shows on the left side of the display. Then press PRESET until channel 78 shows in the main display with "P-SET" showing in the top right of the display/

9. If some of the keys do not seem to work, the keys may be locked. Press and hold the "H/L/key" button long enough to toggle off/on the keypad lock function. The display will show a small symbol of a lock in the top line when the keypad lock function is engaged. Press and hold the H/L/key key long enough to make the lock symbol disappear.

10. Before transmitting, listen to make sure no one else is using the channel before talking (an FCC legal requirement). When transmitting, firmly press the PTT key on the side (above the on/off power key), wait one second, and in a clear and slightly above normal voice, **WHILE HOLDING THE MICROPHONE ½ INCH TO 1 INCH FROM YOUR MOUNTH (VERY IMPORTANT),** say your message as described in previous sections.

11. To hear the weather channel, press and hold the CLR WX key and use the up/down arrows to select an appropriate WX channel for the area. To return to marine radio use, press and hold the CLR WX key. The last marine radio channel you used should now be displayed.

12. If you hear an alert tone, that is a weather alert. Press the CLR WX key to stop the beep tone and listen to the weather alert. After listening to the weather alert, press and hold the CLR WX key to return to the marine radio mode.

13. After you are done using the radio, make sure it is clean and dried off. If you are returning the radios to the ASC office, make sure the radio is firmly on the base and the charge indicator is visible on the display.

Section 6. Using the external marine radio extended antennae:

The Adaptive Sports Connection has a supplemental marine radio antenna that is to be connected to the marine radio by the board at the beach. Elevating the antenna as high as possible by hooking it onto a tree branch, and connecting the cable to the antenna fitting on the marine radio by the board, will greatly improve reception in some of the ASC paddling and sailing areas. This is especially important when water levels are so low the Twin Lakes area becomes inaccessible to kayakers and kayakers head out to the cove off the river and points south. VHF radios operate line-of-sight, and obstructions like the high ground between the beach and the cove and other locations interfere with transmission and reception. ASC sailboats generally operate out of line-of-sight of ground level at the beach area.

The supplemental antenna is eight feet long and has about 15 feet of cable coming out from its base. Inset the 10-foot-long white plastic tube into the socket at the base of the antenna and reach as high as possible to hook the antenna onto a tree limb. It should be at least somewhat away from the tree trunk since the tree trunk can block some of the signal. Remove the plastic tube until needed for retrieving the antenna.

When installing or retrieving the antenna, make sure the connector/adapter does not touch the ground and/or get dirty. There is a plastic zip lock bag to protect the connector/adapter and a hook on the nearby tree to hang the bag with the connector and keep if off the ground.

Place the board under the antenna and cable. Gently loop the cable over a hand clamp clamped to the top right of the board to reduce stress on the antenna connector on the marine radio. Carefully connect the twist lock BNC antenna cable connector to the marine radio antenna connector (note, do not unscrew the cable/connectors from the radio or the cable, the BNC connector is a quick twist lock style).

When using the marine radio at the board, be careful not to move around too much and stress the antenna connector on the radio. The Standard Horizon HX851 (and other marine radios) are waterproof with the standard short antennae but NOT with the BNC adapter connector. DO NOT rinse off the marine radio with the BNC connector to clean it. The radio with the extended antenna adapter must be kept dry.

After a session is finished, turn the radio off (check to make sure all other marine radios were turned off), disconnect the marine radio at the twist lock BNC connector (do not unscrew the connections above or below the twist lock BNC connector), retrieve the antenna, and place all antenna related items in the paddle shed. The marine radio goes on the charging cradle in the house.