

**DRAGON BOAT ACTIVITY**

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| **RISK ASSESSMENT (RA)** | | | | |
| Organization: | Singapore Dragon Boat Association | RA Leader:  Florence Yong (Ms)  Event Manager  SDBA | Approved by: | Reference No:  SDBA/RA/DB/2023 |
| Activity: | General Dragon Boating Activity | RA Member 1:  Sharon Ng (Ms)  Dy-Operations Manager  SDBA | Name:  Raizal Abdol Jalil  General Manager  SDBA |
| Activity Location: | Bedok Reservoir  Jurong Lake  Lower Seletar Reservoir  Marina Reservoir | RA Member 2:  Desmond Koh  Secretary General  SDBA | Date Approved:  1-Jan-2023 |
| Original Assessment Date: | 1-July-2015 | RA Member 3  Gordon Choi  Senior Vice President  SDBA |  |
| Last Review Date: | 1-Jan-2023 |
| Next Review Date: | 1-Jan-2024 |

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| **1. HAZARD IDENTIFICATION** | | | | **2. RISK EVALUATION** | | | | **3. ADDITIONAL RISK CONTROLS (IF HAVE)** | | | | | |
| **s/n** | **Work Activity** | **Hazard** | **Possible**  **Injury/Ill-Health** | **Existing Risk Control** | **S** | **L** | **RPN** | **Additional Controls** | **S** | **L** | **RPN** | **Implementing Person** | **Due Date** |
| 1 | 1.1  Participating/ Volunteering in dragon boat activity | 1.1.1  Exposure to COVID19 infection | 1. Fatal (5) 2. COVID19 related ailments/illnesses (4) | 1. Advisory not to participate if feeling unwell 2. Advisory to seek treatment if unwell, especially when showing flu-like symptoms 3. Those diagnosed with COVID19 not permitted to participate | 5 | 2 | 10 |  |  |  |  |  |  |
| 2 | 2.1  Officiating, Steering & Coaching in dragon boating activity (as workforce) | 2.1.1  Exposure to COVID19 infection | 1. Fatal (5) 2. COVID19 related ailments/illnesses (4) | 1. Advisory not to participate if feeling unwell 2. Advisory to seek treatment if unwell, especially when showing flu-like symptoms 3. Those diagnosed with COVID19 not permitted to participate | 5 | 2 | 10 |  |  |  |  |  |  |
| 3 | 3.1  Launching/Recovery of dragon boats at Kallang Dragon Boat Nursery (if necessary) | 3.1.1  Lifting related injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Sprains (2) 4. Bone Dislocations (3) | 1. Adequate no. of workforce or Team Members to carry out lifting 2. Workforce or Team Members are familiar with proper lifting techniques 3. Use of boat trolleys to move dragon boats | 3 | 1 | 3 |  |  |  |  |  |  |
| 3.1.2  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. suitable for water activities 2. Workforce or team Members are familiar with lifting route | 3 | 1 | 3 |  |  |  |  |  |  |
| 3.2  Dragon Boat crossing across Stadium Road | 3.2.1  Road traffic accident type injuries | 1. Fatal (5) 2. Bleeding wounds (5) 3. Impact injuries (3) 4. Bone dislocations (3) 5. Fractures (3) | 1. LTA installed signage along Stadium Road warning motorists to slow down before Nursery Gate & crossing site 2. LTA installed speed bumps at Stadium Road before Nursery Gate & crossing site 3. Crossing in on straight stretch of road with motorist visibility from as far as 25m away 4. Posting of one (1) workforce or team member to stop motorists per every dragon boat crossing | 5 | 1 | 5 |  |  |  |  |  |  |
|  | 3.3  Conveying dragon boats up/down ramp on beach into/from the river | 3.3.1  Slips/falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | i. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. suitable for water activities  ii. Workforce or team Members are familiar with lifting route | 3 | 1 | 3 |  |  |  |  |  |  |
| 4 | 4.1  Setting-up or tearing-down infrastructure or equipment on land venue to support dragon boat activity | 4.1.1  Lifting related injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Sprains (2) 4. Bone Dislocations (3) | 1. Adequate no. of workforce or Team Members to carry out lifting 2. Workforce or Team Members are familiar with the proper lifting techniques 3. Use of trolleys to move heavier items | 3 | 1 | 3 |  |  |  |  |  |  |
| 4.1.2  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. during work 2. Workforce or team Members are familiar with the plans 3. All works shall only be carried out during daytime | 3 | 1 | 3 |  |  |  |  |  |  |
| 5 | 5.1  Setting-up or removal of infrastructure or equipment in water venue in support of dragon boat activity  i.e. install/remove race lane buoys/markers, hold buoy start system, start pontoon, etc. | 5.1.1  Lifting related injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Sprains (2) 4. Bone Dislocations (3) | 1. Adequate no. of workforce to carry out lifting 2. Workforce are familiar with the proper lifting techniques | 3 | 1 | 3 |  |  |  |  |  |  |
| 5.1.2  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. during work 2. Workforce or team Members are familiar with the plans 3. All works shall only be carried out during daytime 4. Compulsory wearing of PFD for works aboard power boat & pontoon | 3 | 1 | 3 |  |  |  |  |  |  |
| 5.1.3  Immersion in Water injuries | 1. Water ingestion related problems (4) 2. Drowning (5) | 1. Compulsory wearing of PFD 2. Proximity of power boat or pontoon 3. Workforce shall work in pairs & employ buddy system to look out for one another | 5 | 1 | 5 |  |  |  |  |  |  |
| 6 | 6.1  Towing of dragon boats | 6.1.1  Collision with other vessels | 1. Lacerations (1) 2. Sprains (2) 3. Bone dislocations (3) 4. Fractures (3) 5. Water ingestion related problems (4) 6. Bleeding wounds (5) 7. Drowning (5) | 1. Compulsory MPA qualified power boat driver with Steersman towing license 2. SDBA will notify PUB and other reservoir stakeholders about towing works 3. Boat Driver shall be assisted by Deck Hand to monitor the tow and serve as extra lookout | 5 | 1 | 5 |  |  |  |  |  |  |
| 6.1.2  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. during work 2. Compulsory wearing of PFD for works aboard boats & pontoon | 3 | 1 | 3 |  |  |  |  |  |  |
| 6.1.3  Capsize or Swamping | 1. Water ingestion related problems (4) 2. Drowning (5) | 1. Compulsory wearing of PFD 2. Compulsory MPA qualified power boat driver with Steersman towing license 3. Maximum of six (6)\*dragon boats per tow 4. Towing either by line-astern or tie-up alongside method 5. Towing shall progress at slow speed | 5 | 1 | 5 |  |  |  |  |  |  |
| 6.1.4  Immersion in Water injuries | 1. Water ingestion related problems (4) 2. Drowning (5) | 1. Compulsory wearing of PFD 2. Workforce shall work in pairs & employ buddy system to look out for one another | 5 | 1 | 5 |  |  |  |  |  |  |
| 7 | 7.1  Mooring of power boats & dragon boats at pontoons or jetties in reservoirs | 7.1.1  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. during work 2. Compulsory wearing of PFD for works aboard boats & pontoon | 3 | 1 | 3 |  |  |  |  |  |  |
| 7.1.2  Immersion in Water injuries | 1. Water ingestion related problems (4) 2. Drowning (5) | 1. Compulsory wearing of PFD 2. Workforce shall work in pairs & employ buddy system to look out for one another | 5 | 1 | 5 |  |  |  |  |  |  |
| 8 | 8.1  Participants movement on land | 8.1.1  Slips/Falling type injuries | 1. Muscle tears (1) 2. Inflammation (1) 3. Lacerations (1) 4. Sprains (2) 5. Bone dislocations (3) 6. Fractures (3) | 1. Compulsory wearing of non-slip footwear, i.e. slippers, sandals, shoes, etc. 2. Workforce or Team Leaders shall control participants’ movements 3. Compulsory wearing of PFD on pontoons | 3 | 1 | 3 |  |  |  |  |  |  |
| 8.2  Participants well-being | 8.2.1  Effects of Heat | 1. Dehydration (4) 2. Heat injuries (4) 3. Heat stroke (4) 4. Shock (5) 5. Fatal (5) | 1. Workforce and Team Leaders shall periodically remind participants’ to hydrate regularly 2. If water points are unavailable at the land venue, Workforce and Team Leaders shall bring-in adequate drinking water 3. Workforce and Team Leaders shall ensure participants find adequate shelter 4. Participants are permitted to bring drinking water in the dragon boats 5. Pre-activity, participants will be advised to bring drinking water, wear light clothing suitable for getting wet, headgear or sunglasses and out on suitable sun-block. This advisory can be found on SDBA’s website | 5 | 1 | 5 |  |  |  |  |  |  |
| 8.2.2  Effects of Cat 1 Weather | 1. Slips/Falling type injuries (3) 2. Hypothermia (5) 3. Lightning strike (5) 4. Fatal (5) | 1. SDBA Staff, Workforce and Team Leaders shall abide to MyENV app for weather advisory 2. SDBA Staff, Workforce and Team Leaders shall abide with the lightning Warning System (LWS) 3. Workforce and Team Leaders shall ensure participants find adequate shelter 4. No activities permitted when the LWS beacons are activated | 5 | 1 | 5 |  |  |  |  |  |  |
| 8.2.3  Effects of Haze | Asthma attack (4)  Breathing difficulties (4) | No activity if 3hr and/or 24hr PSI>150 | 4 | 1 | 4 |  |  |  |  |  |  |
| 9 | 9.1  Paddling activity | 9.1.1  Collision with other Vessels | 1. Lacerations (1) 2. Bone dislocations (3) 3. Fractures (3) 4. Impact type injuries (3) 5. Bleeding injuries (5) 6. Fatal (5) | 1. Only SDBA qualified Steers permitted to helm the dragon boats. They are trained in safe navigation 2. Only MPA qualified power boat driver permitted to drive power boats 3. 2m clear water rule in effect for dragon boats | 5 | 1 | 5 |  |  |  |  |  |  |
| 9.1.2  Man Overboard | 1. Impact related injuries (3) 2. Water ingestion related problems (4) 3. Drowning (5) | 1. Compulsory wearing of PFD 2. SDBA qualified Trainers, Coaches & Steers are trained how to recover man overboard back into the dragon boat 3. Power boats are either deployed as safety boats to cover the paddling activity or on standby at the dragon boat service centres in the reservoirs | 5 | 1 | 5 |  |  |  |  |  |  |
| 9.1.3  Capsize or Swamping | 1. Slips/Falling type injuries (3) 2. Impact type injuries (3) 3. Bone dislocations (3) 4. Fractures (3) 5. Water ingestion related problems (4) 6. Drowning (5) | 1. Compulsory wearing of PFD 2. Only SDBA qualified Steers permitted to helm the dragon boats 3. The Trainers, Coaches and/or Steers shall conduct safety & technical brief for the participants 4. Participants shall also be briefed about the Buddy System and Capsize Drill before embarking into the dragon boats 5. The Trainers, Coaches and Steers shall gauge the paddling proficiency of the participants. If the participants are not proficient enough, The Trainers, Coaches and/or Steers shall keep the participants as close to the launching pontoon as possible and not to wander too far away | 5 | 1 | 5 |  |  |  |  |  |  |
| 9.1.4  Trap under Capsized Dragon Boat | 1. Water ingestion related problems (4) 2. Drowning (5) | 1. Compulsory wearing of PFD 2. Participants have been briefed on Buddy System and Capsize Drill 3. SDBA qualified Trainers, Coaches & Steers are trained how to recover trapped under capsized dragon boat | 5 | 1 | 5 |  |  |  |  |  |  |
| 9.1.5  Marina Barrage in Operation | 1. Injuries caused by collision with other vessels (5) 2. Injuries incurred by Man Overboard (5) 3. Injuries incurred by Capsized or Swamped dragon boats (5) 4. Injuries incurred for being trapped under capsized dragon boat (5) | SDBA Staff, Workforce or Team Leader may call Marina Barrage Ops Room at 65145951 to check status of Marina Barrage  Marina Barrage in Operation before Start of Activity. SDBA Staff, Workforce or Team Leader shall postponed the activity until PUB gives all clear. If all-clear not given by 1700hrs, the activity shall be cancelled  Marina Barrage in Operation during Activity Underway. SDBA Staff, Workforce or Team Leader shall cancel the activity and return to boat pontoon to disembarked | 5 | 1 | 5 |  |  |  |  |  |  |

S: Severity;

L: Likelihood;

RPN: Risk Prioritisation Number

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| Likelihood / Severity | Rare (1) | Remote (2) | Occasional (3) | Frequent (4) | Almost Certain (5) |
| Catastrophic (5) | 5 | 10 | 15 | 20 | 25 |
| Major (4) | 4 | 8 | 12 | 16 | 20 |
| Moderate (3) | 3 | 6 | 9 | 12 | 15 |
| Minor (2) | 2 | 4 | 6 | 8 | 10 |
| Negligible (1) | 1 | 2 | 3 | 4 | 5 |

**Recommended 5x5 matrix with numerical rating**