

**PADDLESPOrts DURING THE AGE OF COVID-19:  
RISK ASSESMENT & RISK MANAGEMENT**

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## **Executive Summary**

The COVID-19 pandemic has led to widespread closures across the globe. These closures have impacted most educational, commercial, competitive, and recreational activities – including paddlesports. As “things open up,” questions are going to need to be asked and answered as to how to proceed, for example, “Is it safe to take a group paddling?” and, “What are the best ways to protect myself and the group?” This document, and the supporting materials, were written to help paddlesports leaders formulate answers to these questions.

COVID-19 is a newly discovered disease and we are still learning about it. Accordingly, specifics in this document may become outdated, or even proved to be incorrect, as our collective knowledge of the disease advances. However, the various analytic frameworks and methodologies that we present in this document are robust enough that they should be useful, and applicable going forward, even as new knowledge emerges and our understanding evolves.

Despite the limited state of our knowledge, certain things are abundantly clear about COVID-19:

- The disease is highly contagious.
- Manifestations of the disease are highly variable, ranging from no symptoms, whatsoever, to severe illness and death.
- In general, those with certain underlying diseases (e.g., asthma, chronic lung disease, diabetes, serious heart conditions, etc.) are at a much higher level of risk than those who do not have these conditions.
- Advanced age (above age 65) is also a significant risk for increased disease burden.
- At present, there is no safe and highly effective therapy.
- At present, there is no vaccine.
- At present, reasonably accurate tests are available which can tell if you *have* the disease. However, there are issues regarding availability of these tests in certain areas.
- Unfortunately, tests to tell if you *had* the disease are much less reliable and can even be misleading.
- The primary means of transmission for the disease is via the respiratory tract (e.g., breathing it in).
- Accordingly, one of the major preventative measures that has been put into place, at this point, is to maintain adequate separation from other people (aka “social distancing”). At present, a minimum of 6 feet (2 meters) is suggested. In addition, mouth and nose coverings (e.g., surgical masks) are helpful, under certain circumstances.
- In addition to respiratory spread, the disease can be acquired by touching an infected surface and then touching your face (the organism can enter your body via your mouth, nose, and eyes).
- Accordingly, meticulous attention to hand hygiene is warranted. Two effective alternatives are washing with soap and water, for a minimum of greater than 20 seconds

(the virus is effectively “dissolved” by soap), and certain hand sanitizers (e.g., greater than 60% alcohol).

To make an informed decision, paddlesports leaders should perform a systematic Risk Assessment, prior to running an event, and prior to getting underway. Various models of risk assessment are in use in the paddlesports community. In this document, we present the GAR model – a proven methodology which is in use by the United States Coast Guard and which may be of value to paddlesports. The GAR model develops an assessment of risk by consideration of seven factors: Planning, Event Complexity, Paddlers, Boats/Equipment, Communications/Supervision, Environment, and Other Factors. An assessment of gain is then performed, potential risk is balanced against potential gain, and a Go/No-Go decision is made.

Risk assessment should not be a “one-time” event. In fact, it should be part of an ongoing process of Risk Management. A U.S. Coast Guard model for risk management is then presented - the STAAR Model. The STAAR model has five components: Spread Risk, Transfer Risk, Accept Risk, Avoid Risk, and Reduce Risk.

We then discuss numerous potential infection prevention and control interventions which may be useful in the domain of paddlesports. Many of these may be “obvious,” e.g., screening potential participants, maintaining separation (aka “social distancing”), and hand hygiene, but there are many other less obvious (and potentially very effective) strategies, as well, e.g., allocation of equipment, controlled movement, and administrative controls. One of the key underlying themes is to maintain separation (e.g., through distance, positioning and sometimes PPE), and to minimize exposure time (e.g., through planning of activities, scheduling, and practice). Detailed recommendations regarding how to apply these various interventions are provided in the appendices, with special focus given to systematic approaches for planning paddlesports events, and running paddlesports events. In addition, one of the most challenging areas to deal with – rescues – is dealt with as well.

This document concludes with a high level analysis of some of the legal issues surrounding paddlesports. Key points include:

- Paddling entities that knowingly fail to adhere to local, state, and federal mandates aimed at reducing risk of transmission could be found negligent in a lawsuit. In addition, the failure to adhere to a minimum standard of care could lead to a loss of insurance coverage. Conversely, following these mandates may afford some degree of legal protection.
- Because of the criticality of following these mandates, paddlesports entities should closely monitor, and read, local, state, and federal mandates.
- Liability waivers may offer some legal protection but do not protect against intentional reckless, or grossly negligent, behavior.
- In addition to disease related guidelines, employer/employee related guidelines (e.g., from OSHA) should be read and followed.
- Many necessary precautions, e.g., “common sense,” are needed, in addition to mandated standards from government authorities.
- Paddlesports businesses should also pay special attention to industry guidance promulgated by industry organizations, such as the American Canoe Association and

other similar organizations. Industry specific guidelines are often referenced in liability and negligence litigation. Failing to meet industry standards can be interpreted as a failure to exercise the required duty of care on the part of a business owner.

## **Introduction**

The COVID-19 pandemic has led to widespread closures across the globe. These closures have impacted the vast majority of educational, commercial, competitive, and recreational activities – including paddlesports. As “things open up,” questions are going to need to be asked and answered as to how to proceed, for example, “Is it safe to take a group paddling?” and, “What are the best ways to protect myself and the group?”

To formulate appropriate answers, it is necessary to understand the science behind the illness. Accordingly, this document begins with a basic tutorial on COVID-19. Subsequently, the document presents several time-tested methodologies for risk assessment and risk management. With that as background, the document then provides detailed explanations, and examples, as to how these methodologies can be applied to paddlesports.

Because COVID-19 is a newly discovered disease (not recognized until late 2019), we know relatively little about it in comparison to many other infectious diseases. Accordingly, specifics in this document may become outdated, or even proved to be incorrect, as our collective knowledge of the disease advances. There is no way to avoid that. However, the various analytic frameworks and methodologies that we present in this document are robust enough that they should be useful, and applicable, going forward, even as new knowledge emerges, and our understanding evolves.

It is an unfortunate reality that the response to COVID-19 has become a political battleground. We have tried to avoid discussion of political issues in this document. Our perspective, and guiding principal, is to focus on what is believed to be true by scientists and healthcare practitioners. Our hope is that this document is received by its readers as being a reasonably factual, well-balanced, and helpful guide for paddlesports during the age of COVID-19.

The remainder of this document is organized into seven sections:

1. COVID-19: Understanding the Science
2. Risk Assessment for Paddlesports
3. Risk Management for Paddlesports
4. Examples of Applications to Paddlesports
5. Legal Issues
6. Additional Sources of Information
7. Appendices (Specific Recommendations)

## 1. COVID-19: Understanding the Science

In order to make informed decisions regarding risk assessment and risk management of COVID-19, it is essential to understand some of the basic facts surrounding the biology of the organism, core epidemiologic concepts, and potential healthcare responses. The section provides some of the necessary background information.

### The COVID-19 Virus

A virus is an extremely small infectious agent (so small that it cannot be seen by a conventional microscope) which can only replicate within the living cells of an organism. Viruses attack all types of life forms from microscopic organisms, such as bacteria, to plants, and large animals, such as human beings.

Coronaviruses were first discovered in the 1960s and there are known to be many different types with markedly different characteristics. For example, some specific types of coronavirus cause the “common cold” ... but other coronaviruses can cause extremely serious/potentially fatal diseases, such as SARS (Severe Acute Respiratory Syndrome) and MERS (Middle East Respiratory Syndrome).

Coronaviruses are so named because the numerous spikes on the outer surface resemble a crown when the virus is visualized using electron microscopy. Of note, the outer layer of the organism is a lipid (“fatty”) layer – which makes the virus extremely susceptible to being de-activated by soap and water. Hence, recommendations to “wash hands frequently” have a strong grounding in science.

The scientific name of the virus is SARS-CoV-2, with the resulting disease being called COVID-19. For ease of discussion, however, we are using COVID-19 to refer to both the virus, and the resulting disease. COVID-19 is a type of coronavirus which was first discovered in late 2019, hence the name COVID-19 (COVID-19 is *not* the 19<sup>th</sup> corona virus discovered). Although the organism was identified in 2019, it is highly likely that it has existed for far longer than that. Most scientists believe that the virus existed in bats and was then transmitted to humans. Interestingly, HIV (the “AIDs” virus), which is a totally different organism, was also believed to have been harbored in bats, before crossing over into humans. COVID-19 was first identified in Wuhan China and has subsequently spread, across the globe, to every continent except Antarctica. It is important to understand that, although certain types of coronaviruses cause “the common cold,” COVID-19 is not the common cold. In addition, although the symptoms of COVID-19 frequently resemble influenza (aka “the flu”), influenza viruses are an entirely different family (i.e., COVID-19 is *not* “a bad flu”).

### Transmission/Infectivity

Respiratory transmission (by droplets) is a primary means by which COVID-19 spreads, e.g., if someone speaks, sneezes, coughs or breathes near you. The virus can also be more finely

dispersed in the air (“aerosolized”) and can linger for many hours - but it is not yet clear to what extent the virus is spread in aerosol form. The distinction is important: simple masks (even a scarf, for example) can decrease the likelihood of droplet transmission, but aerosol spread requires a higher level of protection (e.g., N95 Respirators).

In addition to respiratory transmission, COVID-19 can also be transmitted by touch. As an example, the first outbreak in Germany was traced back to a shared saltshaker in a cafeteria. The organism can live for hours, if not days, on untreated surfaces and if you touch a contaminated surface, and then touch your face, the virus may infect you (typically entering through the mouth, nose, or eyes). Most people continually touch their faces – it is almost impossible to avoid. As a result, disinfection of “high touch surfaces” such as doorknobs, light switches, drawer and appliance handles, kitchen, and bathroom surfaces, and so forth, plays a role in decreasing transmission of the disease. Many viruses survive better in fresh water, than in salt water – but the specifics are not yet known with respect to COVID-19.

Given that the organism was only recently identified, epidemiologists (scientists and healthcare workers who specialize in disease outbreaks) do not have definitive numbers as to how transmissible the disease is. However, anecdotal evidence paints a compelling picture that the virus is extremely transmissible. Examples include nursing homes in which nearly all patients caught the disease and cruise ships in which many hundreds of passengers and crew caught the disease. Arguments can be made that these typically represent older/sicker individuals; hence they are likely to be more susceptible. However, crew on navy ships are generally young, very fit, and very healthy ... thus the outbreak on the aircraft carrier USS Theodore Roosevelt (over 950 sailors infected, as of April 27, 2020) is also confirmatory of a highly transmissible organism.

One of the critical concepts in epidemiology is called the  $R_0$  value. This value represents the number of other people that a sick person is likely to transmit the disease to. The higher the number, the more transmissible the disease is. The  $R_0$  value is affected by numerous factors (e.g., in a crowded environment, the value will go up, whereas in an environment with strict social distancing, it will go down). Given that we are still learning about COVID-19, there is not yet uniform agreement as to what a “typical”  $R_0$  value is, for the virus. However, based on what is currently known,  $R_0$  value estimates have generally ranged from 2 to 5. Assuming a mid-range  $R_0$  of 3.5, and an incubation period of 5 days, means that the virus can spread extremely rapidly unless proper precautions are taken (e.g., within a month, a single infected person could spread it to nearly 2,000 other people).

Given that crowded spaces increase the likelihood of both respiratory transmission, and touching of shared objects, it is not a coincidence that epicenters of the disease tend to be in densely populated urban areas such as New York City and Wuhan China. However, rural areas have been affected as well – for example, meatpacking plants (which have employees literally shoulder to shoulder) are breeding grounds for transmission, which subsequently may move into the surrounding communities.

## **Incubation Period/Contagious Period**

The incubation period of COVID-19 appears to generally be between 2 and 14 days, with a typical period of 5 days. There have been reports, however, of longer incubation periods (up to 24 days), in rare cases.

One of the things that impacts control of COVID-19 is that patients may be infected with the disease, and infect others, *before* they become symptomatic. Moreover, many individuals may harbor the disease – and transmit it – without ever becoming symptomatic. Unfortunately, these two factors make focused containment of the disease extremely difficult – because isolating only overtly sick people is not an effective strategy.

Typically, most patients with a virus are contagious while they have symptoms. It is not yet completely clear how long a COVID-19 patient is contagious *after* their symptoms have resolved – but it may be for several days (3 days without fever is now being used as a threshold, for return to work, in certain states).

## **Signs and Symptoms of COVID-19**

As of April 25, 2020, the CDC website listed the following nine signs/symptoms which may be indicative of COVID-19: fever (temperature > 100°F/37.8°C), cough, shortness of breath, chills, repeated shaking with chills, muscle pain, headache, sore throat, and new loss of taste or smell.

These signs and symptoms are, of course, not specific to COVID-19 which can make it difficult to confirm the disease without a test. The severity of signs and symptoms varies tremendously with many patients being totally asymptomatic. Due to lack of adequate/widespread testing, the exact percentage of asymptomatic patients is not yet known, but estimates range from 25 - 50% (the actual number may prove to be even higher, as testing becomes more systematic). Many patients will experience mild to moderate disease but, in other cases, the disease can become much more severe requiring hospitalization, or even intensive care. Unfortunately, rapid deterioration also sometimes occurs – a patient can have only mild symptoms, but within a few hours be near death. Rapid deterioration seems to occur mainly in those with significant co-morbidities (e.g., asthma, chronic lung disease, diabetes, serious heart conditions, etc.)

Of note, the disease appears to be more serious in older patients (above 65) although deaths have occurred in young patients. In general, disease symptoms appear to be more severe in older patients and death is much more likely in older patients. It is not yet clear whether this correlation is due strictly to age, or because older patients tend to have higher rates of pre-existing conditions.

Unfortunately, some people who “recover” from the disease are left with significant medical sequelae including kidney damage (with the need for dialysis), lung damage (with the need for supplemental oxygen), heart damage, and neurologic damage. The percentage of patients who suffer these consequences is not yet known, but it is a virtual certainty that some of those who are affected are likely to experience the problems for the rest of their lives.

## **Immunity**

The immune system is a set of mechanisms which help us to fight off infectious agents. The system is centered on white blood cells. Certain types of white blood cells will fight the infectious agents directly (“cell mediated immunity”), whereas other types of white blood cells create specific proteins (“antibodies”) to fight the infection.

In addition to fighting off the immediate threat, the immune system will also create “memory cells” for the specific infectious agent. These cells can persist in the bloodstream for significant periods of time (potentially years) and allow us to mount a more rapid response the next time we are attacked by the agent. If we have developed enough memory cells (which is not always the case), and if the memory cells are powerful enough (which is also not always the case), then we are considered to be immune to the disease.

Immunity is not an all or nothing phenomenon; for example, you may still become infected by the disease, but experience only minor symptoms, or none at all. In addition, immunity may, and frequently does, “wear off.” There are several reasons for this phenomenon. One reason is that, over time, you lose the memory cells, or they become less effective. This is the reason that, for example, tetanus boosters are recommended every ten years. Another reason that immunity may wear off is antigenic drift. Essentially what this means is that the organism evolves at a rapid pace so that, upon a second exposure, the organism has changed to the point that it does not activate the memory cells. Some (but not all) viruses tend to have rapid rates of genetic drift. As an example, influenza viruses have very rapid genetic drifts – resulting in the need to reformulate the vaccine, and vaccinate people, every year. Specifically with respect to COVID-19, we do not know the rate of antigenic drift, we do not know whether prior exposure will, in fact, lead to immunity, and we do not know how long immunity (if it does develop) will last, after infection or vaccination.

## **Herd Immunity**

Whereas immunity is the ability of a specific individual to resist the infection, “herd immunity” is the ability of the overall population to resist the infection. Because viruses can only reproduce inside of living cells, the basic idea is that if enough people become immune, the virus will not be able to spread easily, if at all, and thus will eventually die off.

Herd immunity can be achieved by letting the infection run its course through the population – many people become infected, most hopefully survive, and the remaining population then has herd immunity. Needless to say, there are significant ethical issues to consider, but herd immunity may be a viable strategy for diseases with very low mortality rates. Because it is a novel disease, with an unclear mortality rate, most countries, including the U.S., have been reluctant to allow herd immunity to develop on its own. Herd immunity can also be achieved by a systematic widespread program of vaccinations across the population.

Just as with immunity for an individual, herd immunity is not an all or nothing phenomenon. As an example, widespread administration of polio vaccine has virtually eradicated this disease in



most of the world. However, certain areas of the world, such as Pakistan, have low rates of immunization resulting in high rates of polio. As a result, an unvaccinated person is relatively safe from polio in most parts of the world ... but would not be safe in Pakistan.

## **Vaccines**

Vaccines contain either weakened, or killed (aka “inactivated”), infectious agents which are administered in order to develop immunity in the patient. For certain diseases, vaccines are only administered to people who are considered to be at significant risk for the specific disease (e.g., veterinary workers will be vaccinated against rabies). For other diseases, which are more common and/or very contagious, widespread vaccination is suggested/required (e.g., chickenpox). It should be noted that vaccination has two benefits: 1) it protects the individual and 2) it protects the population (through herd immunity). In certain cases, for example smallpox, vaccination has led to total global eradication of the disease.

In general, contemporary vaccines are extremely effective and most (although not all) people who receive them will become immune to the disease. However, as noted above, this immunity may only be temporary due both to memory cells wearing off and/or antigenic drift. With respect to safety, contemporary vaccines are extremely safe (although, as with all medicines there are potential risks).

The development of a new vaccine is generally a long, complex, and expensive process. It may take many years, if not decades, to develop a vaccine for a newly identified pathogen (such as COVID-19). As an example, HIV (the AIDS virus) was identified in 1984 and work on a vaccine began almost immediately – but we still do not have an effective/approved vaccine for this virus.

Enormous efforts are currently underway, across the globe, to rapidly develop, and test, vaccines for COVID-19. Given the high degree of difficulty in developing new vaccines, most scientists agree that, a “best case” estimate for wide-spread availability would be early 2021 (although it is not out of the question that a vaccine could be available earlier). Unfortunately, it is also possible that a vaccine might not be available for many years.

## **Isolation, Quarantine, Contact Tracing, and Social Distancing**

It is much easier to manage a disease when effective vaccines are available (to prevent it), when effective tests are widely available (to know if a patient has/had it), and when effective therapies are available (to treat and/or cure it). Unfortunately, none of these is the case, as of now. Accordingly, we are now in a situation where population-based interventions play an extremely important role in our management of COVID-19.

“Isolation” is the practice of separating a sick individual, from others, so that they do not pass along the disease. In contrast, “quarantine” is the practice of separating those who may have been exposed to the disease (but are not yet sick) from others. Because people do not necessarily

know that they have been exposed, “contact tracing” is sometimes used to identify (and subsequently quarantine) those who may have been exposed.

When used early and aggressively, isolation, quarantine, and contact tracing can be extremely effective in containing an outbreak. The use of these techniques accounts, in large measure, for the high degree of success that certain countries (e.g., South Korea and Taiwan) have had in containing COVID-19. However, once the disease has become widespread, the logistics of contact tracing may become enormous, or even unfeasible. This is the situation that is now being faced by the United States and most of Europe. There are some technological interventions which may facilitate contact tracing (e.g., tracking individual’s locations by cell phones), but privacy concerns pose significant challenges to the use of these in many countries, including the United States.

Once the disease has spread beyond a certain point, it is no longer possible to selectively contain it and even more widespread/less granular interventions may become necessary. This is the situation that we are now in with COVID-19, in the U.S. Specifically, social distancing is now being used on a wide (albeit not consistent) basis. The basic idea of social distancing is that people should, as much as possible, physically separate themselves from others (the current recommendation is a minimum of 6 feet/2 meters) in order to decrease the likelihood of transmission. Note that social distancing is not as “strict” as quarantine, or isolation, since people may still leave their homes to shop for food or perform other essential functions. It should also be noted that social distancing provides dual benefits: both to individuals (who are less likely to acquire the disease) and to the overall population (by slowing down spread of the disease).

There is extraordinarily strong evidence that social distancing can be effective. A classic case that is often cited is the 1918 influenza pandemic. During this global outbreak, the city of Philadelphia allowed a Saint Patrick’s Day parade to proceed (with an estimated attendance of approximately 200,000 people). Within three days, the flu had spread widely within Philadelphia, and thousands of people subsequently died. St. Louis, on the other hand, banned its parade ... and experienced a much lower death rate. In the case of COVID-19, there is compelling evidence that social distancing is effective. As one example, the city of San Francisco instituted social distancing very early and has seen a much lower infection rate than other cities. As another example, New York City (considered now to be the world epicenter of the disease) has begun to see a deceleration in disease spread, after instituting social distancing.

### **Flattening the Curve**

A concept that has received a lot of attention is “flattening the curve.” The basic idea is to spread out/slow down the emergence of the disease (e.g., by social distancing), so that the healthcare system does not become overwhelmed. By way of analogy, if a busy emergency department typically sees 240 patients a day then it should (with a bit of strain) be able to handle 300 patients a day. But if, for example, 480 very sick patients were to suddenly appear, then the ED would be overwhelmed, and unable to care adequately for the patients. In the case of COVID-19, this is what Italy experienced, with EDs and ICUs being stretched far beyond capacity. Further compounding the difficulties, a sudden increase in volume will also overwhelm

the ability of first responders to provide initial medical care and transport. It should be noted that when a healthcare system becomes overwhelmed, *all* patients (not just COVID-19 patients) are put at risk.

There are some subtleties regarding flattening the curve. One issue is that there is an interaction with herd immunity. Specifically, since flattening the curve spreads out the occurrence of disease (a good thing), it also *decreases* the emergence of herd immunity (i.e., decreasing this desired benefit). This is a complex balancing act – with significant ethical implications. Another related subtlety is that spreading out the occurrence of disease does not necessarily equate with a total reduction in mortality (e.g., the same number of people might ultimately become infected, and die, just over a longer period of time). Many factors influence this calculus and the various interrelationships are quite complex. All this being said, however, the vast majority of epidemiologists and healthcare workers do feel that flattening the curve is the appropriate strategy for COVID-19, especially given how little we currently know about it, and because it allows more time to develop therapies, and other responses, to the disease.

## Testing

There has been a tremendous amount of hype and, frankly, misinformation circulating regarding testing. One point that is frequently misunderstood is that testing is critical, not just for the individual patient, but for the population as a whole. From the perspective of an individual physician, taking care of individual patients, it may be enough to know whether, or not, a specific patient has the disease. Epidemiologists, however, do not manage individual patients – rather, they manage populations. The science of epidemiology is built around ratios – specifically numerators (e.g., how many patients have the disease?) *and* denominators (e.g., what is the *overall* size of the population, how many people do *not* have the disease?). Thus, telling an epidemiologist that 100 patients have the disease, in a town, is essentially useless: For example, if that town has a population of 100 people, then 100% of the population has the disease, but if the town has a population of 10,000, and the other 9,900 people do not have the disease, then only 1% of the population has the disease. These are vastly differing situations with enormous implications for decision making and resource allocation.

The only way that epidemiologists can acquire the necessary data is through widespread testing – of both those who are sick, and those who are not. This is especially important because, as noted previously, many people with COVID-19 may have the disease and be pre-symptomatic (not yet developed symptoms) or may remain asymptomatic (never get sick) throughout the course of the disease.

From a scientific perspective, there are two types of tests for COVID-19: antigen (“Ag”) tests, and antibody (“Ab”) tests. Antigen tests detect the virus itself and are “positive” if you *have* the virus, at the time of the test. Current antigen tests (sometimes known as “PCR” – polymerase chain reaction tests) are considered to be helpful, but are not always perfect. For example, a recent study demonstrated a 97% detection rate – which means that 3 out of 100 patients may be erroneously diagnosed as not having the disease. These “false negatives” have adverse impacts

on both the management of individual patients, as well as for population management. However, currently approved antigen tests are considered to be sufficiently accurate for clinical purposes.

Antibody tests (you may sometimes see the terms, “serology test”, or “IgM” and “IgG”) are the other type of tests. These tests tell whether, or not, you *had* the virus. Antibody tests are extremely important for population management because they provide the foundation for epidemiologists to acquire certain types of “numerator” data (e.g., how many people had the disease vs. how many were symptomatic). In addition, these tests can impact the management of individual patients, e.g., the existence of antibodies *may* suggest immunity to subsequent infections (the specific situation with respect to COVID-19 is still not known). As another example, the existence of antibodies is important for the administration of an experimental therapy called “convalescent plasma”. Although a tremendous amount of work is currently underway to develop antibody tests, many/most of the current tests are not accurate enough to be relied upon clinically (they have very high false positive or false negative rates – in some cases, up to 30%, and some of the tests cross react with the common cold).

## **Therapies**

Historically, viruses have proven to be much more difficult to treat than other types of infectious organisms (e.g., bacteria). A primary reason for this is because viruses “live” inside the cells of the host – and, therefore, drugs must enter the host cells, without damaging them, while killing the virus. Penicillin, which is anti-bacterial, was discovered in 1928 (there were also earlier antibacterial agents), but the first effective anti-viral drugs did not emerge until the 1960s. Since then, there has been slow, but steady, progress and effective medications are now available for certain viral diseases (e.g., influenza, HIV, Hepatitis C). Numerous viruses, however, remain for which there are no effective therapies.

Given that COVID-19 was not discovered until late in 2019, it is not surprising that treatment of the disease has proven to be very challenging. As of the date this paper was written, multiple medical specialty societies, the FDA, the CDC, and the NIH have all stated that no drugs have been definitively proven to be safe and effective, in treating the disease. Numerous clinical trials are currently underway to find a safe, and effective, anti-viral agent which can treat COVID-19. Promising, albeit limited, results are beginning to appear (e.g., for remdesivir) but, as with vaccines, the process of gathering adequate safety and efficacy data can be very lengthy. Highly effective anti-viral therapies could, conceivably, emerge within the current year, or it might take much longer. Given the lack of specific anti-viral medications, current therapy for the disease revolves around “supportive care” (oxygen, fluids, and so forth).

## **PPE**

“PPE” (Personal Protective Equipment), in the context of COVID-19, is equipment which is used to decrease the likelihood of transmission of the virus. It includes a variety of items such as masks and respirators, eye shields, gloves, and gowns. It is critical to recognize that PPE serves TWO purposes:

1. To protect the individual wearing the equipment, *and*
2. To protect other people (the patient, bystanders, the general population, etc.).

As an example, a medical N95 respirator protects the healthcare provider from getting the virus – and the respirator also protects the patient from getting the virus if the provider happens to be infected. When properly used, PPE can be extremely effective (although it is never 100% failsafe). On the other hand, when used inappropriately, PPE can *increase* the risk of transmission (e.g., by “trapping” pathogens).

## **Mouth and Nose Protection**

In healthcare settings, the two most common types of mouth and nose protection for COVID-19 are N95 respirators, and surgical masks. N95 respirators protect against both droplet and aerosol transmission. However, the effective use of these respirators depends upon a variety of factors

- They must fit properly (N95 respirators come in different sizes – some universal size models are available, but for other models, one size does *not* fit all and the wrong size mask may offer little to no protection).
- Users must be trained to properly fit, don, test, and remove these respirators.
- Facial hair (e.g., a beard) can interfere with effectiveness.
- These devices can restrict airflow such that they are not suitable for individuals with a number of medical conditions including lung disease and heart disease.
- As per the CDC, the respirators must be discarded if they become compromised in any way (e.g., by becoming wet, torn, or distorted).
- Surgical masks are also used in healthcare settings. They can protect against droplet transmission, but do not protect against aerosol transmission. In general, surgical masks are easier to use than N95 respirators. However, if they become wet, or otherwise compromised, they are supposed to be discarded.

## **Eye Protection**

The virus can gain entry to the body through the eyes (by droplet transmission, by touching your face, and possibly through aerosol transmission). Types of eye protection used in healthcare settings include safety glasses (which provide side as well as front protection), safety goggles, and face shields.

## **Gloves**

Gloves are a part of routine practice in healthcare infection prevention and control. Accordingly, they are recommended for healthcare workers. NOTE: If used improperly, gloves will not help and can even *increase* the risk of transmission (e.g., if you touch an infected surface with your glove, and then touch your face or someone else, with the glove).

## **Gowns**

Gowns are also a part of routine practice in healthcare infection prevention and control. Gowns prevent the virus from getting on your clothing (if your clothing becomes contaminated, then you touch it, then you touch your face, you may become infected). As with gloves, improper use of gowns will not help, and may even increase the risk of transmission.

## **Additional Comments on PPE**

With respect to the use of PPE in healthcare settings, it should be understood that CDC guidance has evolved over time as knowledge of the disease advances, and recommendations are subject to frequent change.

Re-use of unsterilized PPE is not considered best practice because, although it may continue to protect the provider, it affords much less protection to the patients (the virus can be transmitted from one patient to another). This is, unfortunately, the situation that many urban hospitals (e.g., New York City) were placed in.

In addition, shortages of PPE can lead to the need to use non-healthcare specific equipment and/or improvisation. As one example, certain industrial respirators can provide a high degree of protection for the wearer (e.g., N100, which is better than N95). However, non-medical equipment often affords little to no protection for everyone else (e.g., due to exhalation valves which are *not* found in medical equipment). As another example, improvised masks – such as scarves – may afford a limited amount of protection from droplet transmission but offer no protection from aerosol spread. Because of severe PPE shortages in certain locations, healthcare workers were forced to resort to such “last ditch” measure as wearing raincoats and garbage bags (with arm and head holes cut out) as gowns, and to use plastic “page protectors” as eye shields.

## **Mortality Rates**

There is, and has been, tremendous variability in regard to what the mortality (death) rate is for COVID-19, with numbers ranging from double digits (Italy reported a rate of 12.8%) to much smaller (South Korea reported 0.7%). Moreover, the numbers seem to change daily.

There are several reasons for this tremendous variability in reported/projected death rates. One reason relates to the availability (or lack thereof) of testing. Testing more people leads to identification of additional people who have the disease and don't know it, or who had the disease and didn't know it, thus increasing the denominator, and lowering the percentage. South Korea, for example, had a much more aggressive, and earlier, testing program than did Italy. Another reason for variability relates to the specifics of the population. It is clear that older patients tend to experience more serious disease than younger patients (Italy, by way of example, has a very high percentage of senior citizens). Yet another reason for differing mortality rates is “flattening the curve.” Once a health system becomes overwhelmed, it becomes exceedingly difficult to effectively manage patients – hence mortality is driven up. This too was the case with

Italy. South Korea, on the other hand, was better prepared and did not experience an overwhelmed health system.

Another potential confounding factor relates to the methodology used to calculate death rates – for example, does a death need to be counted if it is “suspected” (as opposed to “confirmed” by a test)?, should a death be counted if the patient had another medical condition?, and so forth. It should be noted, however, that methodologies related to counting/computing death rates have existed long before COVID-19, and various scientific entities, such as the CDC, are using the same frameworks that they have used, in the past, for other diseases.

Despite the uncertainty in mortality rates, two facts are now well established: older patients are more susceptible to dying from COVID-19 than are younger patients, and those with pre-existing conditions (e.g., asthma, chronic lung disease, diabetes, serious heart disease) are also more susceptible. It also appears that COVID-19 has a higher mortality rate than the common flu (which is approximately 0.1%) but is less devastating than other viral diseases which have shockingly high death rates (e.g., Ebola is estimated to have a mortality rate of approximately 50%).

## **2. Risk Assessment for Paddlesports**

One of the fundamental tenets of safe paddlesports is to perform a methodical risk assessment, prior to getting underway (and to update it, as appropriate, while underway). A variety of methodologies have been published elsewhere, and are in use, with various degrees of effectiveness, by the paddlesports community.

Because of the rapidly evolving state of knowledge regarding COVID-19, and the complexity of the issues, it is the belief of the authors of this paper that attempting to develop a numerical scoring algorithm is not an appropriate approach and is likely to be potentially misleading.

In lieu of that, we will present a powerful, and flexible, risk assessment methodology that is in widespread use in the professional maritime community – the GAR model used by the United States Coast Guard. Please note that the presentation below is consistent with the USCG GAR model, but we have adapted the model to make it more directly applicable to paddlesports. As an aside, the GAR model produces a rating of risk at **Green**, **Amber** or **Red** – hence the name GAR.

There are seven core components to the GAR model: Planning, Event Complexity, Paddlers, Boats/Equipment, Communications/Supervision, Environment, and Other Factors. The basic idea is that each of the components can have a significant impact on risk.

### **Planning**

To the extent that a paddlesports event is “thrown together” at the last minute, it is much more likely to have a higher risk level than an event which has been methodically planned out in advance. Specifically with respect to COVID-19, if an event has been planned with proper

infection prevention and control interventions put into place (see following sections), it is likely to be less risky than an event which has not incorporated this level of planning.

## **Event Complexity**

More complex events tend to be riskier than less complex events. For example, a “Rescue Rodeo,” for a paddling club with 100 members, is likely to be much riskier than a group lesson on intermediate paddle strokes, for 4 participants. From the perspective of COVID-19, more complex events increase risk because of the increased difficulty in keeping paddlers appropriately spaced (far apart enough for social distancing, but close enough for supervision). Another contributing factor is that more complex events generally increase the need for assisted rescue, thus raising the risk of disease transmission.

## **Paddlers**

All else being equal, less experienced paddlers are likely to be at higher risk than are more experienced paddlers. *However*, this is highly influenced by multiple factors including event location and complexity. For example, a group of 2 advanced paddlers running a Class V+ rapid, for the first time, are almost certainly at higher risk than a group of novice paddlers being introduced to basic strokes in shallow water on a protected small pond. In addition, consideration specifically needs to be given to the skill level of the paddling leaders (trip leaders, instructors, etc.). With respect to COVID-19, factors related to prior known exposure to the disease, recent travel to known “hotspots,” potential immunity, and so forth, also come into play (see the following sections).

## **Boats and Equipment**

Generally speaking, use of boats appropriate for the event/environment, and the availability of appropriate equipment, will have a significant impact on potential risk. For example, the use of recreational kayaks, as opposed to true sea kayaks, is highly risky in a challenging coastal environment. In addition, putting together unrelated paddlers, on multi-person craft (e.g., rafts, tandem canoes, tandem kayaks) can create additional risk of exposure.

Although most advanced paddlers tend to have their own equipment, sharing is a part of the culture of paddlesports. Unfortunately, in the era of COVID-19, sharing is risky, and certain types of sharing should not be allowed (e.g., inflatable paddle floats and whistles).

## **Communications/Supervision**

Risk tends to go up when communication breaks down. Careful consideration needs to be given as to whether/how communications will be maintained throughout the duration of the paddlesports event (e.g., in the wind, when separated by large distances, when out of sight, etc.).



Related to this, appropriate supervision should always be in place – with due consideration as to how supervision is managed in the context of communication challenges. Specifically, in the context of COVID-19, consideration might be given to the implementation of a few communications cues for COVID-19 (e.g., “wash your hands”). For supervisors (paddling leaders), a critical question to ask is will they be able to pay appropriate attention to the maintenance of infection prevention and control mechanisms (e.g., social distancing), throughout the duration of the event? Along these lines, it may be beneficial to designate an appropriate individual to be the “Infection Control Officer.”

## **Environment**

Based on the preceding discussion, it should be abundantly clear that the choice of a more complex/challenging environment will drive up potential risk. This becomes even more compelling in the era of COVID-19. Current guidance should be referred to from local, state, and federal authorities. Factors to consider (for both risk assessment, and risk management) include, but are not limited to, current area closures; e.g., beach/parking lot/restroom/running water/etc. access, curfews, limitations on group size, limitations on group activities, social distancing recommendations, PPE recommendations, minimum boat separation distances, etc.

## **Other Factors (aka “throw downs”)**

Although the above six factors generally provide a comprehensive overview of potential risks, “special cases” do occur. Hence, the GAR model allows for “throw downs” to be added into the framework. An example of a throw down might be, for example, the possibility of a large gathering of individuals, in the immediate vicinity of the event, who are likely to not be wearing mouth and nose face coverings.

## **Use of the GAR Model**

There are various ways in which the GAR model can be used. One way (which is how the Coast Guard operates) is to use the model as a discussion framework for the group. Thus, each of the above seven factors is discussed, along with potential risk mitigation strategies. Risk levels are then assigned (on a scale of Low, Medium, High) for each element. The intent is that this should be a collaborative process with input from all participants.

Subsequently, an overall categorization of risk (Low, Medium, High) is developed. Once an overall assessment of risk has been performed, the potential gain of the event (also using a scale of Low, Medium, or High) is then assessed. From the perspective of the Coast Guard, certain events are potentially High gain – e.g., lifesaving missions. Training is, however, generally ranked at Low (or, at most, Medium). From the perspective of paddlesports, it is hard to envision any High gain events (there may be a few exceptions – e.g., exiting a dangerously flooding beach campground, with the tide coming in). Most paddling events are likely to be Low gain or, at most, Medium gain.

Finally, the potential risk is then balanced against the potential gain and a decision is made as to whether, or not, to proceed. For example, if an event is high risk, but low gain, then it should not be executed. On the other hand, if an event is low risk, and low or medium gain, then it is more appropriate to be executed.

### **3. Risk Management for Paddlesports**

It should be clear, from the above discussion, that although we have learned a lot about COVID-19, there is still a tremendous amount that we do not know. These knowledge gaps can make risk assessments, and risk management, extremely difficult. From the perspective of paddlesports, this can create substantial challenges in terms of putting into place mitigation strategies to decrease the chance of disease transmission during paddling events.

We will present two differing risk management methodologies in this section:

1. The STAAR model (used by the U.S. Coast Guard), and
2. The model used by infection prevention and control professionals.

#### **The STAAR Model**

The STAAR model is a general framework, used by the Coast Guard, to identify, and clarify, potential risk management strategies. It has five components: **S**pread Risk, **T**ransfer Risk, **A**ccept Risk, **A**void Risk, and **R**educe Risk. It should be noted that these components are *not* independent of each other and there may be significant overlaps and interrelationships.

#### **Spread Risk**

From the perspective of the Coast Guard, this may mean spreading out risk over place, time, etc. It is interesting to note that, from the perspective of COVID-19, this is exactly what social distancing and flattening the curve is being used for. From the perspective of paddlesports, there are various ways by which risk could be spread out. For example, spreading out in space could be achieved by choosing larger, as opposed to smaller, assembly points. As another example, spreading out over time could be achieved by staggering start times for group events (to decrease congregation of large groups of people).

#### **Transfer Risk**

From the perspective of the Coast Guard, this may mean selection of appropriate assets. For example, if a rescue needs to be conducted in deteriorating ocean conditions, then a small patrol boat may be withdrawn and a more rough-weather ready surf boat may be substituted. There are many examples of Transfer of Risk in healthcare provider responses to COVID-19: for example, the designation of specific COVID-19, and non COVID-19, patient care units. From the

perspective of paddlesports, there are several ways in which risk could be transferred – for example, by designation of specific rescuers (see the following section).

### **Accept Risk**

Risk assessment is not a one-time event – rather it should be viewed as a continual process. As a result, an initial decision to accept the risks may, based on changing circumstances, need to be revisited – either with a decision to keep accepting the risks, or to avoid the risks. From the perspective of the paddler, this has clear applicability as weather and other environment factors change, as group dynamics change (e.g., the ability to maintain awareness – and execution of social distancing), and so forth.

### **Avoid Risk**

As per the above, ongoing risk assessment may lead to the decision to no longer accept the risks, i.e., they now need to be avoided. From the perspective of the paddler, this relates to a question which should always be top of mind: “Should the event be terminated?” As another example, a choice may be made, while underway, to avoid an area that looks more challenging than originally envisioned.

### **Reduce Risk**

Strategies and tactics should be identified, and implemented, to reduce risk. From the perspective of paddlesports, this should take place prior to an event commencing, and continue throughout the event itself. One example is “preloading” a course to teach as much as possible remotely (e.g., didactic/classroom material can be taught by teleconference, as opposed to in person). Numerous other options are discussed in the section which immediately follows.

### **Infection Prevention and Control Model**

Infection prevention and control practitioners specialize in identifying risks, and putting into place mitigation strategies, to deal with infections ... often in the face of great uncertainty. This is the hand that they have been dealt in the context of COVID-19. Many of the strategies and techniques that they are using with COVID-19 are, in fact, potentially applicable and/or adaptable in the realm of paddlesports. Accordingly, we will describe risk management approaches, from the realm of infection prevention and control that may be useful in the realm of paddlesports.

There are four major phases in infection prevention and control:

1. Prevent
2. Detect

3. Contain
4. Mitigate

Each of these phases, in turn, includes a variety of potential interventions. It should be noted that certain infection prevention and control interventions (e.g., sterilization, engineering/building modifications, travel restrictions, border closures, etc.) are not generally feasible for paddlesports activities and, accordingly, we have not included them in the discussion below. Interventions which may currently, or in the future, be useful in the realm of paddlesports include the following (there is, in fact, some overlap in interventions; for the sake of brevity, we have suppressed duplication below).

1. Prevent
  - a. Vaccination
  - b. Hand hygiene
  - c. Cleaning
  - d. Disinfection
  - e. Environmental controls (e.g., air quality)
  - f. Prophylactic medications
2. Detect
  - a. Sign/symptom based health screening
  - b. Antigen tests
  - c. Antibody tests
  - d. Contact tracing
3. Contain
  - a. Isolation
  - b. Quarantine
  - c. PPE
  - d. Therapeutic medications
4. Mitigate
  - a. Social distancing
  - b. Allocation of equipment
  - c. Controlled movement
  - d. Administrative controls

This presents us with a list of 18 types of potential interventions. It should be noted that there may be significant overlap between various types of interventions and the categories are not necessarily mutually exclusive.

Several of these interventions require further explanation because we have not yet specifically discussed them.

Cleaning is the process of removing dirt and grime. The rationale for this intervention is that a surface, when thoroughly cleaned, is much less likely to harbor micro-organisms.

Disinfection is the process of killing infectious agents. It can be accomplished through a variety of techniques including chemicals, heat, light, radiation, and so forth.

Environmental controls are techniques which control the environment to decrease the likelihood of dispersion of microbes. An example, in the realm of healthcare, is the use of negative pressure rooms. Interestingly, and perhaps surprisingly, certain environmental control techniques are, in fact, applicable to paddlesports.

Prophylactic medications are medicines which are taken to decrease the likelihood of becoming infected. Note that prophylactic medications may, or may not, be the same as medications used to treat the disease.

Therapeutic medications are medicines which are used to treat the disease (they may, or may not, be the same as prophylactic medications).

Allocation of equipment refers to, for example, specifying who may use which equipment (e.g., with the intent of separating out some equipment for non-COVID patients).

Controlled movement refers to orchestrating the movement of personnel to decrease the likelihood of disease transmission (e.g., COVID-19 patients should not be wheeled down the hall past non-COVID patients).

Administrative controls are techniques which manage workflow to decrease the likelihood of disease transmission. Numerous examples of this are now being used by healthcare practitioners in the face of the COVID crisis. A common current example is allocating staff so that some treat only non-COVID patients, while others focus only on confirmed or suspected COVID patients. There are numerous administrative control techniques which may be very useful in the realm of paddlesports.

In the following section, we describe how these infection prevention and control techniques may be adapted to the realm of paddlesports and then present some example of potential uses.

#### **4. Applications to Paddlesports**

In the preceding section we identified 18 potential types of interventions which are used by infection prevention and control practitioners. These interventions are discussed below, in the context of paddlesports. Safe and effective medications (both prophylactic and therapeutic) are not currently available for the disease. Even more importantly, however, medications should *only* be administered as per the recommendation of an individual's healthcare provider. Therefore, medications are *not* discussed in the remainder of this document.

## **Vaccination**

As noted above, a vaccine is not currently available for COVID-19. However, at such point as a vaccine does become available, individual paddlers should (based upon a discussion with their healthcare provider) strongly consider becoming vaccinated. Vaccination could also be potentially used as an inclusion/exclusion criterion for choosing who may participate in a group paddling event.

## **Hand Hygiene**

Hand hygiene should be performed frequently throughout the day during group paddling events (especially at any point at which there has been, or is, the possibility of person to person contact or shared equipment). Paddlers should carry their own individual soap and/or a hand sanitizer. A minimum of 20 seconds is recommended for soap to be effective; the label should be checked for other products.

## **Cleaning**

It is likely to be beneficial if boats, and equipment, are thoroughly cleaned both before, and after, group paddling events. A dedicated sponge, for each paddler, will likely facilitate this process. Ideally running water (from a spigot) will be available but, if need be, the environmental water (e.g., ocean, lake, etc.) could be used as the source of water. Cleaning should be conducted in a way which is environmentally sensitive, e.g., ideally near a drain. Different cleaning products may be needed for porous as opposed to non-porous surfaces (check the product label).

## **Disinfection**

Any surfaces which are likely to be touched by multiple people should be disinfected between uses. The EPA's "N list" <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2> contains a list of agents which are effective against the virus. As an example, if it is necessary for multiple people to use a computer keyboard (something which was frequently done during class registrations, but should now be avoided, if possible), then the keyboard should be disinfected (e.g., with an alcohol wipe) between users, or users could sanitize their hands before touching the keyboard, as well as immediately after. In addition, keyboard covers, and anti-microbial keyboards, are now available. As another example, if a paddle is going to be shared, then it should be disinfected between users. Soap and water, or a hand sanitizer, can be used for this purpose.

## **Environmental Controls (e.g., air quality)**

The current recommendation is to stay a minimum of 6 feet (2 meters) away from other people. In fact, this situation is more complicated because, in outside environments, wind can become a

significant factor. Some researchers now believe that up to approximately 50 feet (15 meters) is a better choice for bicyclists and runners. From the perspective of the paddler, the main thing to think about is to avoid being close *downwind* from someone else. If one accepts this as a premise, then it has significant implications for a number of core paddlesports activities including group formations, and rescues. For example, positioning boats to be abeam of each other (called a “chorus line formation” in sea kayaking) may be more appropriate with wind head on, whereas boats being lined up bow to stern (called an “inline formation” in sea kayaking) may be more appropriate with the wind abeam. In both of these formations, boats need to be appropriately separated. It should be noted that the science surrounding the impacts of wind is in its infancy (e.g., is the deleterious effect of a strong wind carrying the virus further overridden by the increased dispersion?), but common sense does seem to suggest that it is not a good idea to be downwind from someone who is coughing.

### **Sign/Symptom Based Health Screening**

When choosing a group to go paddling with, and immediately prior to embarking for the day, strong consideration should be given to screening for COVID-19 signs and symptoms; for example, see **Health Screening Tool**. This process could entail use of a written questionnaire (along with a required signature), and/or a verbal questionnaire, and/or screening of body temperature with a thermometer. A “no touch device, such as an infrared thermometer, is certainly preferred for temperature screening. In addition, paddlers should be questioned as to whether, or not, they have travelled to recent “hot spots.” Unfortunately, at present, there is no uniformly accepted definition for a “hot spot.” The CDC maintains a list of signs/symptoms consistent with COVID-19, which can be used as a reference for the screening questions. The intent of conducting this screening is that anyone who has a sign/symptom of COVID-19 should not go paddling with the group. In addition, people who may be at higher risk for serious complications can be identified and a discussion held with them, prior to attending the event. There are some nuances to this approach - one of which is that most COVID-19 signs/symptoms are *not* highly specific and are common in many other illnesses. *It is also critical to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic – but still capable of transmitting the disease. Thus, health screening tools do NOT guarantee the absence of COVID-19.*

### **Antigen Tests**

Potential paddlers can be asked if they have been tested for COVID-19 with an antigen test. If they tested positive then consideration should be given to excluding them from paddling unless they meet current “return to work” or other appropriate criteria, as listed by the CDC and/or State Health Departments. For example, a current recommendation is that an individual who has tested positive for COVID-19 can only return to work once they have been fever-free for a minimum of 72 hours.

Another potential application to consider is to designate individuals who were confirmed to have the disease (by a test), and who meet return to work criteria, as “protected individuals.” This is

based on the assumption, *which has yet to be proven/and may not be correct*, that if you have had COVID-19, and recovered from it, you are unlikely to get it again. These “protected individuals” could be designated (with their consent) to serve in higher risk roles – specifically performing assisted rescues.

### **Antibody Tests**

As described previously, antibody tests are not yet reliable enough to be counted on for decision making. However, once the tests become more reliable, paddlers could be asked if they had been tested for COVID-19 with an antibody test, and if they have antibodies. If so, they could be designated as “protected individuals,” as per the description immediately above. A potential complicating factor is that antibody tests are not always “yes or no,” ... interpretation by a healthcare provider may be necessary.

At some point, inexpensive, rapid, and reliable antigen tests may become available. If so, these could be administered, at the event, to determine who may participate, in the event itself, or in higher risk activities, for example in rescue practice (the idea – which has yet to be proven – being that if a person has already recovered from COVID-19, as demonstrated by the antigen test, they are less likely to get the disease again).

### **Contact Tracing**

Although paddlers are not in the business of performing epidemiologic work (e.g., contact tracing), there *is* an application which may be of potential significance to paddlesports. In particular, the group leader, instructor, or other designated individual could keep a log of the entire group of participants, along with the specifics as to who had very close quarters contact during the paddling trip (e.g., person X did a rescue on person Y). This information might turn out to be extremely useful, and could be provided to the local department of health, or other outbreak investigators, if anyone in the group subsequently becomes infected. Although the incubation period of the disease is approximately two weeks, the log should be kept for a minimum of three years, because of the risk management/legal implications. In addition to being useful for purposes of risk management, the logs could also be useful for process analysis and improvement (e.g., to determine what the patterns of close contact are, and how those can be reduced).

### **Isolation**

Potential paddlers could be asked whether they were subject to COVID-19 isolation. If so, they might be excluded from paddling unless they meet criteria for release from isolation (as per CDC or state health department guidelines).



## Quarantine

Similar to isolation, anyone who has been subject to COVID-19 quarantine might be excluded from paddling unless they meet appropriate criteria for release from quarantine (as per CDC or state health department guidelines).

There is another application of isolation/quarantine which may be of value for some paddlers. Specifically, expedition paddlers who may be going on lengthy expeditions to remote areas could consider quarantining themselves, for a period of 14 days, immediately prior to departing. The rationale is that if the paddler is going to get sick with COVID-19, they will have done so during that 14-day period. Although this idea may seem far-fetched it is being suggested for other maritime purposes – e.g., commercial fisherman who are at sea for long periods of time and may have little access to medical care. A related idea would be to be antigen tested, twice, 24 hours apart, and then quarantine until commencing the expedition.

## PPE

There are two types of PPE that should be considered by paddlers: mouth and nose protection, and eye protection. There are numerous factors to consider with respect to mouth and nose protection:

- When ashore, getting the PPE wet is unlikely. Accordingly, surgical masks, and improvised masks (e.g., neck gaiters/buffs pulled up) are both reasonable options. Given that breaches in 6 feet (2 meters) social distancing may well occur, it is a good idea for paddlers to wear this protection, while ashore.
- Although N95 respirators theoretically, offer a higher level of protection than surgical masks (they protect against aerosol spread as well as droplet spread), there are a number of complicating factors including proper fit, the need for training, pre-existing medical conditions, and supply chain issues. These factors preclude us from specifically recommending the use of these items (we are neither recommending, nor discouraging).
- It is not known whether paddlecraft activities can aerosolize the virus, but it is certainly not out of the question that high intensity activities, such as rescues, might do so.
- When underway, surgical masks may not be practical because they may be too uncomfortable to wear for prolonged periods of time. N95 respirators will almost certainly not be practical because they are not designed for athletic activities and may shift on the face. Accordingly, we do not recommend, nor do we discourage, the use of these items, while underway.
- Improvised masks, such as neck gaiters (when pulled up) are a more practical alternative (they have, in fact, been a part of routine paddling in certain geographic locations – notably China). It should be noted that at least one manufacturer has emphasized that its products should not be considered to be medical grade PPE: <https://buffusa.com/buff-community-statement> . That being said, though, in mild conditions (where they are unlikely to get wet), neck gaiters may offer some protection against droplet transmission (which can occur, for example, if boats get too close, or if a rescue needs to be performed). Accordingly, paddlers should consider carrying a neck gaiter with them and wear it around their neck (ready to be pulled up) or have it already in place (covering the

mouth and nose). Alternatively, a dry neck gaiter can be carried, e.g., in a protective pack (such as a “Ziploc”). The advantage of wearing the gaiter is that it is “already in place” and thus ready to deploy. The advantage of carrying it in a protective pack is that the chances of it becoming wet, prior to needed use, are decreased. Either of these alternatives is acceptable. It is not known, however, what protection, if any, a wet improvised face mask, such as a neck gaiter, will provide, when wet. *Accordingly, we cannot offer any guidance with respect to what to do if an improvised mouth and nose protector, such as a neck gaiter, gets wet.*

- In rough water situations, it is a virtual certainty that facial PPE will get wet. *Accordingly, as per the above, we cannot offer any guidance as to whether, or not, to wear an improvised face mask in rough conditions.*

Eye protection is of benefit to the person wearing it (it protects the wearer against droplet transmission). Moreover, some forms of eye protection are reasonably usable, even if they do get wet. Accordingly:

- When ashore, we recommend that paddlers consider wearing eye protection. Safety glasses are used in healthcare settings and can afford a high level of protection. Regular glasses, and sunglasses, are not considered to be medical grade, but are likely better than nothing.
- When underway, paddlers should consider wearing eye protection.
- There is (limited scale/preliminary) evidence, in the medical literature, that plastic face shields can provide some degree of protection against COVID-19. Some manufacturers may be introducing hats which have a plastic face shield in front. These have not, to our knowledge, been specifically tested with respect to COVID-19 transmission but might be of some value. It is unclear, however, how practical these would be in a dynamic paddling situation (wind, waves, etc.).

It should be noted that the use of other types of protective gear, notably helmets, can interfere with the ability to use certain types of PPE and, especially, the ability to deploy them while underway.

Gloves, if used improperly, can increase the risk of disease transmission (e.g., by harboring the organism). In addition, there are practical complications to donning gloves, taking off gloves, attempting to disinfect them, and so forth, while on the water. Moreover, attempting to don gloves during a rescue could slow things down – which creates different types of risks. *Accordingly, we are not providing any recommendation with respect to wearing of gloves, either while ashore, or underway.* There is, however, one exception: we do recommend that whoever is doing the temperature screening should (after being properly trained) wear disposable medical gloves while performing this specific activity.

With respect to medical gowns, there are no routine uses that we can envision for paddlesports events.

Each paddler should bring, and be responsible for, their own individual PPE. It would also be a good idea if the group organizer brings additional supplies such as hand sanitizer and cleaning

products, as well as tissues, and locates these at strategic points such as the group check in location.

### **Social Distancing**

Paddlers should attempt to maintain a distance of, at least, 6 feet (2 meters) at all times. Unfortunately, this may not always be practical, depending upon the specific circumstances. For many sea kayaking activities, it should be possible to maintain adequate separation both on land, and on the water. A major exception is, of course, certain rescues (e.g., Hand of God and Scoop). Adequate separation may be more challenging to achieve in river kayaking – because the boats are shorter, and because grouping up in tight eddies is a common practice. When social distancing is not possible, strong consideration should be given to wearing PPE (especially mouth and nose protection and eye protection).

### **Allocation of Equipment**

When at all possible, boats and equipment should not be shared between paddlers. Equipment should be clearly marked to avoid mix ups and everyone should transport their own equipment, and keep it separated from the equipment of other paddlers. If it should be necessary to share equipment (e.g., it may not be feasible for everyone to carry a field repair kit for boats), cleaning/disinfecting should be done both before and after use, if at all possible. Certain types of equipment – notably inflatable paddle floats, and whistles – should not be shared due to the virtual impossibility of effectively disinfecting them.

### **Controlled Movement**

By carefully planning out movement patterns, it may be possible to minimize close contact. For example, shuttle logistics could be based around grouping up people who have already travelled to the site together (thus not creating additional exposure risk). The term “quaranteam” is sometimes used for this strategy. Development of an explicit written shuttle plan might help to further strengthen this intervention. Another example is designation of “one way” traffic patterns - a technique which can be used both on land, and on the water.

### **Administrative Controls**

Many administrative controls can be envisioned which could decrease the possibility of disease transmission. Examples include:

- Limit group size (the smaller, the better).
- Plan out locations, activities, routes, and so forth to avoid the need for close contact (e.g., avoid stacking up boats, avoid unplanned rescues, etc.) and facilitate the ability to perform washing and disinfection (e.g., favor sites with running water).

- Carefully plan out activities to avoid the need to share equipment, touch common items, etc. For example, rather than everyone signing a common waiver sheet, have each person bring their own waiver – signed and filled out in advance. Even better, waivers could be signed electronically and submitted in advance.
- Consider how launching and landing can be orchestrated to minimize the number of interpersonal contacts with strangers.
- Consider staggered start times, for large group events, to decrease congregation/crowding.
- For overnight events, consider how travel will be managed, e.g., minimizing contact with non-participants, lodging, meals, and so forth.
- Mildly ill people may be less likely to show up for a pre-paid event if it is easy to get a refund.
- Prior to the paddling event, distribute a written description as to how infection prevention and control will be managed.
- Provide a comprehensive pre-launch brief on infection prevention and control.
- When forming sub-teams, buddy pairs, and the like, group together people who have already had contact (e.g., family members, significant others) but avoid (if possible) putting strangers together. “Color coding” boats (e.g., by applied stickers) could be used to mark boats so that paddlers know who it is safe to approach and who to avoid.
- If it should be necessary to pair up strangers (this might be necessary, e.g., for rescue practice) they should be paired up for the entire day, as opposed to rotating with other strangers (i.e., minimize, as possible, the number of contacts between strangers).
- Provide ongoing observation/feedback regarding risks and proper infection prevention and control practices (by the group leader, a designated Infection Control Officer, and all other paddlers – i.e., “Safety is Everyone’s Responsibility”).

### **Special Case: Rescues**

Many interventions can be envisioned which could decrease the possibility of disease transmission. Examples include the following:

#### **a. General Principles**

- i. Minimize the need for rescues (e.g., by planning, choice of venue, etc.).
- ii. Self-rescues are preferred over assisted rescues – self rescues should be practiced, *in advance*, of paddling.
- iii. As appropriate, choose routes in shallow water – this may afford the ability to walk or swim the boat to shore – thus significantly decreasing the likelihood of needing an assisted rescue.
- iv. Consider wearing a neck gaiter (such as a Buff), or similar item, which can be rapidly pulled up to provide some (limited) protection for the mouth and nose.
- v. For assisted rescue practice: pair up people who have already had contact. If possible, avoid pairing up strangers.

## **b. The Rescuer**

- i. Speed of execution is critical for assisted rescues (because it minimizes exposure time).
- ii. Consider position with respect to wind (e.g., rescuer upwind).
- iii. Consider designating a “protected person” if there is a need to do assisted rescues (a protected person is someone who is likely to be immune to the disease, or likely to be less severely affected if they do contract it).
- iv. Consider using the fastest/most skilled rescuer (to decrease length of contact time during assisted rescues).
- v. Perform hand hygiene (if possible/reasonable), prior to performing an assisted rescue.
- vi. Don PPE before moving in for the rescue – especially a face covering/mask (e.g., pull up a neck gaiter if it is worn around the neck; retrieve it and put it on if not already wearing it). *Note that this suggestion is based on the assumptions that the neck gaiter is dry and that a dry neck gaiter provides some degree of protection (this has not yet been proven). There is, unfortunately, also no data available regarding the effectiveness of improvised masks, such as neck gaiters, when wet, and thus we cannot offer any specific guidance as to whether or not they should be worn, when wet.*
- vii. If practical (and if not already wearing eye protection) don eye protection (e.g., safety glasses) before moving in for the rescue.
- viii. Consider boat positioning options. For example, T-rescues are typically taught with the rescuer facing the swimmer (“bow to stern”). Although the rescue may be (slightly) more difficult with a bow to bow positioning, this may be a safer position in terms of decreasing the possibility of disease transmission (not yet proven).
- ix. After the rescue, rinse decks (if possible) where the swimmer was positioned.
- x. After the rescue, perform hand hygiene.
- xi. It should be noted that certain types of rescues (e.g., Hand of God, Scoop, and especially Live Bait) will entail a high degree of interpersonal contact (thus a higher likelihood of disease transmission). Unfortunately, we cannot offer any concrete suggestions regarding how to handle these situations. This comment, of course, pertains to both the rescuer, and the swimmer.

## **c. The Swimmer**

- i. While being T rescued, the swimmer should hold on to the rescuing boat, as far away as possible from the rescuer (e.g., at the bow or stern, as opposed to close to the cockpit).
- ii. During a T rescue, the time of highest risk for disease transmission is likely while the boats are side by side– therefore, *in advance of the event*, paddlers should practice getting spray skirts on as rapidly as possible to minimize this time.
- iii. After the rescue, perform hand hygiene.

- d. Additional Notes**—although we are not recommending that paddlers utilize medical gloves (as PPE), many paddlers do wear paddling gloves. Since close, if not interpersonal, contact is a virtual certainty during rescues, this does raise the question as to how to perform hand hygiene if the paddler is already wearing paddling gloves. There are several options:
- i. Wash the hands (with gloves on) as soon as possible. Ideally this would involve both soap and water. Environmental conditions/concerns, however, may preclude this as an option.
  - ii. Use a hand sanitizer (with gloves on).
  - iii. It is likely, albeit also not proven, that cleaning or sanitization will be more effective on a non-porous (e.g., rubber like) surface, as opposed to a porous surface.
  - iv. Remove the gloves and then perform hand hygiene.
  - v. Because of the uncertainty of the above potential interventions, we cannot, at this point, make any recommendations.

### **Additions to the Paddler’s Kit**

Some of the suggestions made above are dependent upon the availability of certain pieces of equipment (“kit”) which paddlers may not currently be in the routine practice of carrying. As a result, additional items may need to be added, to the required kit, for each paddler.

#### **Immediately Accessible (each paddler)**

- Soap/dispenser usable in the marine environment (for cleaning hands)
- Hand sanitizer
- Alcohol wipes (60% or greater concentration), or other disinfectant wipes
- Mouth and nose protection (e.g., surgical mask for use ashore; neck gaiter for use underway)
- Eye protection (as a minimum regular glasses and regular sunglasses; safety glasses can provide an even higher degree of protection)

#### **May be Stored in a Hatch (each paddler)**

- Soap to clean boat
- Sponge to clean boat
- Additional cleaning/sanitizing supplies, as appropriate

**Group Organizer**—in addition to the above items, for individual use (as well as, possibly, a few “spares” in case participants forget something), group organizers should bring the following items to the event:

- Additional dispensers of hand sanitizer (to be positioned at key spots such as check in location)
- Small boxes of tissues (to be positioned at key spots such as check in location)
- Extra cleaning supplies
- Medical gloves (if someone will be taking the temperature of participants)

## **Additional Interventions**

There are also additional things that a paddler may do, on an individual basis, to decrease their risk: maintain physical fitness, control body weight, properly manage underlying medical conditions, get the yearly influenza vaccine (flu symptoms can be very similar to COVID-19), and carry a Medical History Card (this is discussed in a separate document, which is available from the lead author).

## **Infection Prevention and Control Grid**

The numerous suggestions provided in this section may seem like “overkill.” On the other hand, they may seem inadequate in the face of this serious disease. Ultimately, each individual paddler is going to need to decide, for themselves, what they feel to be appropriate, and how they are willing to modify their paddling routine. However, if a paddling group leader has specified certain mandatory practices, then paddlers in the group must accept and follow those practices – or not paddle with the group.

Given the numerous potential interventions, it may become very confusing as to what should be done, and when. One strategy that may be of benefit is to form a “grid” which outlines the key steps in the paddling activity, along with potential interventions. Such a grid could be developed as a “Standard Operating Procedure,” which could be adapted for each specific paddling session. Alternatively, the grid could be used “as is,” as a checklist. A representative example is provided below for a coastal kayak trip. Note that we have not included “vaccines” and “antibody testing” in the upper row because of the lack of current availability of these interventions, as discussed earlier, and nor have we included “medications” (because these should only be taken at the direction of the paddler’s healthcare provider). In addition, we have moved around the ordering of some of the infection prevention and control interventions to better match where/when they might be used in the context of a coastal kayak trip. Note that, in this grid, a checkmark indicates that the specific intervention (the top row) is recommended for the specific phase (left most column) of the trip. Additional detail (e.g., products, timing of interventions, etc.) should be thought through for each box that has a check mark.

### Sample Infection Prevention and Control Grid for Coastal Kayak Trip

	Health Screen	Antigen Test	Isolation	Quarantine	Contact Tracing	Hand Hygiene	Clean	Disinfecting	Environmental Controls (e.g., effect of Wind)	PPE	Social Distancing	Equipment	Control Movement	Admin Controls
Plan Trip & Group	✓	✓	✓	✓	*	*	*	*	*	*	*	*	*	*
Group Check in	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Launch					✓	✓			✓	✓	✓		✓	✓
Underway					✓				✓	✓	✓		✓	✓
Landing					✓	✓			✓	✓	✓		✓	✓
Unplanned Rescue					✓	✓	✓		✓	✓	✓	May need to share?		✓

\* Each of these items needs to be planned for during trip/group planning



## 5. Legal Issues

### **Negligence for COVID-19 Transmission and the Duty of Care (a/k/a Standard of Care)**

Although it is yet to be determined whether a cause of action exists against businesses that fail to adopt and implement policies designed to prevent or reduce the chances of transmission of COVID-19, it is likely that businesses that knowingly fail to adhere to local, state or federal mandates aimed at reducing risk of transmission could be found negligent should a client or customer become ill with the virus after participating in an activity conducted by the business. Likewise, it is reasonable to believe that businesses that follow local, state and federal mandates aimed at mitigating and reducing chances of exposure to the virus will have acted reasonably even when an individual contracts the virus from an event or activity.

In most states, to establish and prove a negligence claim a plaintiff must establish that a defendant: (1) owed a duty of care to the plaintiff; (2) the duty of care was breached by the defendant; (3) there is a causal connection between the defendant's breach and the harm incurred by the plaintiff; and (4) the plaintiff actually suffered harm (damage). In some states, violations of specific laws can constitute "negligence per se" meaning that the violation creates a presumption of negligence where the harm that occurs is of the type anticipated by the law. In liability determinations, courts typically look to see if the harm or injury was foreseeable, how likely it is the injury occurred because of the defendant's conduct, how close the connection is between the injury and the plaintiff's conduct, how burdensome mitigation of the risk may be on a defendant, and whether a defendant's conduct violates existing public policies aimed at preventing broader public harm.

While there has of yet been no decisions on cases where businesses or event organizers have been found liable for COVID-19 related transmission, courts have previously found liability based on the negligent transmission of disease where there was actual or constructive knowledge of the existence of the disease and businesses did not take reasonable precautions to limit transmission. The existence of clear public policies aimed at mitigating and reducing the spread of COVID-19, coupled with the possibly severe consequences of contracting the virus, make it very likely that a business may be found negligent if it fails to implement or adhere to recommended mitigation guidelines. In extreme cases, knowingly exposing a customer or group participant to an infected employee could result in criminal negligence.

Without formal judicial or legislative guidance, paddlesports businesses should presume that the "minimum" standard of care they will be held to is reflected in relevant local, state and federal mandates as they relate to social distancing, use of face coverings, hand washing, cleaning and disinfecting of equipment and related requirements. Failure to follow these recommendations may not only expose a business to potential liability, but could also result in a denial of claim under a general liability insurance policy with potentially catastrophic consequences for the business.

## **Read Executive Orders and Agency Guidance**

With state and local governments across the country taking unprecedented measures to limit the spread of the virus, there is little question that businesses face a heightened duty to take actions to minimize the risk of exposure to both the public and employees. In determining whether a particular business or organization has acted reasonably, courts will typically look to official agency and governmental guidance to determine the standard of care that is owed to the public. Hence, it is extremely important that paddlesports operators, instructors, trainers, race organizers and not-for-profit paddle clubs and associations closely monitor and adhere to local, state and federal mandates as they relate to COVID-19. Adherence to these guidelines will significantly reduce the liability risks for paddlesports operators.

Unfortunately, in most states there is no uniform source for this information. Owners and management of businesses and clubs should closely read executive orders issued by city, county, and state officials. In some states, both the so-called “stay home” orders and “opening up” orders contain very specific guidance for different industries. To the extent these orders provide specific guidance on paddlesports or related recreational sports and events, businesses, group leaders and organizers should thoroughly familiarize themselves with these requirements and incorporate the recommended mitigation strategies into an appropriate risk management methodology as discussed above, and adhere as strictly as possible to the mandates.

In addition to reviewing the actual executive orders that have issued and continue to issue on a virtually weekly basis, paddlesports operators should also familiarize themselves with the recommendations of both state and federal health agencies and work safety agencies. The CDC (<https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html>) provides specific recommendations to business operators, as does the U.S. Occupational Health and Safety Administration (OSHA) (<https://www.osha.gov/SLTC/covid-19/>). Virtually all local and state executive orders and directives refer to one or more of these federal agencies.

## **Liability Waivers in the Age of COVID-19**

Liability waivers have long been used in the paddlesports industry to help protect businesses and organizations from liability associated with the knowing assumption of risk. While it remains to be seen whether a liability waiver, which includes waiver of liability for transmission of COVID-19, will provide an effective release from liability for paddlesports operators, there are sound legal principles to suggest that incorporating the use of such a waiver would be a simple, cost-effective tool to help limit potential liability from a claim of negligence based on transmission during an event. To be effective, waivers should be clear and unambiguous. As such, paddlesports businesses and event organizers will want to incorporate language into their existing waivers expressly waiving exposure to COVID-19 as a potential risk (an excellent example of COVID-19 waiver can be found at: <https://www.sadlersports.com/sample-waiver-release-communicable-diseases-including-covid-19/>).

It should be noted, however, that courts have long refused to enforce waivers of liability that prospectively waive liability from intentional reckless, or grossly negligent, behavior. As such, to be effective, liability waivers should be used in conjunction with recommended health and safety protocols and risk management principles as discussed above.

Finally, the effectiveness of waivers varies from jurisdiction to jurisdiction. Even in jurisdictions where waivers provide little or no protection, they can provide evidence that a participant was informed of the risks in question and knowingly assumed the risk. As such, waivers may provide a useful way to document that participants have been advised of relevant risks and have chosen to participate with knowledge of the risk they are assuming.

### **COVID-19 in the Workplace**

Both the CDC and OSHA have published guidelines for employers on steps they can take to protect workers from COVID-19 transmission. Organizations with employees, as well as event organizers using volunteers, should review these guidelines along with any state agency guidelines that may exist and implement these recommendations to the extent feasible. These recommendations also include guidelines for how to handle staff who show symptoms of the virus, those who have sick family members at home and those who believe they have been exposed to COVID-19. The CDC guidelines further provide specific guidance on, for example, the length of time an employee who has been exposed to the virus should be quarantined as well as advises employers to notify fellow employees of their possible exposure to COVID-19 in the workplace while maintaining confidentiality

On April 23, 2020, the Equal Employment Opportunity Commission (EEOC) updated its guidance on the American with Disabilities Act (ADA) and coronavirus, stating that employers may screen employees for COVID-19. Such screening must be job related and consistent with business necessity. See (<https://www.eeoc.gov/wysk/what-you-should-know-about-ada-rehabilitation-act-and-coronavirus>).

The EEOC has held that the ADA permits medical testing of employees, as well as temperature screening and other related procedures. Employers may also require employees to consent, in writing, to screening.

It is highly recommended that organizations with staff, whether volunteer or paid, review these guidelines. In addition to guarding against transmission to and between customers and group participants, businesses will need to take reasonable precautions to prevent transmission between staff members as well. The reasonableness of an employer's actions could be measured by adherence to these guidelines which are likely serve as the basis of "standard of care" determinations in negligence claims stemming from exposure in the workplace.

## **A Word About Guidelines**

As noted above, one of the first steps that paddlesports businesses should take in protecting customers and employees is compliance with federal, state and local guidelines. Since there are sometimes differences between local, state, and federal guidelines, decisions may need to be made. In general, following the most stringent guidance would seem to be most prudent.

In addition to ensuring compliance with these guidelines, businesses will also want to take precautions that are “deemed” reasonable based upon the nature of their specific business. Many of the recommendations put forth above, such as not sharing inflatable paddle floats, are unique to the paddlesports industry. Owners and operators should review their business models, operating procedures, business premises, and routines to determine if there are “common sense” precautions that should be implemented. For example, does it make sense to have a shared coffee service station in a waiting area; should water bottles be labeled if supplied by a tour operator; will group participants be allowed to reach into a common ice chest for a cold drink after busy day on the water? As these considerations indicate, while federal, state and local guidelines provide “minimum” standards, there may be many other things businesses should do to guard against liability. Many necessary precautions may go beyond the minimum requirements specified in official guidelines. Common sense plays an important role in protecting your business and guarding against liability.

Paddlesports businesses should also play special attention to industry guidance promulgated by industry organizations, such as the American Canoe Association and other similar organizations. Industry specific guidelines are often referenced in liability and negligence litigation. Failing to meet industry standards can be interpreted as a failure to exercise the required duty of care on the part of a business owner. It is extremely important that paddlesports businesses continue to monitor industry publications and guidance in particular as it relates to the pandemic. This is a new and rapidly evolving topic – which means that means industry standards are subject to frequent change and require constant monitoring to ensure maximum protection.

Finally, once businesses develop and implement policies and procedures based on governmental guidance, common sense and industry standards, it is imperative that the business follow its own plan and guidelines. Violation of a business’ own protocols and operating guidelines can be used as evidence of negligence and may give rise to claims of gross negligence. Whatever plans individual businesses develop and put in place, it is absolutely critical that the plans be followed. Businesses that fail to follow their own guidelines often face liabilities based on this simple failure.

## **It is Not All Bad**

While there are many areas of concern and possible liability for paddlesports businesses operating in the age of COVID-19, it should be remembered that those who wish to assert negligence claims have a steep hill to climb. If a business has followed the guidance of the CDC and other relevant authorities, they are likely to be presumed to have met the appropriate standard of care. To succeed in a negligence claim a plaintiff not only has to demonstrate a

breach of the standard of care on the business' part, but the plaintiff must also demonstrate that the harm (contracting the virus) occurred directly as a result of the breach of the standard of care. This means that the plaintiff would need to prove that he or she did not have the virus before attending the event, did not come in contact with anyone with the virus after the event, and otherwise followed all applicable social distancing, hand washing, and face covering guidelines.

## 6. Additional Sources of Information

- ACA, American Canoe Association <http://www.americancanoe.org/>
- CDC, Centers for Disease Control and Prevention <https://www.cdc.gov/coronavirus/2019-ncov/index.html>
- FDA, Food and Drug Administration <https://www.fda.gov/emergency-preparedness-and-response/counterterrorism-and-emerging-threats/coronavirus-disease-2019-covid-19>
- NIH, National Institute of Health <https://www.nih.gov/health-information/coronavirus>
- OSHA, U.S. Occupational Health and Safety Administration (for employers and employees) <https://www.osha.gov/SLTC/covid-19/>
- State and Local Health Departments
- <https://www.sadlersports.com/coronavirus-risk-management-in-sports/>
- John's Hopkins University <https://coronavirus.jhu.edu/map.html>
- World Health Organization <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- USOPC Guidelines for Event Planning (most relevant to elite level completion) <https://www.teamusa.org/coronavirus>
- NCAA Core Principles of Resocialization in College Sports <http://www.ncaa.org/sport-science-institute/core-principles-resocialization-collegiate-sport>
- Worldometer <https://www.worldometers.info/coronavirus/>

# EVENT PLANNING

## Appendix 1: Paddlesports During the Age of COVID-19

May 22, 2020

### Introduction

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. These suggestions are provided to assist paddling instructors and event organizers and do not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management. Note that each suggestion includes a “weighting.” In particular, “**Should**” means that, if at all possible, the suggestion should be carried out. On the other hand, “*Consider*” means that the suggestion is a good idea, but perhaps not as critical.

### Initial Information Gathering and Analysis

1. Retrieve current COVID-19 guidance from federal (e.g., CDC), state, and local authorities. (*Consider*)
2. Note that, in addition to “healthcare” type guidance, it may be advisable to check employment related guidance; e.g., <https://www.osha.gov/SLTC/covid-19/> and <https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html>. (*Consider*)
3. In addition, it is advisable to retrieve current recreational boating guidance. For example, the State of Florida is now specifying a minimum separation of 50 feet between boats, under certain circumstance (Executive Order 20-09). This may have implications for paddlecraft. Boating regulations are issued at local, state, county, and federal levels – all of which may be relevant. (*Consider*)
4. In locations outside the U.S., it is advisable to check guidance from the appropriate national and local authorities. (*Consider*)
5. In addition, it is advisable to check current paddlecraft guidance (e.g., from the ACA website). (*Consider*)
6. In addition, it is advisable to check guidance from your current insurance carrier. (*Consider*)
7. It is recommended that the above guidance be printed out and retained, for a minimum period of three years, since it serves as a reference, and can serve as part of the legal record. (*Consider*)

8. Based on current guidance, develop a clear understanding of current specifications, recommendations, and limitations. **(Should)**
9. Pay particular attention regarding to the following items:
  - a. Group size
  - b. Activity limitations
  - c. Required separation between people (social distancing)
  - d. PPE
  - e. Open/closed hours and curfews
  - f. Required separation between boats (this may be larger than social distancing)
10. Identify any inconsistencies in recommendations, e.g., more versus less stringent. *(Consider)*
11. Consider the impact of the availability, or lack thereof, of potential rescue resources, if it should become necessary (for example, in certain areas, emergency services are currently not performing back-country extractions). *(Consider)*
12. Consider the potential impact on the local community were the event will be held (e.g., if participants are going to be coming from around the country, could this lead to a local outbreak in the community?) *(Consider)*
13. Based on the above, make an initial GO/NO-GO decision. **(Should)**

## **Second Phase Information Gathering and Analysis**

1. Gather baseline health status information on potential participants (see **Health Screening Tool**). It is important to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic – but still capable of transmitting the disease. *(Consider)*
2. Gather information from potential participants regarding boats, equipment, and skill level. *(Consider)*
3. Pay particular attention to the following items: **(Should)**
  - a. Suitability of each paddler's experience and skill for the planned paddling event (especially the likelihood of capsize and ability to self-rescue). All activities should be in conditions which are well below the capabilities of all the paddlers.
  - b. Suitability of each paddler's boat for the potential paddling event.
  - c. Suitability of each paddler's kit, for the potential paddling event.
  - d. PPE kit for each paddler (see **PPE**).
4. Based on above, make GO/NO-GO decision for the entire event, or if need be, for specific paddlers. **(Should)**

## Event Paperwork and Planning

1. Send potential participants a pre-event communication listing the following elements:  
(*Consider*)
  - a. There are no guarantees. COVID-19 transmission is always a possibility, no matter which/how many precautions are taken.
  - b. Participants will fill out a health screening, and temperatures will be taken, prior to, and during, the event. Depending on the findings, paddlers may be excluded from the event, at the sole discretion of the organizer. If this occurs, there will be a refund.
  - c. Specify what the expectations are regarding participants bringing their own boats, and equipment. Be explicitly clear that *sharing will not be allowed*, and participants will be excluded from the event if they do not bring boats and equipment, as specified.
  - d. Provide paddlers with a general outline as to what infection prevention and control interventions will be used and state that all paddlers **MUST** comply with these interventions.
  - e. Paddlers should experiment with their gear (for fit and interaction with other equipment) prior to the event. In particular, helmets may interfere with wearing of other PPE, such as mouth/nose protection.
  - f. Advise potential participants that they should **NOT** attend the event if they are sick or may have been exposed to COVID-19.
  - g. It is expected that boats and gear will be thoroughly cleaned prior to arrival at the event.
  - h. An assessment of safety related skills (e.g., the ability to self rescue) will be done immediately upon launching for all participants. Depending upon the results of the assessment, it may be necessary to modify event plans or, potentially, ask a participant to withdraw from the event.
2. In addition, consider sending a document specifying the refund policy for the event.  
(*Consider*) For example:
  - a. Will refunds be issued if people are sick, or believe they are getting sick? Note that offering refunds may decrease the likelihood that someone who is infected will show up at the event.
  - b. Will refunds be given if people show up without the proper equipment? In this case, offering a refund may encourage less than desirable behavior.
3. It would be desirable if, in advance, each participant sends in a written acknowledgment that they understand and agree to the above. In addition, they should sign and return an event waiver in advance. It would be best if the waiver includes specific language regarding COVID-19, e.g., <https://www.sadlersports.com/sample-waiver-release-communicable-diseases-including-covid-19/>. It would be best if this paperwork is completed electronically – in advance of the event. (*Consider*)



4. Plan out the event considering such critical factors as: (**Should**)
  - a. What sorts of infection prevention/control interventions may be useful/applicable? (refer to **Infection Prevention and Control Interventions**)
  - b. How will logistics, such as shuttles, be managed to minimize contacts?
  - c. How will launching and landing be handled to minimize contacts?
  - d. How will the group be managed on the water, to minimize “stacking up” of boats, while also maintaining close enough proximity to observe infection prevention and control practices and maintain communications?
  - e. In addition to the above, how else will social distancing be maintained?
  - f. What communications techniques will be used to manage the group (including infection prevention and control feedback and instructions)?
  - g. How/when will hand hygiene be performed?
  - h. How/when will PPE be deployed?
  - i. How will the need for assisted rescues be minimized?
  - j. How will assisted rescues be conducted if needed?
  - k. Will ashore activities be conducted inside, outside, or both. There are hypothetical advantages to doing activities outside (e.g., less constrained airflow), but there are also hypothetical advantages to doing activities inside (e.g., minimizing the unpredictable effects of wind). The science on this is not yet clear and, accordingly, we cannot make any specific recommendations.
5. Smaller groups are preferable to larger groups. (*Consider*)
6. Consider breaking a larger group into smaller pods, to decrease the amount of interpersonal contacts. (*Consider*)
7. Consider staggered start times, for large group events, to decrease congregation/crowding. (*Consider*)
8. Use a formal “Event Planning Grid” (see **Event Planning Grid**). (*Consider*)
9. For events which require travel, consider such factors as transportation, lodging, meals, etc. (*Consider*)
10. Double check to ensure that the event is planned in a way which is consistent with federal, state, and local guidelines, industry standards, and any relevant policies and procedures of the organization. (**Should**)

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**EVENT PLANNING GRID**  
**Appendix 2: Paddlesports During the Age of COVID-19**  
May 22, 2020

**Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. The document presents an example of an event planning grid which may be useful in the planning of paddlesports events. This example is provided to assist paddling instructors and event organizers and should not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

The basic idea behind developing such a grid is to first break the event into a series of steps (the column on the left). Potential infection prevention and control interventions (see **Infection Prevention and Control Interventions, Appendix 3**) are listed on the top row. Appropriate interventions can then be selected and used as applicable. The grid below is for a hypothetical coastal kayak trip – the specific steps, and the selection of interventions, should be customized for each particular paddlesports event.

### Coastal Kayak Trip Planning Grid (Sample)

	Health Screen	Antigen Test	Isolate	Quarantine	Contact Trace	Hand Hygiene	Clean	Disinfect	Environmental Controls (e.g., Air Flow/Wind)	PPE	Social Distancing	Equipment	Control Movement	Admin Controls
Plan Trip & Group	✓	✓	✓	✓	*	*	*	*	*	*	*	*	*	*
Group Check In	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
Launch					✓	✓			✓	✓	✓		✓	✓
Underway					✓				✓	✓	✓		✓	✓
Landing					✓	✓			✓	✓	✓		✓	✓
Unplanned Rescue					✓	✓	✓		✓	✓	✓	May need to share?		✓

\* Each of these items needs to be planned for during trip/group planning.

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# INFECTION PREVENTION AND CONTROL INTERVENTIONS

## Appendix 3: Paddlesports During the Age of COVID-19

May 22, 2020

### Introduction

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. This document presents a list, and brief descriptions, of infection prevention and control interventions that should be considered both for planning paddlesports events, and while running those events. This list is provided to assist paddling instructors and event organizers and does not replace the need for guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

The intent of this document is to serve as a reference tool for purposes of planning, and running, a paddlesports event. It describes a variety of potential infection prevention and control interventions that might be considered at various stages during the event. Although many/most of these interventions are only applicable in a limited number of circumstances, taken as a whole, they provide a powerful tool kit. Please note that additional detail regarding these interventions is available in the reference document **Paddlesports During the Age of COVID-19: Risk Assessment and Risk Management**.

### Interventions

***Vaccination:*** At such point as a vaccine becomes available for COVID-19, individual paddlers should (based upon a discussion with their healthcare provider) strongly consider becoming vaccinated. Vaccination can also be potentially used as an inclusion/exclusion criterion for choosing who may participate in a group paddling event.

***Hand Hygiene:*** Hand hygiene should be performed frequently during group paddling events (especially at any point at which there has been, or is, the possibility of person to person contact or shared equipment). Hand hygiene should be performed both before, and after, contact. Paddlers should carry their own individual handwashing soap and hand sanitizer. A minimum of 20 seconds is recommended for soap and water to be effective. Follow the instructions on the label for hand sanitizers.

***Cleaning:*** Boats and equipment should, ideally, be thoroughly cleaned both before, and after, group paddling events. A dedicated sponge, for each paddler, will likely facilitate this process. Ideally, running water (from a spigot) will be available but, if need be, the environmental water (e.g., ocean, lake, etc.,) could be used as the source of water. Cleaning should be conducted in a way which is environmentally sensitive, e.g., ideally near a drain. Different cleaning products may be needed for porous as opposed to non-porous surfaces (check the manufacturer's label).

**Disinfection:** All surfaces which are likely to be touched by multiple people should be disinfected between uses. The EPA’s “N list” <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2> is a list of agents which are effective against the virus. As an example, if it is necessary for multiple people to use a computer keyboard (something which was frequently done during class registrations, but should now be avoided if possible), then the keyboard should be disinfected (e.g., with an appropriate wipe) before and after touching the keyboard, or users could sanitize their hands before, and after, touching the keyboard. It should be noted that use of the ACA’s new automated CMS system should minimize the need for in person data entry for ACA events. As another example, if a paddle is going to be shared, then it should be cleaned or sanitized between users. Soap and water, or a hand sanitizer, can be used for this purpose.

**Environmental Controls (e.g., air quality):** The current recommendation is to stay a minimum of 6 feet (2 meters) away from other people. In fact, this situation is more complicated because, in outside environments, wind can become a significant factor. From the perspective of the paddler, the main thing to think about is to avoid being close *downwind* from someone else. If one accepts this as a premise, then it has significant implications for a number of core paddlesports activities including group formations, and rescues. For example, positioning boats to be abeam of each other (called a “chorus line formation” in sea kayaking) may be more appropriate with wind head on, whereas boats being lined up bow to stern (called an “inline formation” in sea kayaking) may be more appropriate with the wind abeam. In both of these formations, boats need to be appropriately separated. It should be noted that the science surrounding the impacts of wind is in its infancy (e.g., is the deleterious effect of a strong wind carrying the virus further overridden by the increased dispersion?), but common sense does seem to suggest that it is not a good idea to be downwind from someone who is coughing.

**Sign/Symptom Based Health Screening:** When choosing a group to go paddling with, and immediately prior to embarking for the day, strong consideration should be given to screening for COVID-19 signs and symptoms. (See **Health Screening Tool**.) This process could entail use of a written questionnaire (along with a required signature), and/or a verbal questionnaire, and/or screening of body temperature with a thermometer. The use of a “no-touch” device, such as an infrared thermometer, is certainly preferred for temperature screening. In addition, paddlers should be questioned as to whether, or not, they have travelled to recent “hot spots.” Unfortunately, at present, there is no uniformly accepted definition for a “hot spot.” The CDC maintains a list of signs/symptoms consistent with COVID-19, which can be used as a reference for the screening questions. The intent of conducting this screening is that anyone who has a sign/symptom of COVID-19 should not go paddling with the group. In addition, people who may be at higher risk for serious complications can be identified and a discussion held with them, prior to attending the event. There are some nuances to this approach - one of which is that most COVID-19 signs/symptoms are *not* highly specific and are common in many other illnesses. *It is also critical to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic – but still capable of transmitting the disease. Thus, health screening tools do NOT guarantee the absence of COVID-19.*

**Antigen Tests:** Potential paddlers can be asked if they have been tested for COVID-19 with an antigen test. If they tested positive then they should only be allowed to paddle if they meet

current “return to work” or other appropriate criteria, as listed by the CDC and/or state health departments.

Another *potential* application to consider is to designate individuals who were confirmed to have the disease (by a test), and who are now asymptomatic, as “protected individuals.” This is based on the assumption, *which has yet to be proven, and may not be correct*, that if you have had COVID-19, and recovered from it, you are unlikely to get it again. These “protected individuals” could be designated (with their consent) to serve in higher risk roles – specifically performing assisted rescues.

***Antibody Tests:*** Antibody tests are not yet reliable enough to be counted on for decision making. However, once the tests become more reliable, paddlers could be asked if they had been tested for COVID-19 with an antibody test, and if they have antibodies. If so, they could be designated as “protected individuals,” as per the description immediately above. A potential complicating factor is that antibody tests are not always “yes” or “no” - interpretation by a healthcare provider may be necessary.

***Contact Tracing:*** The group leader, instructor, or other designated individual, could keep a log of the entire group of participants, along with the specifics as to who had very close quarters contact during the paddling trip (e.g., person *X* did a rescue on person *Y*); for example, see **Contact Tracking Log**. This information might turn out to be extremely useful and could be provided to the local department of health, or other outbreak investigators, if anyone in the group subsequently becomes infected. It can also be useful for process improvement purposes. The log should be kept for a minimum of three years, because of the risk management/legal implications.

***Isolation:*** Potential paddlers should be asked whether they were subject to COVID-19 isolation. If so, they should only be allowed to paddle if they meet criteria for release from isolation (as per CDC or state health departments).

***Quarantine:*** Similar to isolation, anyone who has been subject to COVID-19 quarantine should only be allowed to paddle if they meet appropriate criteria.

Expedition paddlers who may be going on lengthy expeditions, in remote areas, might consider quarantining themselves, for a period of 14 days, immediately prior to departing.

***PPE:*** Two types of PPE (personal protective equipment) should be considered by paddlers: mouth and nose protection, and eye protection. There are numerous factors to consider with respect to mouth and nose protection:

- When ashore, getting the PPE wet is unlikely. Accordingly, surgical masks, and improvised masks (e.g., neck gaiters/buffs pulled up) are both reasonable options. Given that breaches in 6 feet (2 meters) social distancing may well occur, it is a good idea for paddlers to wear this protection, while ashore.
- Although N95 respirators, theoretically, offer a higher level of protection than surgical masks (they protect against aerosol spread as well as droplet spread), there are a number of complicating factors such as proper fit, the need for training in

- proper use, pre-existing medical conditions, and supply chain issues. *Accordingly, we do not recommend, nor do we discourage, the use of these items, while on land.*
- When underway, surgical masks may not be practical because they may be too uncomfortable to wear for prolonged periods of time. N95 respirators will almost certainly not be practical because they are not designed for athletic activities and may shift on the face. *Accordingly, we do not recommend, nor do we discourage, the use of these items, while underway.*
  - Improvised masks, such as neck gaiters (when pulled up) are a more practical alternative. It should be noted that at least one manufacturer has emphasized that its products should not be considered to be medical grade PPE: <https://buffusa.com/buff-community-statement>. In mild conditions (where they are unlikely to get wet), improvised masks (such as neck gaiters) may offer some protection against droplet transmission (which might occur, for example, if boats get too close, or if a rescue needs to be performed). Accordingly, it is our recommendation that paddlers consider carrying a neck gaiter with them and wear it around their neck (ready to be pulled up) or have it already in place (covering the mouth and nose). Alternatively, a dry neck gaiter can be carried, e.g., in a protective pack (such as a “Ziploc”). The advantage of wearing the gaiter is that it is “already in place” and thus ready to deploy. The advantage of carrying it in a protective pack is that the chances of it becoming wet, prior to needed use, are decreased. Either of these alternatives is acceptable. It is not known, however, what protection, if any, an improvised face mask, such as a neck gaiter, will provide when wet. *Accordingly, we cannot offer any guidance with respect to what to do if an improvised mouth and nose protector, such as a neck gaiter, gets wet.*
  - In rough water situations, it is a virtual certainty that facial PPE will get wet. *Accordingly, we cannot offer any guidance as to whether, or not, to wear an improvised face mask in rough conditions.*

Eye protection is of benefit to the person wearing it (it protects the wearer against droplet transmission). Moreover, most forms of eye protection are reasonably usable, even if they do get wet. Accordingly:

- When ashore, we recommend paddlers consider wearing eye protection. Safety glasses and safety goggles are both used in healthcare settings and can afford a high level of protection. Regular glasses, and sunglasses, are not considered to be medical grade, but are certainly better than nothing.
- When underway paddlers should consider wearing eye protection.
- There is limited evidence, in the medical literature, that plastic face shields can provide some degree of protection against COVID-19. Some manufacturers may be introducing hats which have the ability to incorporate a plastic face shield in front. These have not, to our knowledge, been specifically tested with respect to COVID-19 transmission but might be of some value. It is, however, unclear how practical these would be in a dynamic paddling situation (wind, waves, etc.).

It should be noted that the use of other types of protective gear, notably helmets, can interfere with the ability to use certain types of PPE and, especially the ability to deploy them while underway.

Gloves if used improperly can actually increase the risk of disease transmission (e.g., by harboring the organism). In addition, there are practical complications to donning gloves, taking off gloves, attempting to disinfect them, and so forth, while on the water. Moreover, attempting to don gloves during a rescue could slow things down – which creates different types of risks. Accordingly, we are not providing any recommendation with respect to the wearing of gloves, either while ashore or underway. There is, however, one exception: we do recommend that whoever is doing the temperature screening should (after being properly trained) wear gloves while performing this specific activity.

Each paddler should bring, and be responsible for, their own individual PPE. It would also be a good idea if the group organizer brings additional PPE (especially hand sanitizer) and cleaning supplies, as well as tissues, and locates these at strategic points such as the group check in location.

***Social Distancing:*** Paddlers should attempt to maintain a distance of, at least, 6 feet (2 meters) at all times. Unfortunately, this may not always be practical, depending upon the specific circumstances. When maintenance of social distancing is not possible, strong consideration should be given to wearing PPE (mouth and nose protection, and eye protection).

***Allocation of Equipment:*** When at all possible, paddlers should avoid sharing boats and equipment. Equipment should be clearly marked to avoid mix ups and everyone should transport their own equipment, and keep it separated from the equipment of other paddlers. If it should be necessary to share equipment (e.g., it may not be feasible for everyone to carry a field repair kit for boats), cleaning/disinfecting should be done both before and after use, if at all possible. Certain types of equipment – notably inflatable paddle floats, and whistles – should NOT be shared due to the virtual impossibility of effectively disinfecting them.

***Controlled Movement:*** Carefully think through how movement patterns can be designed to minimize close contact. For example, shuttle logistics could be based around grouping up people who have already travelled to the site together (thus not creating additional exposure risk).

***Administrative Controls:*** Many administrative controls can be envisioned to decrease the possibility of disease transmission. Examples include:

- Limit group size (the smaller, the better).
- Plan out locations, activities, routes, and so forth to avoid the need for close contact (e.g., avoid stacking up boats, avoid unplanned rescues, etc.) and to facilitate the ability to perform washing and disinfection (e.g., favor sites with running water).
- Carefully plan out activities to avoid the need to share equipment, common touch items, etc. For example, rather than everyone signing a common waiver sheet, have each person bring their own waiver – signed and filled out in advance. Even better, have waivers filled out electronically in advance.
- Consider how launching and landing can be orchestrated to minimize the number of interpersonal contacts with strangers.
- Consider staggered start times, for large group events, in order to decrease congregation/crowding.



- For overnight events, consider how travel will be managed, e.g., minimizing contact with non-participants of the event, lodging, meals, and so forth
- Mildly ill people may be less likely to show up for a pre-paid event if it is easy to get a refund.
- Prior to the paddling event, distribute a written description as to how infection prevention and control will be managed.
- Provide a comprehensive pre-launch brief on infection prevention and control.
- When forming sub-teams, buddy pairs and the like, group together people who have already had contact (e.g., family members, significant others) but avoid (if possible) putting strangers together. “Color coding” boats (by applied stickers, colored string, colored tape, etc.) could be used to mark boats so that paddlers know who is safe to approach and who to avoid.
- If it should be necessary to pair up strangers (this might be necessary, e.g., for rescue practice) they should be paired up for the entire day, as opposed to rotating with other strangers (i.e., minimize, as possible, the number of contacts between strangers).
- Provide ongoing observation and feedback regarding risks and proper infection prevention and control practices (by the group leader, a designated Infection Control Officer, and all other paddlers – i.e., “Safety is Everyone’s Responsibility”). Examples of this sort of observation and feedback might include paddlers getting too close to each other, paddlers repeatedly touching their faces, paddlers being immediately/unnecessarily downwind of each other, and so forth. Needless to say, this sort of feedback is best delivered in a diplomatic fashion.

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**HEALTH SCREENING TOOL**  
**Appendix 4: Paddlesports During the Age of COVID-19**  
May 22, 2020

**Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. This document presents an example of a “Health Screening Tool.” This tool is provided to assist paddling instructors and event organizers and does not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

Although we have provided a sample format and questions, paddling instructors and event organizers should feel free to modify, adapt, and use this tool, as they see fit. There are, at least, two potential uses for health screening:

1. For screening purposes (e.g., to protect *the group* from someone who has been diagnosed with, or has the signs/symptoms of, COVID-19).
2. For risk management for *individual paddlers*. The basic idea is that, if someone has a medical condition which may predispose them to having a worse outcome with COVID-19 (for example, asthma, chronic lung disease, etc.), the event organizer can inform them that they may be at an above average level of risk. Note that this is not for *exclusionary purposes*, but rather for counseling purposes, or to potentially influence choices related to venue, skills training, exercises, and so forth.

It should be noted that there are some potential complexities in using a Health Screening Tool. For example:

- CDC specifications are continually evolving and should be checked to ensure that the tool that you are using is up to date.
- A number of the signs and symptoms listed on the CDC website are highly non-specific (e.g., there are numerous causes for a headache). However, certain of these items, especially when taken in combination, may be more specific and suggestive of COVID-19. *If you have any uncertainties regarding the significance of these criteria, you should consult a health care provider.*
- There is no uniformly accepted definition for a “hot spot.”
- *It is critical to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic (and thus not identified through “health screening”). These individuals may be capable of transmitting the disease. Thus, use of this sort of a tool does not guarantee protection against COVID-19.*

## **CDC Listed Signs and Symptoms of COVID-19 (may be used for inclusion/exclusion criteria)**

*NOTE that the CDC list changes periodically, so event organizers should check this list and update as needed. (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>)*

- Does the person have a fever (temperature greater than 100°F (37.8°C))? Note that this could be measured, at the event, by a non-contact (infrared) thermometer. The person checking temperatures should be wearing PPE, including a surgical mask (or N95 respirator, if it has been fit tested, they have been trained to use it, and there are no precluding medical conditions), eye protection, and gloves. The individual being screened should be asked if they have taken any medications which might lower their temperature (aspirin, Tylenol (acetaminophen), and NSAIDs such as Motrin and Advil).

Additionally, participants should be asked the following:

- Does the person have a cough (ask them and listen to them)?
- Does the person have shortness of breath (ask them and observe them)?
- Has the person had chills (ask them)?
- Has the person had repeated shaking with chills (ask them)?
- Does the person have muscle pain (ask them)?
- Does the person have a headache (ask them)?
- Does the person have a sore throat (ask them and listen to them speak)?
- Does the person have a new loss of taste or smell (ask them)?

## **Additional Potential Inclusion/Exclusion Criteria**

- Is the person currently subject to COVID-19 isolation?
- Is the person currently subject to COVID-19 quarantine?
- Has the person recently (within the past two weeks) been exposed to someone who they know has COVID-19?
- Has the person been in a COVID-19 “hot spot” within the past two weeks?
- Has the person been diagnosed with COVID-19 (e.g., by an antigen test, or by a healthcare provider)? If so, do they meet current federal and state criteria regarding return to work?

**CDC Listed Risk Factors for Higher Risk of a Bad Outcome** *(for counseling potential participants and/or adjusting venue, skills training, and exercises). NOTE: the CDC list changes periodically, so event organizers should check this list and update as needed.*

<https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html>

- Asthma
- Chronic lung disease
- Diabetes
- Serious heart conditions
- Chronic kidney disease being treated with dialysis
- Severe obesity

- People aged 65 and over
- People in nursing homes or long term care facilities
- Immunocompromised
- Liver disease
- Etc.

**Additional Health Screening Questions**

- What is your date of birth?
- What is your height?
- What is your weight?
- What prescription medications are you taking?
- What non-prescription medications are you taking (e.g., Tylenol, Motrin, etc.)?
- Do you have any form of cancer?
- If so, what type?

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**PPE**  
**Appendix 5: Paddlesports During the Age of COVID-19**  
May 22, 2020

### **Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. This document suggests PPE (Personal Protective Equipment) that should be carried by *each* paddler, as well as by the group leader. Specific uses of this equipment, and how to integrate into paddlesports activities, are discussed in other documents. These suggestions are provided to assist paddling instructors and event organizers and do not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

### **Immediately Accessible (each paddler)**

- Soap dispenser usable in the marine environment (for cleaning hands)
- Hand sanitizer
- Alcohol wipes (60% or greater concentration), or other disinfectant wipes
- Mouth and nose protection; e.g. surgical mask, or improvised mask (such as a neck gaiter), for use ashore. Improvised mask (e.g., neck gaiter), for use underway
- Eye protection (as a minimum, regular glasses, or regular sunglasses; safety glasses will provide a higher level of protection)

### **May be Stored in a Hatch (each paddler)**

- Soap to clean boat
- Sponge to clean boat
- Additional cleaning/disinfecting supplies, as appropriate
- Plastic trash bags to dispose of PPE

### **Group Organizer**

The group organizer should carry the above items, for individual use, as well as a few “spares” in case participants’ equipment becomes damaged. Group organizers also should consider bringing the following items to the event:

- Additional dispensers of hand sanitizer (to be positioned at key spots such as check in location)
- Additional plastic bags to dispose of PPE
- Small boxes of tissues (to be positioned at key spots such as check in location)
- Extra cleaning supplies
- Medical gloves and surgical masks (for whoever will be taking the temperature of the participants) along with an infrared thermometer

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**RISK ASSESSMENT**  
**Appendix 6: Paddlesports During the Age of COVID-19**  
May 22, 2020

## **Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. These suggestions are provided to assist paddling instructors and event organizers and do not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

## **Key Question: Is it Safe to Paddle?**

One of the questions that must be asked prior to commencing a paddlesports event is: “Is it safe to paddle?” This question can become even more difficult to answer in the age of COVID-19.

In one sense, this question is easy to answer: It is never completely safe to paddle. The reality is that there always have been, and always will be, risks.

Ultimately each paddling leader, and each paddler, must decide for themselves whether the potential risks are outweighed by the potential rewards. In the discussion below, we present a model for performing such an analysis: the GAR model. This model is in routine use by the United States Coast Guard. We have adapted this model for paddlesports and given specific focus to COVID-19 related considerations which may factor into the decision-making process.

Irrespective of the model, there are times when it is obviously inappropriate to paddle; for example, if paddling will violate, or is likely to violate, federal, state, or local COVID-19 guidelines and boating regulations.

***NOTE: Although our adaptation of the GAR model focuses on COVID-19, paddlers should not lose sight of the big picture and must give due consideration to other factors that they may have considered prior to the emergence of COVID-19.***

## **Use of the GAR Model**

There are seven core components to the GAR Model: Planning, Event Complexity, Paddlers, Boats/Equipment, Communications/Supervision, Environment, and Other Factors. The basic idea is that each of the components can have a significant impact on risk. Each of the above seven factors is discussed, and risk levels assigned (*low, medium, high*). Subsequently, an overall categorization of risk (*low, medium, high*) is developed.

Once an overall assessment of risk has been performed, the potential gain of the event (also using a scale of *low, medium, high*) is then assessed. From the perspective of paddlesports, it is hard to envision any *high* gain events (there may be a few exceptions – e.g., exiting a dangerously flooding campground with a rising tide). Most paddling events are likely to be *low* gain or, at most, *medium* gain.

Finally, the potential risk is then balanced against the potential gain and a decision is made as to whether, or not, to proceed. For example, if an event is *high risk*, but *low gain*, then it should not be executed. On the other hand, a *low risk*, but *low or medium gain* event, may be more appropriate to execute.

## **GAR Model Template (Adapted for Paddlecraft)**

### **Planning**

LOW MEDIUM HIGH

To the extent that a paddlesports event is “thrown together” at the last minute, it is much more likely to have a higher risk level than an event which has been methodically planned. Specifically, with respect to COVID-19, if an event has been planned with proper infection prevention and control interventions put into place, it is likely to be less risky than an event which has not incorporated this level of planning.

### **Event Complexity**

LOW MEDIUM HIGH

From the perspective of COVID-19, more complex events increase risk because of a variety of reasons, e.g., increased difficulty in keeping paddlers appropriately spaced (far enough apart for social distancing, but close enough for supervision). In addition, more complex events generally increase the need for assisted rescue, thus raising the risk of disease transmission.

### **Paddlers**

LOW MEDIUM HIGH

Key factors include:

- Skill level of paddlers (All else being equal, less experienced paddlers are likely to be at higher risk than are more experienced paddlers. *However*, this is highly influenced by multiple factors including event location and complexity.).
- Skill level of leader
- Physical fitness, fatigue, etc.
- Potential COVID-19 signs & symptoms; pre-existing medical conditions (see **Health Screening Tool**). *It is critical to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic – but still capable of transmitting the disease.*
- Size of group (too large or too small?)



## **Boats & Equipment**

LOW MEDIUM HIGH

Key factors include:

- Boats (appropriate for the event/location/environment)
- Equipment (appropriate for the event/location/environment)
- *Each* paddler has PPE (see **PPE**)
- All boats, and equipment, including PPE, are clean and in good working order

## **Communications/Supervision**

LOW MEDIUM HIGH

Key factors include:

- Will it be possible to maintain adequate communications throughout the duration of the event?
- Will it be possible to observe and properly supervise (including infection prevention and control measures) throughout the duration of the event?

## **Environment**

LOW MEDIUM HIGH

Key factors include:

- Complexity/difficulty of the physical environment (wind, waves, current, etc.)
- Complexity of the regulatory environment (current state of guidance with respect to “opening up,” beach and other water access closures, prohibited activities, e.g., is it legal to tow, etc.)
- Current epidemiologic status of COVID-19; for example, what are the current incidence rates (number of new cases) in the vicinity of the paddling event? Is this trending up or down? *Unfortunately, there is no easy way to assess the significance of these numbers because the ability to do so may rely on epidemiologic skills and knowledge. In addition, reported numbers are continually changing, and may be subject to errors due to a wide variety of factors including testing rates and accuracy, reporting delays, and political influences.*

## **Other Factors (aka “throw downs”)**

LOW MEDIUM HIGH

Although the above six factors generally provide a comprehensive overview of potential risks, “special cases” do occur. Hence, the GAR model allows for “throw downs” to be added into the framework. An example of a throw down might include, for example, the possibility of a large gathering, in the immediate vicinity, with a high risk of people not taking proper infection and control precautions.

**OVERALL Risk Level**  
LOW MEDIUM HIGH

**GAIN Level**  
LOW MEDIUM HIGH

**DECISION**  
GO/NO-GO

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# RUNNING A PADDLESPORTS EVENT

## Appendix 7: Paddlesports During the Age of COVID-19

May 22, 2020

### Introduction

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. These suggestions are provided to assist paddling instructors and event organizers, and do not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management. Note that each suggestion includes a “weighting.” In particular, “**Should**” means that, if at all possible, the suggestion should be carried out. On the other hand, “*Consider*” means that the recommendation is a good idea, but perhaps not as critical.

### Prior to the Event

- Use a structured approach to plan the event (refer to **Event Planning**). (*Should*)
- Consider developing a formal “event planning grid” (refer to **Event Planning Grid**). (*Consider*)
- For an instructional event, or where otherwise appropriate, conduct remote (e.g., online) teaching of topics. (*Consider*)
- Consider how such interventions as controlled movement, staggered arrival times, and so forth could be used to minimize interpersonal contact. (*Consider*)

### Group Check In

- Locate hand sanitizer dispensers, and small boxes of tissues, at key common areas such as the group check in location. (*Consider*)
- Post signs with key reminders such as maintaining social distance, wash hands frequently, one-way traffic patterns (if appropriate), and so forth.
- Conduct “health screening” (refer to **Health Screening Tool**). *It is critical to remember that a significant percentage of people who are infected with COVID-19 may be asymptomatic – but still capable of transmitting the disease.* (*Consider*)
- Confirm that participants have appropriate boats and gear. Specifically confirm that participants have the specified PPE (refer to **PPE**). Inspect for appropriate level of

cleanliness. If not acceptable, provide gear, clean if appropriate/feasible, or exclude from the event. **(Should)**

- Consider designation of an “Infection Control/Safety Officer” for the event. *(Consider)*
- Break larger groups into pods. *(Consider)*
- Designate who may approach whom (e.g., family members), or if necessary, designate buddies for the day. **(Should)**
- Color code (or otherwise mark) boats to facilitate who may approach whom. *(Consider)*
- Consider designating assigned rescuers (refer to **Assisted Rescue**). *(Consider)*
- Conduct a formal risk assessment with the group, including, but not limited to, issues related to COVID-19 (you might wish to use the model described in **Risk Assessment, Appendix 6**, or you might choose to use a different model). **(Should)**
- Based on the above, make “Go/No-Go” decision and determine risk management interventions (refer to **Risk Management**). **(Should)**
- Conduct pre-launch safety brief with “normal topics” (e.g., weather, route, etc.) but also with explicit discussion of infection prevention and control (refer to **Infection Prevention and Control Interventions**) **(Should)**
- Specifically discuss that activities are “Challenge by Choice” and that COVID-19 might raise the risk level in certain activities.
- Conduct ashore activities with social distancing, and other appropriate infection prevention and control interventions (e.g., controlled movement, positioning with respect to wind), in place. If there is a likelihood of losing social distancing, then PPE, such as mouth/nose coverings, should be worn. **(Should)**

## **Launch**

- All paddlers perform hand hygiene prior to launching – especially if assistance may be needed. **(Should)**
- All paddlers (unless medically contra-indicated) should have mouth and nose protection (e.g., a neck gaiter) on, prior to launching. Double check that the PPE is covering the mouth and nose, if assistance is going to be used. **(Should)**
- Launch in a manner to minimize interpersonal contact. **(Should)**

- If launching assistance is needed, consider how to minimize paddlers being downwind from each other (this may not be possible to achieve). *(Consider)*

## Underway

- Perform an assessment, as soon as possible, to validate that participants do, in fact, have the necessary skills to safely engage in the event (e.g., everyone should demonstrate a roll, if going into more challenging environments). Depending upon the results of this assessment, it may be necessary to change the plans for the event and, in some cases, it might be necessary to request that a participant withdraw from the event. *(Consider)*
- Maintain both mandated social distancing, and mandated boat separation (as per local or state boating laws). *(Should)*
- Use boat positioning to minimize paddlers being downwind from one another. For example, positioning boats to be abeam of each other (sometimes called a “chorus line formation” in sea kayaking) may be more appropriate with wind head on, whereas boats being lined up bow to stern (sometimes called an “inline formation” in sea kayaking) may be more appropriate with the wind abeam. In both of these formations, boats need to be appropriately separated. *(Consider)*
- Perform hand hygiene periodically (during on the water breaks). *(Should)*
- Perform hand hygiene any time there has been interpersonal contact or equipment has been shared. *(Should)*
- Group leader, infection control/safety officer, and all other paddlers should continually monitor for appropriate use of infection prevention and control interventions. *(Should)*
- Continually assess risk and modify plans (or terminate event) as needed (refer to **Risk Assessment** and **Risk Management**). *(Should)*
- Continually minimize chance of needing a rescue – especially an assisted rescue. If an assisted rescue is needed, do it in a way to minimize risks (refer to **Rescues**). *(Should)*

## Landing

- All paddlers perform hand hygiene prior to landing – especially if assistance may be needed. *(Should)*
- All paddlers should (unless medically contraindicated) have mouth and nose protection on, e.g., neck gaiters, prior to landing. Double check that people’s mouths and noses are covered if assisted landing is going to be used. *(Should)*

- Land in a manner to minimize interpersonal contact. *(Should)*

### **Conclusion of the Event**

- Do not lose focus once people have landed and the event is “over”. Vigilance regarding infection prevention and control must be maintained until all participants have left. *(Should)*
- Once finished with PPE, it should properly handled. If it is going to be disposed of, it should be put inside of a plastic bag, and tied off, before being put in the trash. *(Should)*

### **Miscellaneous**

- Consider using a contact tracking log for the event (refer to **Contact Tracking Log**). This could either be filled in, during the event (e.g., by the “Infection Control/Safety Officer”), or each paddler could be responsible for providing this information, at the end of the event. *(Consider)*

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# **RISK MANAGEMENT**

## **Appendix 8: Paddlesports During the Age of COVID-19**

May 22, 2020

### **Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. This document presents an example of a risk management approach (adapted from the United States Coast Guard) that may be useful for paddlesports. This approach is provided to assist paddling instructors and event organizers but does not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management

The STAAR Model is a general framework, used by the United States Coast Guard, to identify, and clarify, potential risk management strategies. It has five components: **Spread Risk**, **Transfer Risk**, **Accept Risk**, **Avoid Risk**, and **Reduce Risk**. It should be noted that these components are *not* independent of each other and there may be significant overlaps and interrelationships. It should also be noted that other risk management models exist, which may be applicable to paddlesports.

### **Spread Risk**

From the perspective of the Coast Guard, this may mean spreading out risk over time, place, etc. From the perspective of paddlesports, there are various ways by which risk could be spread out. For example, spreading out over time could be achieved by staggering start times for group events (to decrease congregation of large groups of people). As another example, spreading out in space could be achieved by choosing larger, as opposed to smaller, assembly points.

### **Transfer Risk**

From the perspective of the Coast Guard, this may mean selection of appropriate assets. For example, if a rescue needs to be conducted in deteriorating ocean conditions, then a small patrol boat may be withdrawn and a more rough-weather ready surf boat may be substituted. From the perspective of paddlesports, there are several ways in which risk could be transferred – for example, by designation of specific rescuers (see **Rescues**).

### **Accept Risk**

Risk assessment is not a one-time event – rather it should be viewed as a continual process. As a result, an initial decision to accept the risk(s) may, based on changing circumstances, need to be revisited –either with a decision to keep accepting the risk(s), or to avoid the risk(s). From the

perspective of paddlesports, this has clear applicability as weather and other environment factors change, as group dynamics change (e.g., the ability to maintain awareness, and execution, of social distancing), and so forth.

### **Avoid Risk**

As discussed above, ongoing risk assessment may lead to the decision to no longer accept the risk(s) – i.e., they now need to be avoided. From the perspective of paddlesports, this relates to a question which should always be top of the mind: “should the event be terminated”? As another example, a choice may be made, while underway, to avoid an area that looks more challenging than originally envisioned.

### **Reduce Risk**

Strategies and tactics should be identified and implemented to reduce risk. From the perspective of paddlesports, this should take place prior to an event commencing, and continue throughout the event itself. One example is “preloading” a course to teach as much as possible remotely (e.g., didactic/classroom material can be taught by teleconference, as opposed to in person). Many other examples are presented in the **Paddlesports During the Age of COVID-19: Risk Assessment & Risk Management** document.

NOTE: Although this document is specifically focused on risks related to COVID-19, *all* relevant factors creating risk (e.g., weather, water conditions, etc.) should be continually evaluated.

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# RESCUES

## Appendix 9: Paddlesports During the Age of COVID-19

May 22, 2020

### Introduction

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. These suggestions are provided to assist paddling instructors and event organizers and do not replace guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management. Note that each suggestion includes a “weighting.” In particular, “**Should**” means that, if at all possible, the suggestion should be carried out. On the other hand, “*Consider*” means that the recommendation is a good idea, but perhaps not as critical. Also please note that, although the suggestions below have been focused on kayak rescues, the same general principles should apply to most paddlecraft rescues.

### General Principles

- Minimize the need for rescues (e.g., by planning, choice of venue, paddling well within the ability limits of all paddlers, etc.). (**Should**)
- Self-rescues are preferred over assisted rescues – self rescues should be practiced, if possible, *in advance* of paddling. (**Should**)
- As appropriate, choose routes in shallow water – this may afford the ability to walk or swim the boat to shore – thus significantly decreasing the likelihood of needing an assisted rescue. (*Consider*)
- The paddler should (unless medically contraindicated) carry some form of mouth and nose protection which is usable on the water (e.g., a neck gaiter). A neck gaiter can be worn already “in place” (covering the mouth and nose) or can be worn around the neck and pulled up prior to commencing the rescue. Alternatively, a neck gaiter can be kept inside a waterproof holder (e.g., a “Ziploc”). (**Should**)
- For assisted rescue practice: pair up people who have already had contact, avoid pairing up strangers, if possible. (**Should**)

### The Rescuer

- Speed of execution is critical for assisted rescues (it minimizes exposure time). (**Should**)
- Consider position with respect to wind (e.g., rescuer upwind). (*Consider*)

- Consider designating a “protected person” if there is a need to do assisted rescues. A “protected person” is someone likely to be immune to the disease, or likely to be less severely affected if they do contract it. *(Consider)*
- Consider using the fastest/most skilled rescuer (to decrease length of contact time during assisted rescues). *(Consider)*
- Perform hand hygiene, if possible/reasonable, prior to performing an assisted rescue. *(Consider)*
- If practical, don mouth and nose PPE before moving in for the rescue – (if already wearing a neck gaiter, pull it up to cover mouth and nose; if stored in a Ziploc, retrieve it and put it on). ***(Should)***  
*NOTE: The above recommendation assumes that the neck gaiter is dry, and that a dry neck gaiter provides some degree of protection (this has not yet been proven). In addition, there is unfortunately no data available regarding the effectiveness of improvised masks, such as neck gaiters, when wet. Thus, we cannot offer any specific guidance as to whether, or not, they should be worn when wet.*
- If practical, and if not already wearing eye protection, don eye protection (e.g., regular eyeglasses, sunglasses or, even better, safety glasses) before moving in for the rescue. ***(Should)***
- Consider boat positioning options. For example, T-rescues are typically taught with the rescuer facing the swimmer (“bow to stern”). Although the rescue may be (slightly) more difficult with a bow to bow positioning, this may be a safer position in terms of decreasing the possibility of disease transmission (not yet proven). *(Consider)*
- After the rescue, rinse decks, if possible, where the swimmer was positioned. *(Consider)*
- After the rescue, perform hand hygiene if possible. *(Consider)*
- It should be noted that certain types of rescues (e.g., hand of God, scoop, and especially “live bait”) will entail a high degree of interpersonal contact (thus a higher likelihood of disease transmission). Unfortunately, we cannot offer any concrete suggestions regarding how to handle these situations. This comment, of course, pertains to both the rescuer, and the swimmer.

## **The Swimmer**

- While being T-rescued, the swimmer should hold on to the rescuing boat, as far away as possible from the rescuer (e.g., at the bow or stern, as opposed to close to the cockpit). ***(Should)***

- During a T-rescue, the time of highest risk for disease transmission is likely while the boats are side by side – therefore, *in advance of the event*, paddlers should practice getting spray skirts on as rapidly as possible to minimize this time. **(Should)**
- After the rescue, perform hand hygiene if possible. *(Consider)*

### **Additional Notes**

- Although we are not recommending that paddlers utilize medical gloves (as PPE), many paddlers do wear paddling gloves. Since close, if not interpersonal, contact is a virtual certainty during rescues, this does raise the question as to how to perform hand hygiene if the paddler is already wearing paddling gloves. There appears to be several options:
  - Wash the hands (with gloves on) as soon as possible. Ideally this would involve both soap and water. Environmental conditions/concerns may, however, preclude this as an option.
  - Use a hand sanitizer (with gloves on).
  - Remove the gloves and then perform hand hygiene.
  - It is likely, albeit not proven, that cleaning or sanitization will be more effective on a non-porous (e.g., rubber like) surface, as opposed to a porous surface.
  - Because of the uncertainty of the above potential interventions, we cannot, at this time, make any recommendations.

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**CONTACT TRACKING LOG**  
**Appendix 10: Paddlesports During the Age of COVID-19**  
 May 22, 2020

**Introduction**

The purpose of this document is to present a set of suggested paddlecraft practices, based on currently available information. This document presents an example of a “Contact Tracking Log” which may be of use in paddlesports. This example is provided to assist paddling instructors and event organizers and does not replace the need for guidance from federal (e.g., CDC), state, and local authorities (e.g., health departments). In certain cases, it also may be advisable to check with your health care provider, attorney, insurance representative, and other appropriate experts. Local risk will depend on numerous factors. Individual instructors and event organizers are responsible for appropriate risk assessment and risk management.

**Contact Tracking**

Although paddlers are not in the business of performing epidemiologic work (e.g., contact tracing), there *is* an application which may be of significance to paddlesports. In particular, the group leader, instructor, or other designated individual, may consider keeping a log of the entire group of participants, along with the specifics as to who had very close quarters contact during the paddling trip (for example, person *X* did a rescue on person *Y*). This information may turn out to be extremely useful and could be provided to the local department of health, or other outbreak investigators, if anyone in the group subsequently becomes infected with COVID-19. In addition to being useful for purposes of risk management, the logs could also be useful for process analysis and improvement (e.g., to determine what the patterns of close contact are, and how those can be reduced). The log should be kept for a minimum of three years, because of the risk management/legal implications.

The table, below, is a representative example:

	John	Bob	Sally	Sue
John	N/A	Bob Launch John, 30 sec, 6 ft	Shuttle 10 minutes, 2 ft	
Bob	Bob Launch John, 30 sec, 6 ft	N/A		Sue rescue Bob, 2 minutes, 3 ft
Sally	Shuttle 10 minutes, 2 ft		N/A	
Sue		Sue rescue Bob, 2 minutes, 3 ft		N/A

The basic idea is to make a table, with each paddler listed on both the vertical and horizontal axes. Cells are then filled in if there has been “close” contact (e.g., less than 6 feet (2 meters)) between any pair of individuals. Examples of common close contact events include launching, landing, rescues, and shuttling. The nature of the event, the estimated time of close proximity,

and the closest proximity distance should be included. Who did what should be also listed (e.g., Bob *launched* John). This could either be filled in, during the event (e.g., by the Infection Control Safety Officer), or each paddler could be responsible for providing this information, at the end of the event.

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