

Hazards Analysis

(Revised 8/7/2007)

1. Fly-Away

Lost link during pilot control.

Incorrectly programmed survey waypoints.

Failure of autopilot or aircraft control surfaces.

Mitigations:

- ❖ Flight footprint (based on max battery endurance) does not encompass personnel or structures other than the NOAA support vessels.
- ❖ Visual line-of-sight (VLOS) observers can note last heading of aircraft to warn approaching vessels and to facilitate possible recovery of aircraft.

2. Fire

Most likely during fueling operations

Mitigations:

- ❖ UAS is battery powered so no fueling operations will be conducted.
- ❖ Fire extinguisher on site

3. Aircraft collision with people or equipment during launch or recovery

Most likely cause is loss of Situational Awareness by team members

Mitigations:

- ❖ Operator will brief all participants on safe zones for launch and landing
- ❖ Operator will ensure all personnel are informed prior to takeoff and prior to landing
- ❖ Operator will ensure safe zone clear prior to launch and initiate a go around if landing area is fouled
- ❖ Establish safety boundary extending 1200 feet in front of launch area. (10 Seconds flying time at max speed of 70 knots)
- ❖ Aircraft has pusher style propeller and weighs less than 10 lbs.

4. Injury from Propeller

Most likely to occur during take-off procedures or recovery of the aircraft from the water.

Mitigations:

- ❖ Aircraft has pusher style propeller.
- ❖ Operator will designate launch personnel.
- ❖ Establish safe zone on deck of ship around launch personnel
- ❖ Operator will ensure safe zone is clear prior to launch
- ❖ Water landing procedures involve deactivating the aircraft motor and deploying a parachute for a soft landing.
- ❖ Prior to recovering the aircraft from the water, the small boat will confirm via radio with the Operator that the aircraft motor has been shut down and it is safe to retrieve the airframe.
- ❖ During transit of the aircraft from the recovery site back to the mother ship, the Operator will ensure that the base station is secured and that remote activation of the aircraft motor cannot occur.

5. Mid-Air Collision

Due to the remoteness of the operational area and the survey altitudes of the UAS, collision with other aircraft is extremely improbable.

Any mid-air collision will likely be with a sea bird.

Mitigations:

- ❖ Aircraft has pusher style propeller and weighs less than 10 lbs.
- ❖ Aircraft noise is expected to deter sea birds from approaching
- ❖ Operator will ensure that birds are clear during launch operations
- ❖ Water landing procedures involve deactivating the aircraft motor and deploying a parachute for a soft landing.
- ❖ Aircraft should not be flown over personnel or property (i.e. the mother ship) so that in the event of a collision or other unforeseen event, any debris will fall into the ocean.