Materials to bring to beach

- Drone case (can be stored in bin)
    - Drone
    - Micro SD card (in drone)
    - Three batteries (1 in drone, 2 extra)
    - Controller
    - UCSB/UCSB-C Cable for tablet & short smartphone cable as back-up
    - SD card reader
- Bin
    - Tablet (in bag)
    - Tablet mount (assembled w/ lanyard)
    - Tablet sunshade
    - Pilot FAA certification
    - Pilot Vests
    - County approval certificate
    - Soft case w/ 2 extra batteries & spare propellers
    - BOI & Doug McCauley business cards
    - Public info sheet?
- Folding table

Pre-flight procedure

1. Check weather
    a. SBA METAR report (especially cloud ceiling, can't fly if less than 600 ft.)
    b. http://video-monitoring.com/beachcams/carpinteria/
2. Check materials (especially batteries and SD card)
    a. SD slot is under small cap on the underside of drone
    b. Check remaining memory on SD card. (Needs approx. 20 free GB for all 3 transects)
3. Confirm Litchi missions are up to date (tablet doesn't have data plan, so can't update in the field)

Daily beach procedure

1. Bring materials to flight location
2. Unfold table
3. Prepare drone for flight
    a. Place case on table and remove drone
    b. Unfold arms & propellers
    c. Remove gimbal cover

    d. Turn on drone (tap, then press and hold button on battery)
4. Prepare controller for flight
    a. Unfold clamps and attach joysticks
    b. Turn on (tap, then press and hold power button)
    c. Attach tablet mount and tablet
    d. Attach sunshade to tablet
    e. Plug in tablet (make sure micro USB port on controller is unplugged)
5. Load missions
    a. Open Litchi
    b. Switch to waypoint mode (tap FPV icon in upper left)
    c. Open missions folder (folder icon on left)
    d. Select and load desired mission. (First leg of transect should be just outside of the wave break line. At mid tide, use L setting)
6. Pre-takeoff checks
    a. Drone battery > 80%
    b. Controller battery > 50%
    c. Check that there is a 10-foot buffer between people and/or pets and drone take-off
    d. Check that there are no people and/or pets below transect path
7. Hit “Go”
8. Watch video feed for sharks. *Write down the video timestamp of first sighting of all sharks.* (This will make sorting the videos easier)
9. When mission is over, make sure recording has stopped and manually land the drone - make sure landing zone is clear of people/pets
10. If flying another mission:
    a. Turn off battery (same as turning on)
    b. Remove used battery and replace with fresh battery
    c. Repeat steps 5-9
        i. If battery is at 100%, flights 1 and 2 can be flown on the same battery to save time and charge.
11. When all missions are done, pack up drone, controller, and table by reversing steps 4, 3, and 2, in that order
12. If there is extra battery left after a transect, you might want to fly haphazardly to look for sharks or get extra footage of sharks seen on transects (all shark footage should be from 20 meters up)
13. *If litchi crashes during a transect, simply open the app again*. The transect data is loaded onboard and the drone will continue to fly the transect if disconnected from the app. However, the airdata (location data) will be disrupted.

Daily office procedure:

1. Create new folder in UCSB_drone_flights in format YYYY-MM-DD
    a. Subfolders 1, 2, and 3 (non-transect flights)
2. Import video files from SD card into subfolders

3. Download AirData (KML, csv, and Original) files and move to subfolders
4. Update "Flight Data" in Carpinteria survey flights folder
5. Submit flight report via UC Drones web app (https://ehs.ucop.edu/drones/)
6. Charge batteries, controller, and tablet as necessary
7. Once videos upload:
    a. Delete videos SD card
    b. Put SD card back in drone

Weekly tasks:

1. File project flight requests on UC Drones
2. Clean drone (external surfaces and sensors) and inspect propellers
3. Check drone for DJI firmware updates (turn on drone while connected to wifi in the office)
4. Check sd card for hidden files, format if space is needed.