



Information requirements

WHAT IS YOUR FEATURE OF INTEREST?

The level detail required to identify and quantify targets of interest will affect the sensor chosen for the job. For example, measuring a biophysical variable such as chlorophyll content is likely to require a more sophisticated sensor than one used for mapping the difference between corals and sediment.

HOW BIG IS YOUR FEATURE OF INTEREST?

Small features require low altitude flight – aim for a pixel size 1/10 the size of the feature of interest.

OVER WHAT SIZE AREA DOES YOUR FEATURE OF INTEREST OCCUR?

Large areas (>200 ha) may be more suited to satellite data, or fixed wing instead of multi-rotor systems (see also Figure 1). Battery life (normally 10-30 minutes for small drones) and line of sight restrictions limit the area that can be covered in any one flight.

IS IT EASY TO IDENTIFY USING HUMAN EYESIGHT OR DOES IT BLEND WITH ITS SURROUNDS?

May need to consider multi-spectral or even thermal imaging. Different drones have different recommended payloads. Some drones may be flexible with payload offerings, others not. Payload type and weight will also impact licensing requirements and insurance costs.

DOES IT LOOK DIFFERENT AT DIFFERENT TIMES OF THE YEAR / SEASON / DAY (E.G. FLOWERING, LEAF COLOUR)?

May impact on timing of surveys. Consider also the necessary additional license exemptions to fly at night time.



Licensing and regulations

DO ANY OF YOUR EMPLOYEES HAVE THEIR REMOTE PILOT'S LICENSE?

Licenses are no longer necessary in Australia for flying craft weighing <2 kg, but insurance may be challenging without a license.

HAVE YOU CONSIDERED A REMOTE AIRCRAFT OPERATOR'S CERTIFICATE (REOC - IF IN AUSTRALIA)?

Once an expensive venture, this is now relatively easy to obtain and will allow you to apply for exemptions to some of the regulations, as well as access public liability insurance.

DO YOU HAVE PUBLIC LIABILITY INSURANCE?

Many insurance companies will insure the drone itself, but consider your requirement to insure for damages in the event of an accident.



Location requirements

ARE THERE ANY AVIATION RESTRICTIONS IN THE AREA IN WHICH YOU HOPE TO FLY (E.G. CLOSE TO AIRPORTS, APPROACH PATHS, MILITARY ZONES, POPULOUS AREAS...)?

May need to lodge exemption applications (only possible if your organisation holds a ReOC)

WILL YOU BE WORKING IN A NATIONAL PARK, MARINE PARK, OR LOCAL COUNCIL AREA?

May need a permit.

WILL YOU BE ABLE TO LAUNCH AND RECOVER CLOSE TO THE SURVEY AREA?

Line of sight regulations restrict the distance that drones can be flown. A long flight distance to the starting point of the survey will limit the size of the survey area itself. Visual obstructions such as hills and trees will also impact on drone visibility.

IS THE SIZE OF THE LAUNCH AND RECOVERY AREA SUFFICIENT FOR YOUR CRAFT TYPE?

Fixed wings require large areas – maybe consider rotary or vertical take-off and land (VTOL) options.



DATA PROCESSING

HARDWARE

Access to computing power and data storage for data processing.

DO YOU HAVE ACCESS TO REMOTE SENSING AND GIS SOFTWARE?

Consider cost of licensing to process and analyse the data, or possibility of open source or for service cloud-band options.

DO YOUR STAFF HAVE AN APPROPRIATE LEVEL OF TRAINING PLANNING AND EXECUTING A MISSION, AS WELL AS CONDUCTING THE ANALYSIS?

Consider investing in staff professional development or outsourcing.



Other admin and logistics

WHAT IS YOUR TIMELINE FOR TRIALLING AND IMPLEMENTING A SOLUTION?

Purchasing equipment can be done relatively rapidly. Setting up staff training and workflows will take considerably longer.

WHAT IS YOUR BUDGET?

Consider redundancies; spare batteries and chargers; additional accessories such as landing pads, tablets, personal protective equipment; training, insurance, licensing.
