

# Unmanned Aircraft System Operations in Papahānaumokuākea



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# Summary of UAS in PMNM

- 9 permitted activities (first project in 2014)
- 75 individuals accessed PMNM for supporting UAS activities
  - 9 NOAA and FWS personnel (pilot study)
  - 58 NMFS personnel (cetacean research, monk seal monitoring, and marine debris surveys)
  - 2 FWS education and outreach
  - 6 60 Minutes film crew





**PUMA AE (all environment)**

**Range:** Line of sight

**Endurance:** 3.5+ hours

**Speed:** 37-83 km/h, 20 to 45 knots

**Wing Span:** 9.2 ft (2.8 m)

**Length:** 4.6 ft (1.4 m)

**Weight:** 13.5 lbs (6.1 kg)



**APH-22 (Hexacopter)**

**Range:** Line of sight

**Endurance:** 18-25 min

**Speed:** 20 m/sec. (39 Knots)

**Wing Span:** 32.4 in

**Length:** 32.4 in

**Weight:** 6 lbs (2.7 kg)



**IVAN (quadcopter)**

**Range:** 2 miles (but operate line of sight)

**Endurance:** 14-20 min

**Speed:** 20 m/sec. (39 Knots)

**Wing Span:** 21.25 in

**Length:** 21.25 in

**Weight:** 9.3 lbs (4.2 kg)

# Flightwave Edge

Range: 100 km

Endurance: 112 minutes

Speed: 58 mph

Wingspan: 51 in.

Length: 32 in.

Weight: 2.65 lbs.



# Phantom Pro

Range: 4 miles

Endurance: 30 min

Speed: 45 mph

Length: 13.8 inches

Weight: 3 lbs



# Mavic Pro

Range: 4 miles

Endurance: 30 min.

Speed: 40 mph

Length: 13 in.

Weight: 1.6 lbs



# Results

- 25+ hours recorded total flight time
- 30+ flight missions
- 0 bird strikes
- Limited monk seal response (looking at approach distance of 100 feet but no fleeing)



# Mahalo!

