

Eastern Curlew and other Wader bird usage of the Turtle Cove Clay Pans for the 2020/2021 season

The migratory Eastern Curlew return to the Great Sandy Straits and Turtle Cove from their breeding grounds in the Northern Hemisphere in the first half of September and stay until late March to very early April the following year. They stay for six months then return to their breeding grounds again.

Other Migratory shore birds follow a similar pattern to the Eastern Curlew only arriving at Turtle Cove a little later. The most prominent of these other Waders at the Turtle Cove Clay Pans are: Bar Tailed Godwit, Great Knot and the Whimbrel.

Our property boundary is within 30 meters of the high water mark and the Southern Clay Pan of Turtle Cove. Our house, further back, looks out over the mangroves and the northern part of the Great Sandy Straits where extensive mud flats uncover at low tide; this is where the various Wader birds, including the Eastern Curlew have their main feeding grounds.

Because of the location of our property and it's outlook, **over several years**, we have come to understand how, when, where, and why various Wader birds, including the Eastern Curlew use both the Central and Southern Clay Pans of Turtle Cove.

The incoming tide heights are the main governing factor on when and where the Waders use the Clay Pans. To a lesser extent, wet weather and human activity are also factors in where they roost and forage in this location.

Without getting really technical, the highest tides, King Tides, occur twice a year, during daylight hours in the summer and night time hours in the winter. This is when the tide has the biggest range, very high tides and very low tides.

In the six month period between the two sets of King Tides, the tides cycle lower and are called Neap Tides. This is when the tide has the lowest range and when high tides are not very high, and low tides are not very low.

As the tides rise the outer mud flats of the Great Sandy Straits cover, and the Wader birds seek higher ground close by where they can safely roost and forage. When they relocate their preference is to be on a wet muddy surface close by and/or one that they know will be wetted by the tide as it comes in.

With reference to the map below, the Southern Clay Pan starts to cover at its southern end, location **P1** at a local tide height of about 3.4m and is nearly fully covered at about 3.65m at the location **P4**.

The Central Clay Pan starts to cover, on its south eastern boundary, at about 3.65m and fully covers at a local tide height of about 3.95m.

In general, without making explanations really complicated, the Wader birds know and understand how the tides work at Turtle Cove. General examples of this are:

- When tide rises and reaches 3.4m the outer mud flats have covered and the Eastern Curlew use the Southern clay Pan at **P1** in the map below. If a high tide is 3.55m then the area they roost and forage until the outer mud flats uncover again is **P2** to **P3**.
- During the run up to the King Tides, say a high tide of 3.75m the Eastern Curlew will first use the Southern Clay Pan at **P2**, **P3** and then **P4** before moving to the Central Clay Pan as the water depth gets too deep for them to stay in the Southern Clay Pan area.
- When the tides are really high, in excess of 3.75m there are few places further afield in the Great Sandy Straits where outer mud flats remain uncovered. At times like these increased numbers of Wader birds are attracted to the Central Clay Pan to roost and forage. During these higher King Tides the water rises very quickly covering the Southern Clay Pan in less than half an hour. The Waders then prefer to go directly to the Central Clay Pan, where it is wet from a high tide the day before, and where they stay until the tide recedes and the outer mud flats uncover once again.
- **“At the very highest of our local King Tides, some years up to 4.27m, the Waders will generally only stay in the Central Clay Pan area until the tide completely covers it, at a height of 3.95m. At these times a few Eastern Curlew can occasionally be seen to roost on the shore line, but generally they fly off, returning an hour or two later to the Central Clay Pan as the tide recedes, where they roost on the wet Clay Pan and wait until the outer mud flats uncover once again.”**

In September when the Eastern Curlew return to Turtle Cove, the tide cycle has turned towards Neap Tides and daytime high tides are quite low. This lasts until about mid December so the Eastern Curlew favour the Southern Clay Pan to roost and forage between high tides.

After mid December to late March the following year, the tides cycle towards King Tides and are high enough to regularly wet the Central Clay Pan so the Eastern Curlew and other Waders favour the Central Clay Pan, and in greater numbers.

In the run up days to the highest of high tides, between mid December to late March, the Waders will still use the Southern Clay Pan when incoming high tides are lower than 3.65m early in the two week tide cycle.

The migratory shorebirds I recognise and see the most, both in the Central and Southern Clay Pans are:

- a) Eastern Curlew:
- b) Bar Tailed Godwit:
- c) Great Knot:
- d) Whimbrel:

At times large numbers of Gull billed Terns and quite a few Caspian Terns are also seen.

As previously stated, the Eastern Curlew return to Turtle Cove in mid September to early October; during the annual Neap Tide cycle. This is when daytime high tides are very low and barely wet the first section of the Southern Clay Pan.

In this situation the Eastern Curlew land and roost very close to us, at **P1** on the map below, only about 100-120m away from our house, and they often stay for up to five hours.

Our house is at the end of a very quiet cul-de-sac and we try not to disturb the Eastern Curlew from the very bottom of our property when we know they are there.

The Eastern Curlew is a very flighty Wader bird that can be easily disturbed when they see human movement within about 170m to 200m. However in our situation, at the southern end of the Southern Clay Pan, we are invisible to them as they are out of sight and hidden behind a 6m high grassy midden bank. All the Eastern Curlew sees, are the roof tops of our houses and no human movement. It is only the odd bush walker, stray dog, or the ultra light helicopters flying low overhead that disturbs them when they are present.

View of our house from **P1**, 120m away



View houses from **P2/P3** all about 200m away



In the seven years that I have taken an interest in the Waders that use the Clay Pans at Turtle Cove; I would estimate that the numbers of migratory shore birds, including the Eastern Curlew, that visit here, have dropped in numbers by about 20-25%.

This season, September 2020 to March 2021, I have had the opportunity to count and carefully photograph the Eastern Curlew I see in the Southern Clay Pan, where many times they are joined by other Waders.

To a lesser extent I have also photographed the Waders I see in the Central Clay Pan, usually at a far greater distance, and noted rough numbers of both the Eastern Curlew and other Waders when I notice them there.

Mention of these Eastern Curlew and that of other Waders are in italics in the spread sheet below.

I started off in a small way with very good binoculars and my zoom pocket camera. At a distance the photos didn't come out all that well, but about mid December I started using a better Camera where at a distance and zooming in, photos came out a lot clearer, with much better resolution and with more detail.

Some photos I took were taken at distances of 700m-800m to show the volume of Waders using the Central Clay Pan and their attendance, not only at high tides but at times two to three hours before and after.

These photos need to be zoomed in on to better show the volume of Waders on the Central Clay Pan.

Index to the map below and the simple spread sheet that follows:

CCP: Central Clay Pan.
SCP: Southern Clay Pan.
CCP: *Eastern Curlew in the Central Clay Pan* additional to those in the Southern Clay Pan.

BTG: Bar Tailed Godwit.
CT: Caspian Tern.
EC: Eastern Curlew.
GK: Great Knot.
T: Various smaller Terns
W: Whimbrel.

A: Approximate number of Waders seen, counts within 5%. Could be more out of sight.
E: Estimated number when difficult to count from a distance. Could be many more out of sight.
No's Numbers

HT: High tide.
Lg: Large.

*** Note: High Tide time on the spread sheet is for Urangan, High Tide at Turtle Cove is 20 minutes later.



Note: There are 100 folders of photographs that match each of the dates below. The photos do not show all the waders seen at the time, there are many reasons for this, including not wanting to disturb them and not seeing those out of sight. There were also many times when the Waders were present and I was away or didn't know they were there.

Eastern Curlew Sightings Southern Clay Pan

<u>Date</u>	<u>1st Time sighted</u>	<u>Position</u>	<u>(EC in CCP) EC in SCP</u>	<u>H Tide & Time</u>	<u>Comments</u>
16-09-20	11-13am	P1	28	3.34m 07-39am	New season, 1st time noticed EC in No's
03-10-20	10-18am	P1	200+	3.44m 09-18am	Large No's of EC roosting behind midden
04-10-20	09-06am	P1 & P2	200+	3.41m 09-47am	Large No's of EC roosting behind midden
05-10-20	09-16am	P1	200+	3.34m 10-18am	Large No's of EC roosting behind midden
06-10-20	09-39am	P1	70A	3.23m 10-52am	Fewer EC behind midden visited today
07-10-20	09-32am	P1	35A	3.10m 11-32am	Some EC visited again today
17-10-20	01-33pm	P2	3	3.88m 08-49am	Chance sighting of EC in SCP at mid tide
24-10-20	13-48pm	P1	32	3.14m 15-47pm	Rain, but EC stayed 2.5 to 3 hrs.
25-10-20	14-54pm	P1 & P2	41A	3.22m 16-50pm	16 EC Joined later by 25 more.
27-10-20	16-45pm	P2 & P3	80A no Photo	3.38m 18-20pm	Landed late in two lots. No Photos taken
29-10-20	08-36am	P2 & P3	250-280A	3.39m 07-19am	EC Landing & staying, in two groups.
30-10-20	08-21am	P1 & P2	196A	3.50m 07-52am	EC Stayed a while <i>no Waders seen in CCP</i>
31-10-20	08-15am	P1 & P2	225A	3.56m 08-23am	210A BTG + 15 W Joined EC in SCP (EC stayed 3 hrs)
01-11-20	07-58am	P1 & P2	210A	3.59m 08-54am	280A BTG some W, & CT Joined EC
02-11-20	08-36am	P1 & P2	195A	3.57m 09-24am	EC stayed approx 6 hrs, <i>no birds CCP</i>
03-11-20	08-15am	P1 & P2	165A	3.50m 09-56am	EC stayed at least 4 hrs, <i>no birds CCP</i>
04-11-20	08-02am	P1 & P2	68A	3.39m 10-30am	28 EC 8am + 40, 9-25am, <i>no birds CCP</i>
During the above sightings no real signs or observations of Wader Birds, including E C, seen in the CCP to date.					
12-11-20	07-52am	P1	32	3.36m 06-12am	32 EC sighted, heard twittering at 5am
13-11-20	06-45am	P1,P2 & P4	80A	3.65m 07-00am	Approx 85 BTG P2. <i>Only Terns in CCP</i>
14-11-20	07-20am	P3-4	38	3.87m 07-46am	SCP 38+ EC & 125+ BTG. <i>T + EC in CCP</i>
15-11-20	07-50am	P2-3	No photos	4.00m 08-32am	EC and BTG seen flying in, large numbers
16-11-20	08-30 to 10am	P2-P4	225A	4.02m 09-17am	<i>Many EC, BTG, GK, W, T, in CCP</i>
17-11-20	09-00am	<u>CCP</u>	<u>(300A)</u>	3.94m 10-02am	<i>EC & L' numbers other waders S/E CCP</i>
18-11-20	11-00am	P2&3	8A	3.77m 10-50am	Some EC & W SCP, <i>most Waders in CCP.</i>
19-11-20	13-26pm	<u>CCP</u>	<u>(140A)</u>	3.55m 11-43am	<i>Rained, wet, all waders in S/E Part of CCP</i>
20-11-20	11-00am	P2	94A	3.34m 12-43pm	<i>No W' Birds in CCP before or after HT</i>
27-11-20	07-24am	P1 & P2	93A	3.39m 06-52am	Some EC stayed 3+hrs, <i>(No waders CCP)</i>
28-11-20	07-29am	P1 & P2	120A	3.53m 07-28am	Mix of Waders P1 & P2: EC, BTG, CT
29-11-20	07-41am	P1,P2,P3,P4	195A	3.63m 08-01am	195 EC, 180 BTG, 11 CT, in SCP today
30-11-20	08-11am	P1,P2,P3,P4	248	3.68m 08-34am	EC, 800+ BTG&GK. <i>No Waders CCP</i>
01-12-20	08-03am	P2, P3,P4	250A	3.68m 09-07am	Smoke haze, big numbers of Waders SCP
02-12-20	07-14am	P2, P3,P4	245A	3.64m 09-41am	700+ Godwit Joined EC, Bird Watchers.
03-12-20	08-28am	P1,P2 & P3	233A	3.56m 10-18am	350+ Godwit. Some EC stayed 4 hrs SCP

4.5Hrs

4Hrs

08-12-20	17-31pm	P1 & P2	39	3.36m	14-53pm	39 EC spread out over P1&P2 SCP
12-12-20	06-34am	P1,P2,P3,P4	150E	3.68m	06-43am	A mass of Waders in P4 1 hr after HT
13-12-20	06-48am	P2 & P4 <u>CCP</u>	50+E 300+	3.89m	07-32am	Rain unable to reliably count/estimate
15-12-20	07-48am	<u>CCP</u>	250+	4.04m	09-03am	Few Waders in SCP, <i>Hundreds in CCP</i> <i>Tide much higher than predicted</i>
16-12-20	07-22am	P2	1	3.97m	09-48am	Waders in CCP 200A EC + 600A others
17-12-20 to 20-12-20 away -----						
27-12-20	08-00am	P1	78	3.49m	07-04am	EC bottom of our property, very wary.
28-12-20	06-44am	P1 & P2	111	3.63m	07-42am	EC Joined by 250A BTG + GK , CT, T.
29-12-20	07-42am	P1,P2,P3,P4	235A	3.72M	08-17am	EC Joined by 800+ BTG & a few GK
30-12-20	08-24am	P2 & P4 <u>CCP</u>	0 & 28W 2-300	3.78m	08-53am	Few EC? SCP. Rain & <i>most Waders CCP</i>
31-12-20	08-40am	P3 & P4 <u>CCP</u>	0 & 64W 2-300	3.79m	09-29am	<i>Rain & clay pans wet so most EC in CCP</i>
01-01-21	09-48am	P1 & P2	7+	3.78m	10-07am	SCP 700+ mainly BTG P4. <i>Most EC in CCP</i>
02-01-21	10-07am	P3 & P4	0 & 21W	3.74m	10-48am	<i>CCP wet from rain so most / all EC in CCP</i>
03-01-21	10-48am	P3 & P4	0 & 45W	3.66m	11.32am	<i>CCP wet from rain so most / all EC in CCP</i>
04-01-21	12-12pm	P4	1 & 22W	3.57m	12-21pm	<i>CCP Still wet so most EC 300+ in CCP</i>
10-01-21	06-53am	P4	0 & 14 W	3.64m	06-31am	<i>Rain, CCP wet & EC 200A in CCP</i>
11-01-21	10-08am	<u>CCP</u>	250+	3.84m	07-23am	<i>Rain, CCP wet & 250+ EC stayed in CCP</i>
12-01-21	07-11am	<u>CCP</u>	300+	3.97m	08-09am	<i>Wet CCP waders in before HT 300+ EC</i>
13-01-21	08-03am	P2 & P4 <u>CCP</u>	1 & 40+W 150A	4.01m	08-52am	<i>Waders still flying in to CCP before HT</i>
14-01-21	08-38am	P3 <u>CCP</u>	1 150A	3.97m	09-33am	<i>Waders still flying in to CCP before HT</i>
15-01-21	09-17am	P2 <u>CCP</u>	6 W 150A	3.86m	10-13am	<i>Waders still flying in to CCP before HT</i>
16-01-21	10-39am	<u>CCP</u>	200+	3.71m	10-51am	<i>HT could be 200+ EC, and other waders</i>
17-01-21	11-21am	P2	100+ W	3.53m	11-29am	Lower tide, Nothing in CCP all birds in SCP
25-01-21	07-52am	P2	0 & 25W	3.42m	06-41am	SCP one area just wetted by High Tide
26-01-21	07-04am	P2 & P3	83	3.60m	07-20am	EC stayed three & a half hrs after HT P2
27-01-21	07-33am	P1 & P4 <u>CCP</u>	80A 200+	3.76m	07-58am	<i>Lrg' No's of waders CCP EC, BTG ETC</i>
28-01-21	07-30am	<u>CCP</u>	300+	3.88m	08-35am	<i>Cly Pans wet & Bg Tides all Waders CCP</i>
29-01-21	08-3am	<u>CCP</u>	200+	3.97m	09-13am	<i>Cly pans wet Lg No of waders & EC CCP</i>
30-01-21	07-37am	<u>CCP</u>	300A	4.00m	09-51am	<i>Cly pans wet Lg No of waders & EC CCP</i>
31-01-21	09-31am	P 1,P 2 & P 3 <u>CCP</u>	11 & 19W 250+	3.96m	10-30am	<i>Cly pans wet Lg No of waders & EC CCP</i>
01-02-21	09-43am	P2,& P3 <u>CCP</u>	2 & 8W 250+	3.86m	11-12am	<i>Cly pans wet Lg No of waders & EC CCP</i>
02-02-21	11-18am	P3 & P4 <u>CCP</u>	2 & 16+W 250+	3.68m	11-55am	<i>Most waders CCP, BTG fly in to SCP</i>
03-02-21	10-08am	P2 & P3	1 & 3W	3.47m	12-45pm	<i>CCP up to 1500 waders seen leaving</i>

04-02-21	13-24pm	<u>CCP</u>	250+	3.24m	13-43pm	<i>CCP could be more EC than estimate</i>
06-02-21	09-07am	<u>Outer mud flats of SCP</u>		3.16m	03-57am	Neap tides & EC seen on outer M flats
08-02-21	06-12am	P2 ,P3 & P4	250A	3.58m	06-24am	All Waders in SCP, none seen in CCP
09-02-21	05-59am	P2 & P4	95+	3.78m	07-15am	All Waders in SCP, none seen in CCP
10-02-21	06-22am	P2, P3&P4	250+	3.90m	07-58am	Large No of EC & BTG SCP, <i>few in CCP</i>
11-02-21	07-09am	P2, P3&P4 <u>CCP</u>	30+ 200+	3.95m	08-38am	Pos' 30 EC, & 1000+ BTG flew in. SCP
12-02-21	08-20am	P1 & P3 <u>CCP</u>	6 & 17+W 290+	3.92m	09-14am	Mainly W SCP. <i>Heaps of Waders CCP</i>
13-02-21	08-52am	P2,P3&P4	300A	3.84m	09-47am	Huge numbers of Waders relocate to SCP
14-02-21	09-32am	<u>CCP</u>	200+	3.71m	10-19am	EC in CCP too far off to count accurately
15-02-21	08.49am	<u>CCP</u>	200+	3.54m	10-48am	EC in CCP with many other Waders
16-02-21	08-44am	P2 & P3	3A	3.35m	11-16am	EC count? <i>Waders in CCP hidden by trees.</i>
20-02-21	14-23pm	P3	0 & 5 W	2.52m	14-41pm	Neap Tide, some waders in SCP & CCP
24-02-21	08-02am	P2 & P3	162A	3.57m	06-54am	<i>Tide didn't wet CCP & none seen there.</i>
25-02-21	06-37am	P2, P3 & P4	180+	3.78m	07-33am	EC, & other waders in SCP, <i>none in CCP</i>
26-02-21	07-23am	P3 & P4 <u>CCP</u>	1 & 21W 260A	3.96m	08-12am	Only a few waders in SCP <i>most in CCP</i>
27-02-21	07-53am	P4 <u>CCP</u>	1 260E	4.09m	08-50am	<i>Wet CCP so Waders waiting HT in CCP CCP, could be more EC than estimate</i>
28-02-21	08-27am	<u>CCP</u>	260A	4.12m	09-29am	<i>Big tide rises quickly so waders use CCP</i>
01-03-21	09-14am	P2, P3 & P4 <u>CCP</u>	3 300E	4.05m	10-08am	<i>Big tide rises quickly so waders use CCP CCP, could be more EC than estimate</i>
02-03-21	10-20am	P3& P4 <u>CCP</u>	2 300E	3.88m	10-47am	<i>Big tide rises quickly so waders use CCP CCP, could be more EC than estimate</i>
03-03-21	11-24am	<u>CCP</u>	185A	3.62m	11-30am	<i>CCP Predominately EC few small waders</i>
04-03-21	09-11am	P2 & P3	2	3.31m	12-18pm	<i>Many EC and BTG in CCP 3 hrs after HT</i>
10-03-21	06-41am	P2, P3& P4	35A	3.70m	07-00am	Many waders out of sight SCP, Nil CCP
11-03-21	06-56am	P2, P3 & P4	185A	3.80m	07-40am	Waders in SCP before HT. EC, BTG, GK
12-03-21	06-32am	SCP	0	3.83m	08-15am	SCP 42W. <i>CCP 220EC, 450BTG 80GK</i>
13-3-21	08-17am	SCP	0	3.80m	08-48am	<i>Wet CCP 220EC, 450BTG, 80GK, 17CT</i>
14-3-21	08-59am	SCP	0	3.72m	09-17am	<i>Wet CCP 190EC, 450BTG, 80GK, 24CT</i>
15-3-21	09-27am	P1 & P2	143A	3.61m	09-45am	Only waders EC in SCP P1&P2, <i>nil CCP</i>
16-3-21	08-15am	P3	1 Pos or W	3.45m	10-10am	<i>Rain & Lower HT, most Waders in CCP</i>
20-3-21	12-17pm	P1& P2	3	2.60m	12-12pm	Neap tides & a few EC & W using SCP
25-3-21	07-46am	P2	?	3.55m	06-19am	SCP a swarm of BTG about to land at P2
27-3-21	07-28am	P2	0	3.98m	07-43am	SCP P2 75 BTG. <i>CCP 13 EC & some CT</i>
28-3-21	08-23am	P1-P3	0	4.08m	08-23am	<i>CCP Waders in the distance SCP a few W</i>
29-3-21	07-46am	P2 & P3	123A	4.08m	09-02am	SCP EC 2 hrs before HT joined by BTG
30-3-21	08-35am	P2 & P4	1 & 24W	3.95m	09-43am	<i>Bush walkers 9am Waders moved to CCP</i>
31-3-21	08-19am	P1 to P4	2 & 11W	3.72m	10-24am	<i>Before HT most Waders seen are in CCP</i>

01-4-21 Onwards: This folder contains photos of Waders in both the SCP & CCP that remain and/or are about to migrate.

