

# GEOCATCH (Afternoon)

**Location:** Busselton

**Date:** April 3, 2014

**Time:** Afternoon 1:30pm to 4:30 pm

## ***Community responses***

**What is really important to you in your landscape/area/home?**

**What have you noticed changing – over the last 15 or so years**

- Tree decline – marri & flooded gums & peppermint & tuarts
- Over the last 5 years
- Getting worse and not coming back
- Dieback – seeing it everywhere
- Used to be banksia now more species with dieback
- Foreshore bank erosion – more in urban areas – after storms and doesn't come back
- Spinifex disappearing
- Seagrasses covered in algae
- More prevalent now than it used to be
- One off storms events/autumn → severe, mini tornados, last ten years larger storms
- Less thunderstorms/ winter storms
- Drier, below average winters – 2000 was a 'lovely sunny winter'
- 2013 rivers were very high
- Farmers cutting hay earlier – changing farming practices
- Forested beach foreshore areas – canopy lighter, salt damage, system collapsing
- Weed encroachment, weeds entering areas where they weren't before
- People's bores don't last all summer any more
- Possums dropping dead in summer → less trees → less water and hotter
- Less wildlife
  - Less roos
  - Less birds
- Trees cut down and houses instead
- Increasing development
- Drier wetlands → reducing animal habitat
- Reducing fish stocks
- Increasing bandicoots
- Aquatic animals/fish numbers falling
- Less pools in waterways → fewer summer refuges affects animal numbers
- Birdlife
  - Wetland birds flying round looking for water
  - More birds in summer

- Species outside their natural extent
- Didn't used to be ibis here or cockatoos
- Less dung beetles in last couple of years – they were doing well before
- Increasing algal blooms
- Increasing sea grass in bay on beach
- Fish kills from storms
- Not so many tadpoles but plenty at Chapman Brook
- Plenty of frogs
- More fires
  - Increasing intensity
  - In wetlands
  - Losing more homes
  - Driven by strong winds
- Changed fire management practices
- Impact of burns on houses
- Port Geographe → reducing wetlands
- Old habitat trees in the forest die out – not so much regrowth
- Management of tuart forest has changed – it looks different to before
- Stronger Leeuwin current – blue whales back
- Increased ocean temperatures – warm water all summer
- Increasing number of stinger in bay
- Stingers at Meelup and Cowaramup and Smith's Beach
- Vasse River greener and shallower - used to be able to swim in it.
- More access to the wetlands used to be tucked away – now Busselton right up to it.
- Reduced stream flows
- Less gilgie in some places (e.g. Yallingup)
- Dams and barriers can stop stream flow – didn't used to
- Station Gully → reduced flow (Mary Brook & Nanny Brook)
- Drier climate has made other types of crops (e.g. olives) possible
- Roos loving the wetlands to death
- Wetland margins are suffering

**What do you expect to happen over the next 15 or so years? / What will happen if we had Climate Change?**

- Urban development
- Increasing population
- More housing
- Efforts to stop beach erosion have made things worse
- Lower rainfall
- Less rainfall
- Hotter temperatures
- Plant diseases
- Decline in habitat – possums trying to find habitat ANYWHERE
- Changed management practices
  - Water

- Farming
- Rivers
- forestry
- Changed political system – e.g. carbon tax – people don't believe it
- Changing/moving goal posts
- Increased water usage
  - Irrigation
  - Bigger parks
  - Increasing population
- Intensification of agriculture
- Increasing number of vineyards
  - No ecosystem under the vines – sprayed
  - Were more paddock trees before
  - Lost old red gums
- Increasing sea temperature
- Increase in whale numbers
- More sharks
- Less seals
- Farming using more fertilizers
  - Policy lack of education for alternative ways
- Planning framework doesn't allow for keeping large trees
  - Planners/developers don't have to keep large trees
- Legislation – local planning policy
- Lack of belief in science, distrust in science – don't want to believe there is a risk or decline
- Need more awareness of issues, get out of old mindsets
- Kids are natural 'greenies' but tend to grow out of it

#### OPPORTUNITIES – What can we do?

- Campaign → polar bear holding a possum
- Corridors
- Be more responsible in
  - The home
  - As home owners
  - Community members
- Water-wise in the garden
- Own water tanks
- How to measure behaviour change – can't do this
- Older properties are good by when developers → opportunity to develop around this
- Campaign to not spend money on green verge grass
- Need to plan for revegetation way back from the coast (i.e. beyond the by-pass)
- If vegetation will change and move south – change planning to take into account the movement of vegetation with the drying climate
- Use water cleverer
- Being environmentally friendly can be costly

## GROUP B

### What changes are you noticing?

- Less rainfall and increased variability – 800mm used to be the average – now we get that in a wet year but the range is more 600mm -800mm. This changed occurred in the 1970's
- Not just total rainfall but when it falls has changed – rain now comes when it is cold (grass does not grow)
- Where it falls has changed – Margaret River and Augusta get more rain than Busselton (pattern of fronts has shifted)
- Big change in south coast rainfall where it has decreased by 5% but winter rainfall has decreased 50%
- Seasons finish earlier – less runoff into streams – down 40-50%
- Less waterlogging so the farm is more productive
- Reduction water as dams generally not filling
- Increased intensification of agriculture leading to greater reliance on ground water
- When started farming needed dam now intensive vineyard and crops so put down bores
- Urban expansion and particularly coastal
- Last 5 years worst coastal erosion
- Dunsborough initially then Busselton – pressure to clear land
- Developers pressures takes away local government preferences to retain farm land and bush land
- In filled with houses so the numbers of trees are declining in the urban environment
- ¼ acre block → now divided to 400m<sup>2</sup> → less trees → less possum habitat → less birds
- Corridors become important Geocatch established a corridor but developers take out the trees the Shire put in
- Western Power takes out trees to put in power lines
- 2001 new bushfire planning encouraged large scale clearing
  - Traffic congestion increased dramatically in last 10-15 years
  - → frustration
  - Original town was not designed for so many people
  - Public open space and parks → parking lots
- Public demand to put roads through wet lands
  - Vasse to Dunsborough
  - Ford Rd
- Pollution more vehicles, more congestion, more pollution
- Local government to make public open space worthwhile – payable → sold to build 5 star hotel
- Currently 100m set back but new foreshore development along Geographe Bay Road and Marine Terrace will be closer with 5 story high developments
- More money in town → \$1million houses
- Development / real estate culture

- 50 year old farmer was someone valued by community → now a no-one
- The Swan Coastal plain is very popular
- Increasing pressure from tourism
- Shire/city becoming a money making enterprise
- Events capital in last 3-5 years driven by local government
  - Noise pollution
  - Live a couple of blocks from town/beach/main street
  - Events block off town roads
  - Socially has a large impact
- Shire become an enterprise and things are getting done but
  - Not ground up
  - No community consultation
  - Often developer influences
- Jetty rebuilt
- Positive to see it rebuilt
- Negative – as locals we have to pay to walk on our own jetty
- Car park built like a groyne → erosion and eventually removed with Royalties for Regions funding
- Peppermint on foreshore lost 50% of their leaf coverage
  - Salt water intrusion
  - Drought
  - Evidence of a salt lens?
- Increasing level of tree decline
  - Losing a lot of older trees
  - Deep roots used to be in fresh water now in salty water?
  - Insect attack
  - Variety of phytophthora species
  - Marri decline
- We have a marine park now
- Whales in Geographe Bay have doubled in the last 5 years
- Increase in fur seal numbers at Bunker Bay and Cape Naturalist
- Increasing shark population
- More sightings
- More food around for sharks and seals
- More sting rays in Busselton
- More sea stars
- Reducing number of lots of fish (number and variety) now smaller ones
- Now have a marina with no take areas
- Can still fish off the beach but restrictions on boat fishing
- Professional salmon fishery has shrunk to 1 operation in Hamlin Bay/Bunker Bay
  - Economics
  - Restrictions on fishermen
  - No new licences issued
  - Salmon being caught for bait for crayfish
- Need to protect areas for specific use
- Temporarily prevented Perth taking water from Yaragadee

- Busselton water is now incorporated
- Vasse River - Change in water quality
  - has blue green algae which it never had before
  - When kids would go paddling and boating and swimming in Vasse
  - Now can't do any of that
  - Retained water body at butter factory for aesthetic reasons (water feature) changes flow
  - Urban runoff
- Nitrogen in water way
  - Agricultural nitrogen fixed by legumes
  - To solve must stop farming
  - Exacerbated by nitrogen on farms
  - Shift from sub-clovers → ryegrass pastures → more nitrogen dependent
  - Related to soil type and water logging
- Urban-wise
  - A lot of urban areas are on rolling dunes with lakes built on coastal vegetation
  - Now European centred population lawn & rose gardens
  - Leaching sands put nutrients in to the water table
  - Type of people
  - Soil very infertile
  - Smaller block size - On large blocks keep trees → development = concrete
  - In Bunbury there has been a move to have more native gardens
- Busselton airport
  - FIFO
  - Changed social structure
  - Changed rental cost – people can't afford to rent here now
  - Young people (tourism support workers e.g. cook, restaurant worker etc.) can't afford the rent
  - → leave
  - →labour shortage
  - Used to be a large area for Homes West housing – now less areas for low socio-economic group
- More attention to recreation in bush tracks
  - Cape to Cape – last 10-15 years
  - Meelup Regional Park
  - Because more people → more cars
  - Areas use to go are now blocked off
  - Bikes are now a big problem
- Funding national parks to block areas and reopen up
- Not getting much funding for management
- Keep cars off the beach!!
- Intensification
  - Less dairy farms
  - Less farmers
  - = now an employer of people not a family business
- Geocatch encouragement of farmers

- To fence rivers and revegetate
- Farmers have embraced the initiative
- Over-arching corridor – river health
- Awareness raising
- Wine explosion
  - Growing wine
  - Tourism
  - Entertainment
  - Dining
  - Cullen Cullity started the change in 1977
  - Beautiful National Parks before wineries – they were the main attraction
- Biggest attraction is still the coast and fishing
- Forest highway - quick fast access to Perth
  - Makes Busselton closer to Perth
  - More tourists / more development
  - More holiday homes and less caravan parks
- Western Mining did not go ahead to mine at Beelup Beach and there is a stall on coal mining
  - Community stopping coal and gas mining at Margaret River
  - Vineyards, DPAW, Commerce, LGA, whole community = legislation against mining
- Geographe catchment nursery growing tube stock
  - Local indigenous stock
  - Funded through City, Geocatch, Water Corp, DOW and now self-funded
  - Out of Busselton Cape to Cape volunteer group is very effective
- Local aboriginal involvement has been really positive
  - Move in last few years
  - Wardan Centre at Binjadup
- Increase in fire awareness
- Planning system for hobby farmers
- Could have trees → now need >20m round building
- Fire safety – good
- Feeling of bush and habitat – poor

How will a change climate impact?

- Vegetation changes
- Biodiversity will change naturally
- How much do we put into cockatoos etc.?
- But maintain connections
- Increasing impacts of sea level rises on shore line
  - Bunbury – Dunsborough – high interference from
  - Salinity
  - Urban impact
  - Groundwater level
  - → coastal erosion
  - Impact on current developments

- Demand on aquifers will increase
  - Can still get a licence for Yaragadee
  - Leederville – fully allocated
  - Dunsborough supplements water from Busselton
- DPAW must engage social indigenous people in land management
- NRM natural progression for indigenous people
- Want more involvement in National parks
- Training, traineeships and staff employed
- More fires – increase in summer fires
  - Summer storms → More lightning strikes
  - More drying vegetation
  - Increased population not trained to fire management
  - → more likelihood of ignitions both intentionally and unintentionally
- More severe storm events with increasing severity
  - → flooding
  - More storm related erosion
  - Stock
  - Climate mild enough in past but future floods may be a problem
  - Now storm and high water levels in Leeuwin current
- Leeuwin current changing
  - Changing salmon coming into the Bay
  - Temperature warmer
  - Change in temperature seasonally but now going further south
- Sea level rise → flood risk high
  - Busselton drained in early 1900's
  - Now need to block drains to stop sea water coming in
- Balansa clover → increased production
- Increasing temperature
  - Karri forest gone
  - Jarrah forest moving south
  - Some new species from north east in South West
- Warming effect on farms
  - ? use different stock
  - Intensification bring in fodder
  - Change crop → might grow wheat
  - Used to be water logging → opportunity to grow other crops
  - Agriculture will continue but change management
  - Only go if urbanised
  - Or goes into development



## ***Key points of change***

- Vegetation decline
  - Beginning to lose species
  - Being replaced by others
  - As trees go so will the animals
  - Universities seeing signs of some species being resistant to pathogens
  - Research into why those plants are resistant
  - ? greater DNA diversity
  - Government and community interest in what the impacts will be
- Water level rise
- Impact on people's lives
- Busselton >30 000 people amount interested in RNRM is very small
  - Foreshore development had 500 responses
  - People will not take climate change seriously until it smacks them in the face
  - When becomes unpleasant → people who can leave /die → leaving a ghetto
  - Or too expensive to fix
- Get community link to what they do to NRM (e.g. Recreational pursuit → NRM)
- Tourism Busselton/Dunsborough tourists have no awareness of physical environment and social attitudes



# **GEOCATCH (Evening)**

**Location:** Busselton

**Date:** April 3, 2014

**Time:** Evening 6:00pm to 8:00pm

## ***View of the Catchment***

The catchment area discussed by the group was focussed on the rural and urban area around Busselton but included tributaries, the ocean and hinterland.

## ***Community responses***

### **What have you noticed changing – over the last 15 or so years**

- Busselton used to have sloppy winters – drains were put in from Wonerup to Dunsborough from 1920's to drain the slop so they could farm.
- 20-30 years ago there were days when we could not get to the back fence because it was too wet, we grew chokos – they grew themselves – it was VERY wet – now it is mild
- I came in 1976 to be professionally involved in the wetland at the start of a few very dry years and thought I would stay until we have well above average rainfall across the SW
- Rainfall data in 60's very wet years → increased salinity → water levels (missed at monitoring) now very low water levels
- Declining water → increasing salinity (no flushing of system)
- Increasing frequency of high temperatures
- Increasing acidification
- Naturalist excursion areas almost have to get through the scrub → now they are sparse areas of bush between.
- In mid-late autumn areas of understory bush stressed or dying (Whichers Scarp)
- The bush is having such a hard time
- Plains of Beaufortia (red scrub) on scarp near Nannup early in 1990's – took my breath away- I have been in the area but have not seen it since
- Understory becoming sparse, The old timers called it Parkland (clearer understory)
- Roger Underwood talks a lot about the change in areas – Manjimup way
- Bush walking through summer noticed the influx of people in Busselton but not inland. Most of the forest (Whicher Forest) is visited by few people
- High impact on coasts and fish stocks. Modern equipment used to catch lots of fish
- Forests affect but to a lesser extent by
  - Trail bikes

- Rubbish
- Dieback spreading

**What will happen over the next 15-20 years and if the climate continues to change?**

- Disappearance of iconic species
- Naturalist group could tell us what is disappearing – flora
- Dry & hot changes → floristic changes → different ecosystems
- Bush birds –aware of seeing no birds
  - Magpie larks 1968 lots of magpies, mudlarks, and willy wagtails
  - Not seen larks for 2 years
  - Galahs arrived in about 1987 but over the last few years numbers have dropped again
- Major flora & fauna – structure and species change
- People – stress on ground water and pollution
- Bore water is smelly
- 10 years – water pumped from the Yaragadee
- Prescribed burning getting later – increasing risk of fires
- Increased risk of wildfires and severity
- Increase in weeds leads to fires
- Inadequate planning rules and processes – exacerbates fire control issues
- Underground storage of water for fire fighting
- Look at South Australian examples and how they work with the environment
- Fire, population & climate are the biggest risks
- Some wetlands are
  - windows of the ground water
  - surface water accumulation (dish)
- Floodgates
  - Floodgates on exit channel of the Vasse & Wonerup rivers were put in in 1908 they empty into the Geographe Bay
  - Allow outflow but prevent inflow
  - Protect farm land
  - Reduce waterlogging, salinity etc. they were replaced in 1928 & 2004 (\$4 million) by the Water Corporation
  - Their greatest value is protecting the lower lying areas in Busselton
  - Busselton was once completely wet
  - Local farmer very distressed with salt levels – one summer too much salt water was let in and flooded his land – then there was a prolonged time of fresh water flooding due to the Wonerup sand bar being in place.
  - If the area was flushed out it would reduce fish deaths
- Vass River flowed through the town in 1920's a diversion dam was constructed on the river so water drains into Geographe rather than the town
  - Big problems with pollution going through near the high school
- Tree plantings – such a good idea of corridors & fenced off areas.

## Opportunities – what can be done?

- Preparedness for fire –
  - Education – firebreaks
  - Attitude – unless people are ingrained – no legislation works
- We can inspire people – NRM needs to come from the heart
- Farmers
  - Link to farmers is essential – treat them with respect
  - It is a way of life
  - They have a specific culture
- Fertilizers
  - Farming nutrient runoff into bay and wetlands
  - Geocatch done a good job in this area
  - Will this get worse?
  - Dairy farmers going out of business
  - Better fertilizers, better education, reduction in runoff levels, Geographe Bay mostly affected by farmers
  - Urban runoff is increasing – drain smells – not chemical – rotting
- Citizen Science
  - Monitoring fish program – didn't want people involved (Need people to do the right thing) – believe in Citizen Science
  - Big Citizen Science – Bird Program in Bridgetown for example
  - Jim Masters monitoring the Avon water quality
    - Set up a culture and standard
    - Gentle and many people adopted change
    - Lost all information in a fire. However he had shared the information so people gave it back
    - NOTE Monitor data should be backed up in 4 places

# GEOCATCH SYSTEM DIAGRAM (Evening)

GEOCATCH  
 Busselton  
 April 3, 2014 evening

- Themes
- Component of system
- Positive opportunity/good change
- Negative impact/influence

