Massey University

MARITIME NEW ZEALAND

Reconnaissance and Communications

Oiled Wildlife Response Course 21st – 23rd June 2006

New Zealand Wildlife Health Centre

Jim Lilley

Maritime New Zealand

Te Kunenga ki Pūrehuroa

Institute of Veterinary, Animal and Biomedical Sciences

Overview

- Pre-spill identification of wildlife resources at risk
- In-spill surveillance
  - reporting & SCAT
- Equipment
  - spotting scope, GPS, digital stills & video
- Radio communications & cellphones

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Pre-spill identification of resources at risk

- Documents and databases
  - Coastal Resource Inventory, OSNZ bird atlas, Oil Spill Response Atlas (under development), regional Coastal Plan, etc.
- Local knowledge
  - Individuals, organizations and institutions
- Tier 2 Oil Spill Contingency Plans need to capture these sources of information and facilitate their availability during a response

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- Resource mapping
  - Shoreline types
  - Pre-spill segmentation
  - On-site information capture
  - Wildlife resource mapping?

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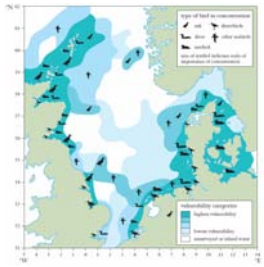

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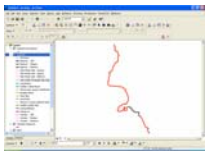

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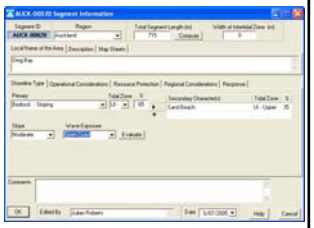

In-spill reconnaissance and surveillance

- Event assessment & Response Action Plan
- Joint operations with spill reconnaissance/SCAT?
- Wildlife-specific reconnaissance
- Search and collection
- ad hoc responder & public information

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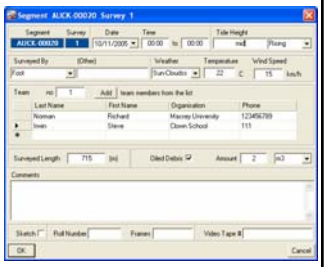
- SCAT
  - Shoreline survey
  - Semi-quantitative descriptors of oiling
  - Formal process of documentation
  - Overview by integration of segments
  - Dynamic process - time, weather, inputs, cleanup



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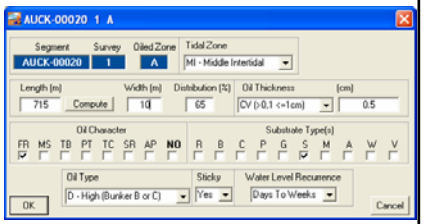

Information Needs

1. Wildlife
   a. Numbers and species present
   b. Proportion oiled, degree of oiling & incapacity
2. Habitat
   a. Degree of impact on quality and availability of roosts, feeding sites and feed resources
   b. Continuing risk of oil exposure
   c. Operational access and response work environment
   d. Availability and suitability of release sites
3. Human
   a. Impacts and risks posed by response operations
   b. Operational safety

Objectives of Search & Collection

- No. 1.: Safety of responders, welfare of wildlife, & protection of significant conservation values.
- Provide information:
  - Scale, costs & logistic demands anticipated
  - Locations for deployment of resources
  - Expected species & numbers of casualties
- Collection of dead oiled casualties
- Being seen to care

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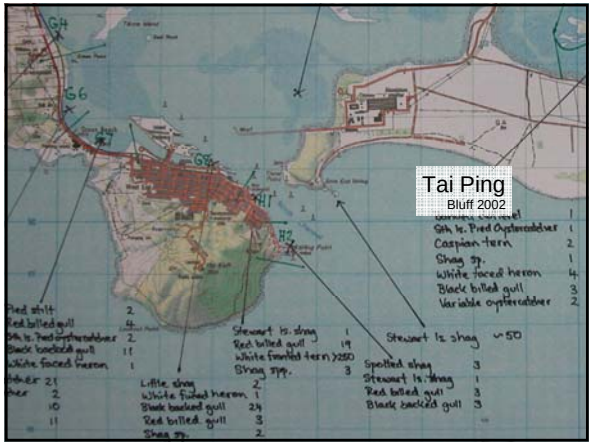

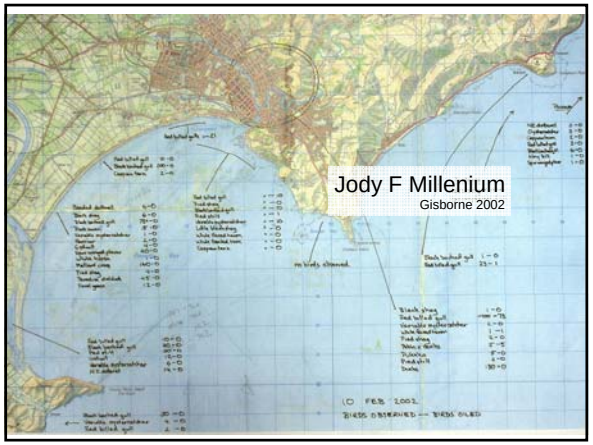


Jody F Millenium
Gisborne 2002
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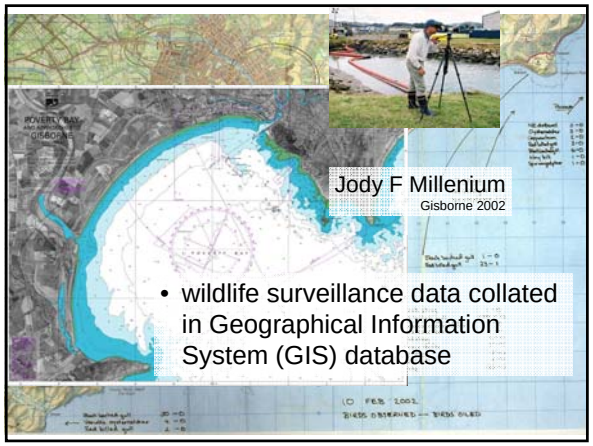
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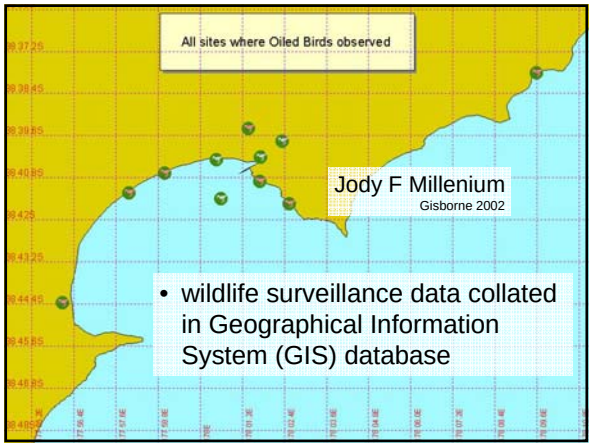
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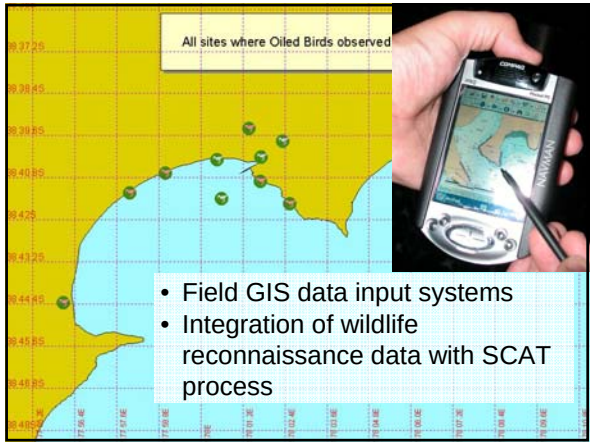
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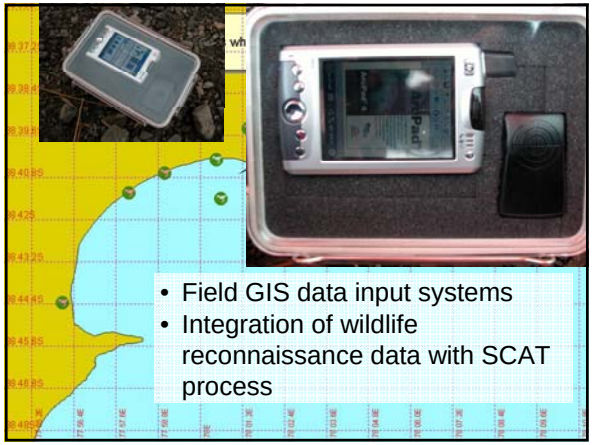
• Integration of wildlife reconnaissance data with SCAT process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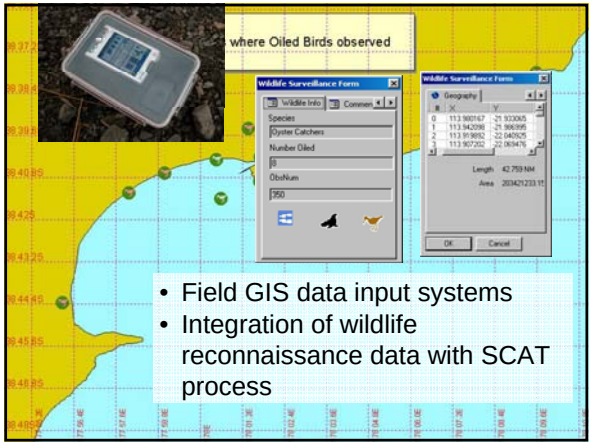
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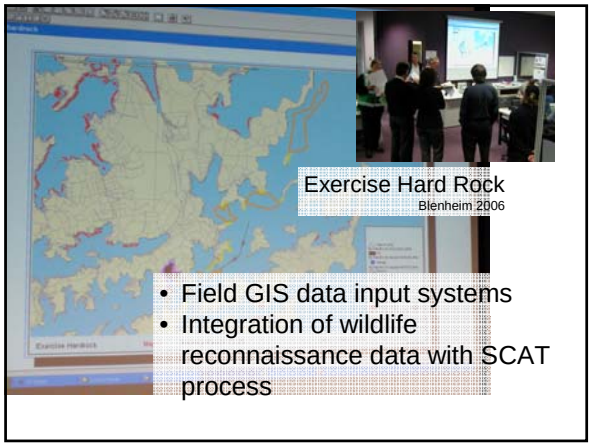

- Field GIS data input systems
- Integration of wildlife reconnaissance data with SCAT process

Access

- Triage process: begins on the map
- Access and disturbance
- Logistics: match shoreline and terrain
  - Foot
  - Vehicle
  - Watercraft
  - Air?


- Communications & followup capabilities

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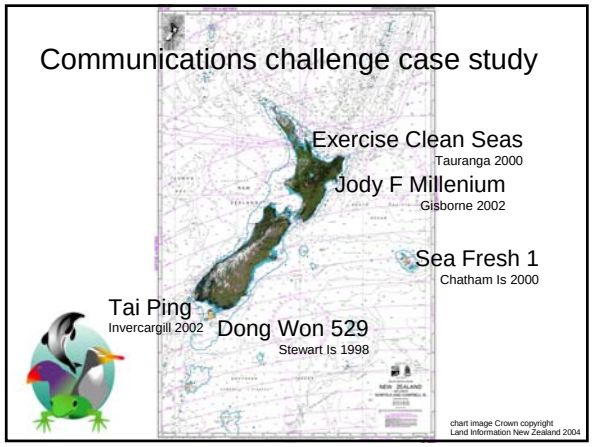
- Equipment
  - Observation
  - Localisation
  - Documentation
  - Communication

Identification & Assessment

- Triage process: first at a distance
- Disturbance
  - Welfare & “queering the pitch” for capture operations
- Assessment criteria
  - Visibly oiled and/or incapacitated
  - Detectable contamination/behavioural signals
  - “not sure”
- Rules of engagement?
  - Flexibility in predetermined guidelines on capture
  - Immediate means of communications to coordinate advice, resources or assistance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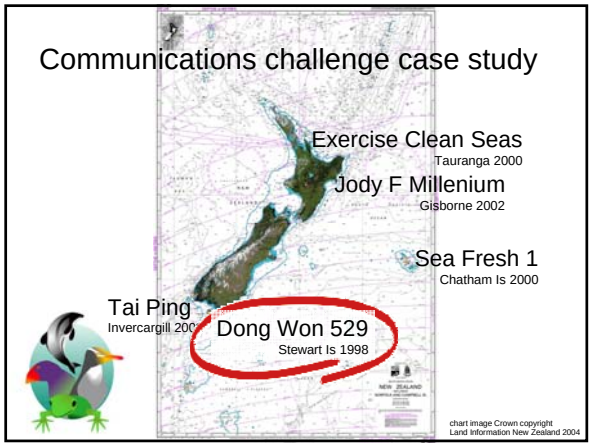
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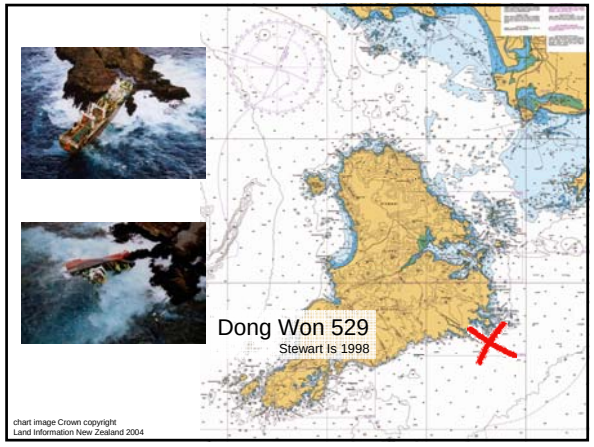
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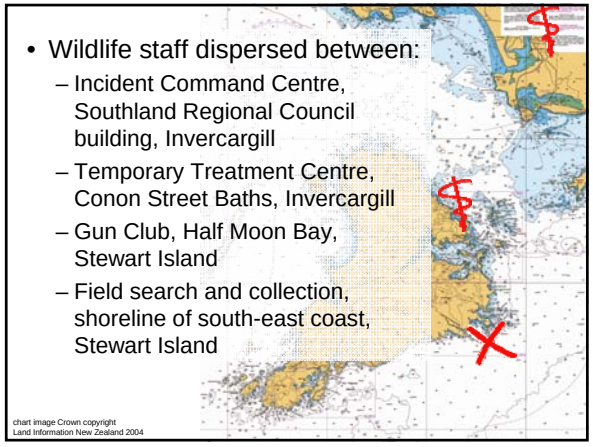
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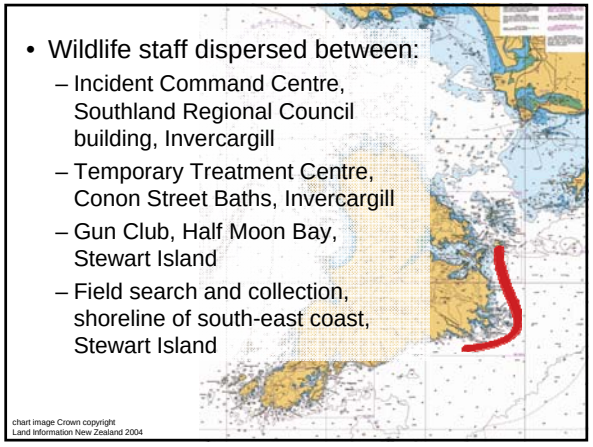
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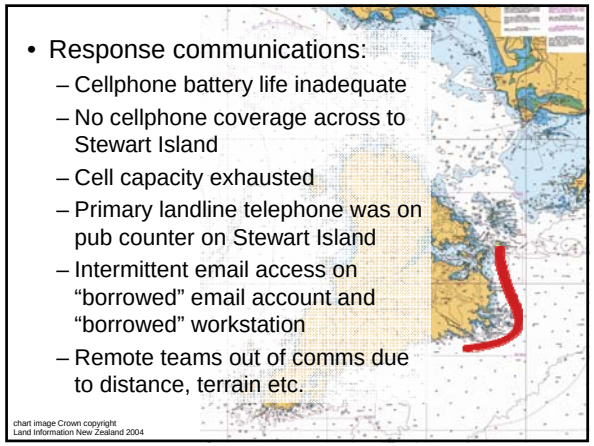

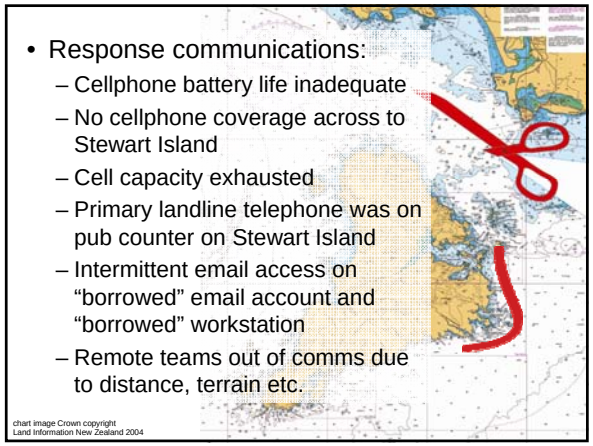

Voice Communications

- Cellphones
  - High call cost: use a landline if possible
  - Unreliable geographical coverage
  - Limits of cell call capacity reached easily
  - Good battery discipline essential
  - Eavesdropping less likely in digital broadcast, but still possible

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Voice Communications

- UHF Radio – PRS or CB
  - No operator license required
  - Relatively low cost handsets available
  - Short distance, line of sight communications
  - Applications for communications within facilities or amongst members of a beach crew
  - Public broadcast so no privileged information should be uttered

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Voice Communications

- VHF radio
  - Privileged use of Emergency Services Band (with Police, Fire, etc.) on land
  - Maritime Radio channels for on-water use
  - Line of sight
  - Repeaters available to extend range
  - Eavesdropping less of a problem but still regarded as a public broadcast medium
  - Correct voice procedure required

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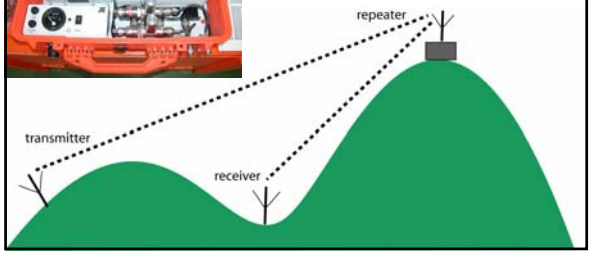
VHF Radio Propagation

- Radio waves travel in straight lines; hence "line-of-sight".
- Radio waves generally leave the transmitter parallel to the ground, so if the receiver is over the horizon (11 miles), the receiver will not hear the transmission

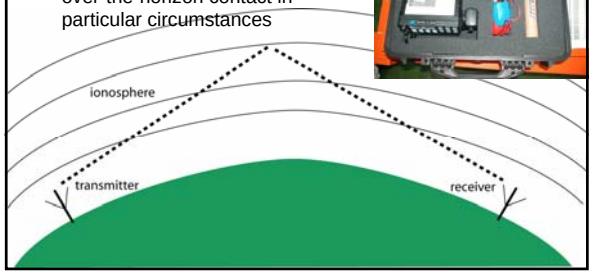
VHF Radio Propagation

- Radio 'shadows' in gullies and valleys can be overcome by employing a repeater.



HF Radio Propagation

- High Frequency radio has different propagation properties, and allows over-the-horizon contact in particular circumstances



Handheld Voice Communications

	cellphone	*PRS "CB"*	*Marine*	*ES Band*
EM spectrum	UHF	UHF	VHF	VHF
Licensing	none	general	general	agency
Hardware cost	low	low	low/high	high
Useage cost	high	none	none	none
Range	very high	1 – 5 km	20 km	20 km + repeaters
Coverage	patchy	everywhere	maritime	everywhere
Terrain effects	high	high	moderate	moderate
Portability	high	high	high	high
Privacy	moderate	public	public	moderate
Battery life	low	moderate	moderate	moderate

VHF Radio Voice Procedure

- Enunciate words slowly, clearly, and speak simply
- Announce three times who you are and who you are calling
- Use "over" to indicate you have finished what you are saying and expect a reply
- Use phonetic alphabet to enhance clarity if transmissions are unclear
- Say numbers as digits e.g. 589 is read as "five – eight – nine"
- If in doubt, say again
- Safety or lives may depend on certainty in communication so avoid casual technique.

Questions

VHF Radio Voice Procedure

- Set the handset to the channel allocated for your task
- Before you begin to speak:
  - **Listen**: someone may already be using the channel
  - **Think** what you are going to say

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VHF Radio Voice Procedure

- Hold the radio at a 45 degree angle about 3-4 inches from the mouth to speak

VHF Radio Voice Procedure

- Press the PTT (Press-To-Talk) button, then begin your transmission

Voice Procedures

- When crisis strikes you will have other things on your mind and it will be too late to remember how to 'do it properly'
- Ultimately the safety of colleagues and the welfare of wildlife may depend on you getting it right first time
- Some of them seem laborious and slow, but this is designed to help understanding when radio conditions are poor

Voice Procedures

- Turn the radio on and select a channel. (You would be briefed before going into the field as to which channel to use)
- **LISTEN**. Others may be using the channel for messages more urgent than your own
- **THINK**. Prepare what you are going to say before you transmit, be succinct
- Hold the radio as described earlier, press the Transmit button to talk. Release the Transmit button to listen to the reply

Voice Procedures

- When not transmitting, be careful not to hold the Transmit button down at all times. If this button is being held down by mistake, it prevents any other person from transmitting any messages
- When making your first transmission to anyone, always repeat the destination call sign 3 times

Important Radio Words

THIS IS:
Used to separate the target's call sign from your own

OVER:
To indicate you have finished speaking and expect a reply

OUT:
To indicate the transmission is complete, a reply is not expected

ROGER:
I understand your message. *IT DOES NOT MEAN "YES"*

Important Radio Words

AFFIRMATIVE:
Means 'yes'

NEGATIVE:
Means 'no'

STANDBY:
Wait, I have to leave the radio to comply with your request

CONFIRM:
Generally to repeat important details to ensure clarity

CORRECT:
Your last statement was correct

Important Radio Words

SAY AGAIN (ALL BEFORE/AFTER):
I could not understand all or part of your last message, please repeat. (This can be used to repeat the whole message or that portion only that you did not receive)

I SPELL:
I am about to use the phonetic alphabet (to overcome confusion or poor radio reception)

Phonetic Alphabet

A:	Alpha	AL FAH
B:	Bravo	BRAH VOH
C:	Charlie	CHAR LEE
D:	Delta	DELL TAH
E:	Echo	ECK OH
F:	Foxtrot	FOKS TROT
G:	Golf	GOLF
H:	Hotel	HOH TELL

Phonetic Alphabet

I:	India	IN DEE AH
J:	Juliet	JEW LEE ETT
K:	Kilo	KEY LOH
L:	Lima	LEE MAH
M:	Mike	MIKE
N:	November	NO VEM BER
O:	Oscar	OSS CAH
P:	Papa	PAH PAH

Phonetic Alphabet

Q:	Quebec	KEH BECK
R:	Romeo	ROW ME OH
S:	Sierra	SEE AIR RAH
T:	Tango	TANG GO
U:	Uniform	YOU NEE FORM
V:	Victor	VIK TAH
W:	Whiskey	WISS KEY
X:	X-ray	ECKS RAY

Phonetic Alphabet

Y:	Yankee	YANG KEY
Z:	Zulu	ZOO LOO
0:	Zero	ZEE ROH
.:	Decimal	DECIMAL

Transmitting Numbers

- During an oiled wildlife response, you will need to transmit numbers over the radio.
- You may have surveyed an area and counted 589 birds. This is not put over the radio as 589, but as individual numbers: "We have counted 5 – 8 – 9 birds, over.

Transmitting Numbers

- You will generally have a GPS with you and you may be at the following position:
- 43° 85.97'S 174° 52.48'E. This position would be transmitted as:
- We are at 4 – 3 degrees 8 – 5 decimal 9 – 7 minutes south; 1 – 7 – 4 degrees 5 – 2 decimal 4 – 8 minutes east.
- This is very important, especially if you or your team is in difficulty

Sample Radio Call

- The first part of a radio transmission seems very formal, but it is important that it be done correctly. For example:

1. "Wildlife 1, wildlife 1, wildlife 1, **THIS IS** wildlife 2, do you receive, **OVER**
2. Wildlife 2 **THIS IS** wildlife 1, go ahead **OVER**
3. Wildlife 1, we are at 4 – 3 degrees 8 – 5 decimal 9 – 7 minutes south; 1 – 7 – 4 degrees 5 – 2 decimal 4 – 8 minutes east, **OVER**

Sample Radio Call

4. "Wildlife 2, copy that, how many birds have you counted, **OVER**
5. "We have counted 5 – 8 – 9 birds, **OVER**
6. "Wildlife 2, copy that, what are your intentions, **OVER**
7. "We are going to break for lunch, **OVER**
8. "Wildlife 2, roger, **OUT**

VHF channel programming

- ES band (DoC) *12.5kHz channel spacing*
  - ESB 116 Rx 142.5000 Tx 139.4500
    to
  - ESB 124 Rx 142.5500 Tx 139.5500
  - ESB 154 Rx 142.5500 Tx 139.9250
    to
  - ESB 157 Rx 142.9625 Tx 139.9625
- Maritime Mobile *25 kHz channel spacing*
  - MM1 Rx 160.6500 Tx 156.0500
    to
  - MM88 Rx 162.0250 Tx 157.4250
- Land Mobile *<12.5 kHz deviation*
  - EEX 87 5 w, simplex, all of New Zealand