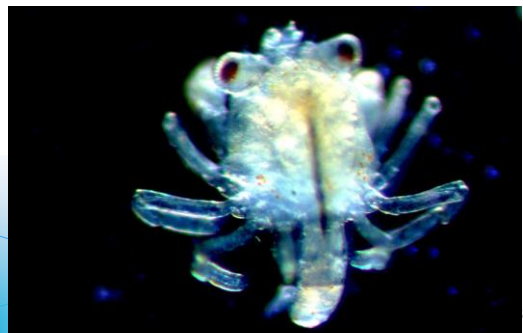
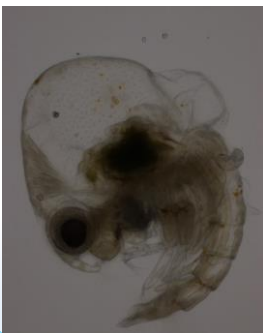


OUTLINE

What is Ecology?
Terrestrial Ecology
Freshwater Ecology
Marine Ecology

What is Ecology?

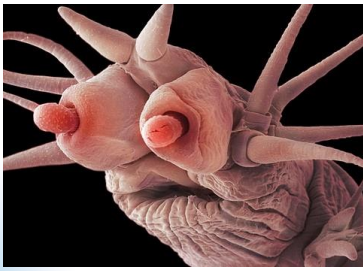




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Terrestrial Ecology



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Ecology Toolbox			Invasiveness and Detail
Level 1	Desktop assessments	Literature review Google Earth GeoMaps – Auckland Council GIS viewer SEA Information Animal database search - Reptile Atlas (DOC) - Freshwater Fish Database (NIWA)	Low
Level 2	Field observation	Reptile Survey Bat Survey Bird Survey Plant Lists Stream Identification	
Level 3	Sample collection and testing	Water Quality Sediment Quality Macroinvertebrate Collection Stream quality using SEV, MCI, ECR Shellfish Collection Fish Survey	
Level 4	Animal capture and relocation	Lizard capture and relocation Fish relocation	High

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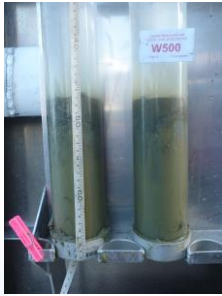
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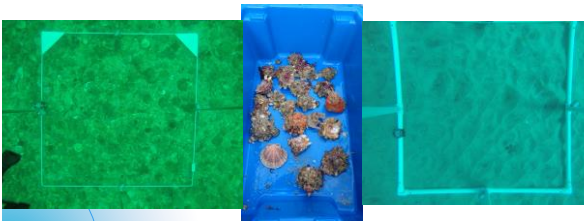
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OUTLINE
What is Ecology?
Terrestrial Ecology
Freshwater Ecology
Marine Ecology

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Questions?



Break

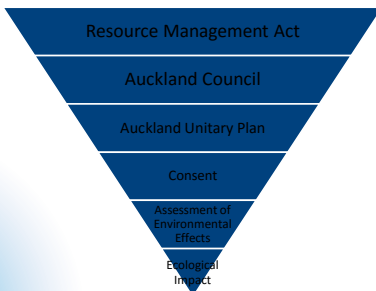


Ecology
Assessment of Environmental Effects
 10 August 2017



OUTLINE

Legislative Framework
 Ecological Impact Assessment
 Auckland Airport Case Study



Project Stages	Ecological Impact Assessment Stages	Consenting Stages
Early Design	Desktop Scoping Level 1	Consent Scoping
Developed Design	Detailed Investigation Level 2 and 3	Other technical investigations
Revised Design	Assessment of Effects	
Final Design	Mitigation Options Level 4	Consent application including AEE





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KEY
Northern Area of Influence (NAI)
Southern Area of Influence (SAI)

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Ecology Toolbox		Invasiveness and Detail
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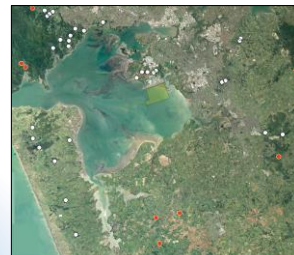


KEY
Northern Area of Influence (NAI)
Southern Area of Influence (SAI)

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Species	Threat Category*	Threat Status*	Footprint
Copper skink (<i>Oligosoma aeneum</i>)	Not Threatened		✓
Ornate skink (<i>Oligosoma ornatum</i>)	At Risk	Declining	?
Moko skink (<i>Oligosoma moko</i>)	At Risk	Declining	?
Shore skink (<i>Oligosoma smithi</i>)	At Risk	Naturally Uncommon	?
Plague skink (<i>Lampropholis delicata</i>)	Unwanted Organism		✓
Forest gecko (<i>Mokopirirakau granulatus</i>)	At Risk	Declining	x
Pacific gecko (<i>Dactylocnemis pacificus</i>)	At Risk	Relict	x
Elegant gecko (<i>Naultinus elegans</i>)	At Risk	Declining	x
Raukawa gecko (<i>Woodworthia maculata</i>)	Not Threatened		x
Green and golden bell frog (<i>Litoria aurea</i>)	Introduced		?
Southern bell frog (<i>Litoria raniformis</i>)	Introduced		?

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KEY
Bat record (survey effort: 2014-2016)
No bats (survey effort: 2014-2016)
Northern Area of Influence (NAI)
Southern Area of Influence (SAI)

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Project Stages	Ecological Impact Assessment Stages	Consenting Stages
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KEY

- Northern Area of Influence (NAI)
- ✕ SEA-M1
- Southern Area of Influence (SAI)
- ✕ SEA-M2
- ✕ Northern SEA
- Sampling Station (Buffs Island 2016)

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KEY
 Northern Area of Influence (NAI) X SEA-M1
 Southern Area of Influence (SAI) X SEA-M2
 X Terrestrial SEA
 X Sampling Station (Buffs Island 2016)

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Project Stages	Ecological Impact Assessment Stages	Consenting Stages
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Final Design	Mitigation Options Level 4	

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OUTLINE

Legislative Framework
 Ecological Impact Assessment
 Auckland Airport Case Study

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Questions?

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End

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