Desalination Plant Site Selection To Support Marine Spatial Planning of San Diego County

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MS GIS PROGRAM
University of Redlands
Introduction

- A possible answer to deal with water crisis
- Environmental
- Economics
- Energy consumption

Southern Seawater Desalination Plant at Binningup WA (Source: Water Corporation, WA)
Introduction
To Identify suitable sites at San Diego for desalinization plant development
Proposed Solution

To develop a set of ArcGIS tools to identify suitable sites for desalinization plant through multi-criteria analysis
Multi-Criteria Analysis

Required Criteria
1. Pre-Selection Criteria
2. Weighted Overlay Criteria

Optional Criteria
1. Preference Selection
# Suitability Tool Design

<table>
<thead>
<tr>
<th>Pre-selection</th>
<th>Weighted Overlay</th>
<th>Preference selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landuse = Vacant Areas within 10 km</td>
<td><strong>Proximity to</strong></td>
<td>Recreation Centers, Forest Conversation, Environmentally-Sensitive, Agricultural-preserve, Planned Landuse, Light Industry, Utilities, Mix Use</td>
</tr>
<tr>
<td>Exclude: Military Areas, Earthquake Faults, Soil Liquefaction, Open Spaces</td>
<td>Sensitive Habitat, Water Network, Waste Facilities, Coastline, Earthquake Faults, Power Station, Population density</td>
<td></td>
</tr>
</tbody>
</table>
Pre-selection

Landuse = Vacant Areas within 10 km of Coastline
Exclude Sites
Weighted Overlay

Proximity to

- Earthquake Fault
- Waste Facilities
- Water Network
- Coastline
Weighted Overlay

- Population Block Group
- Power Plant ED
- Sensitive Habitat
Suitable Sites

Higher value refer to more suitable sites
Suitable Sites

Higher value refer to more suitable sites
Preference Selection
Summary

• Three Sets of Criteria
• Weighted Overlay
• Visual Assessment of Results
• Updated data is required for true outcome
Thank You

Special Thanks to the Maritime Alliance and SanGIS

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