

# UCSD, GIS & You

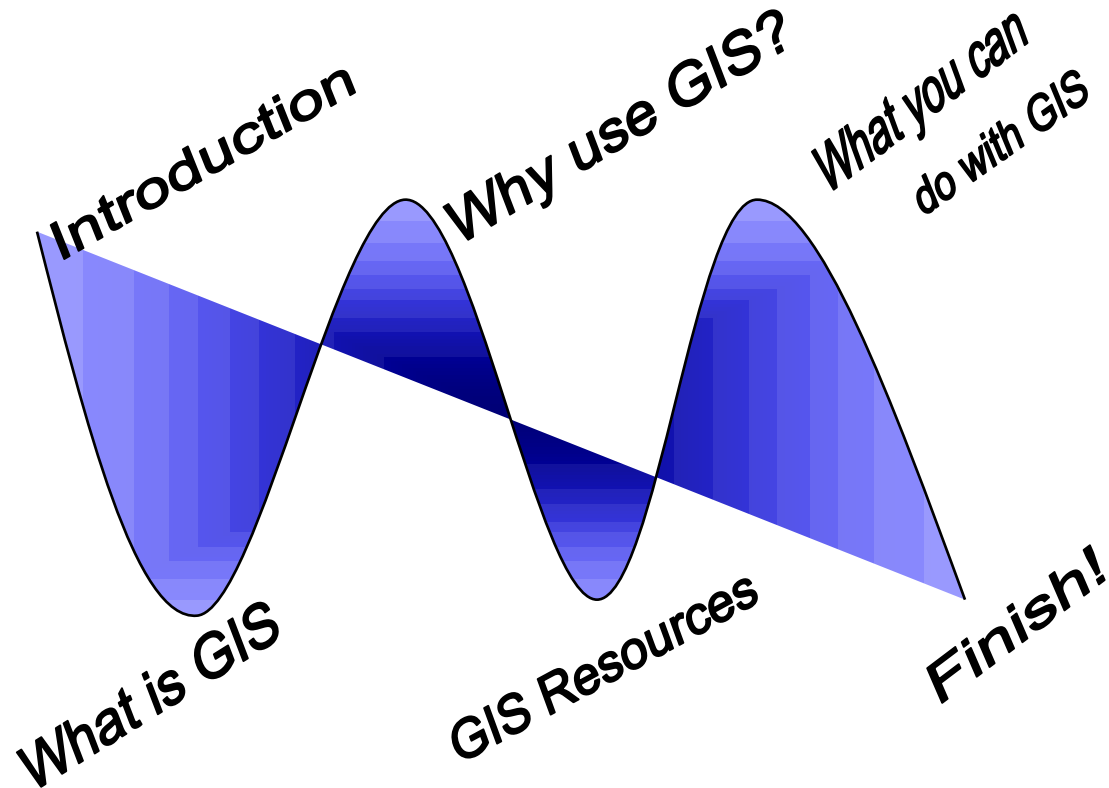
Geographic Information Systems (GIS) @



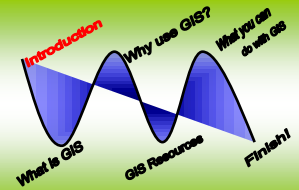
UCSD Libraries

Here to help you explore our world...

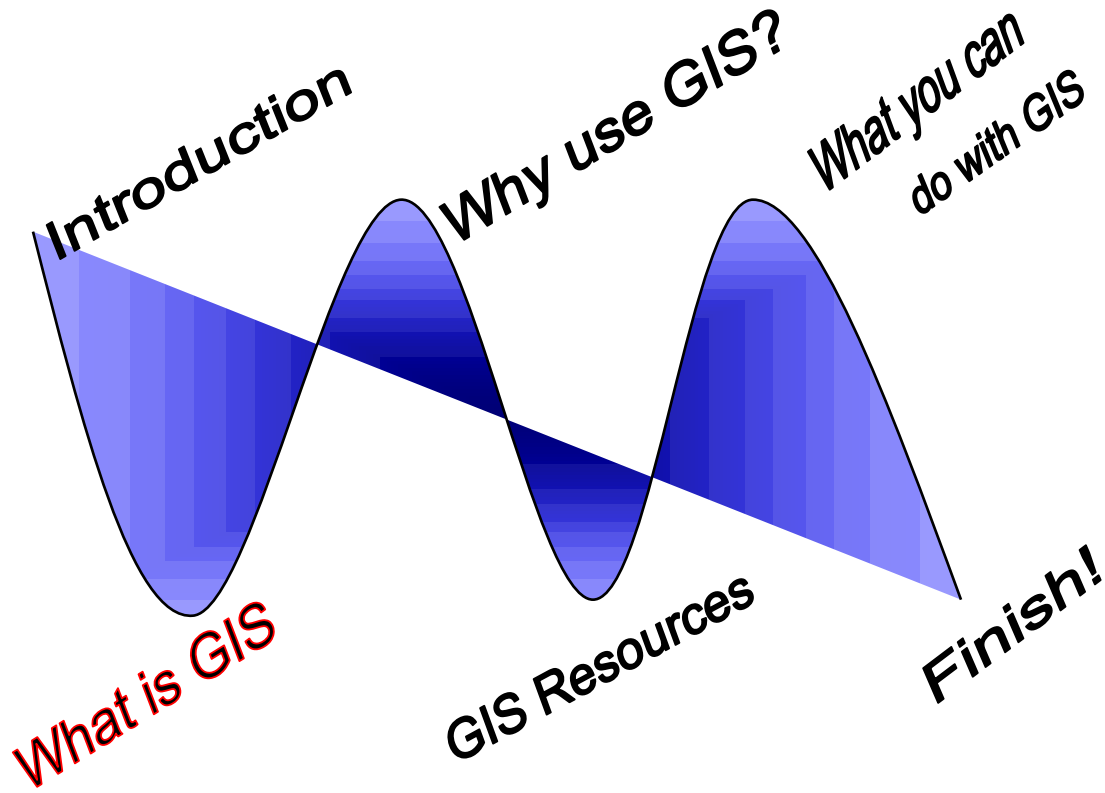
# Our Plan of Action



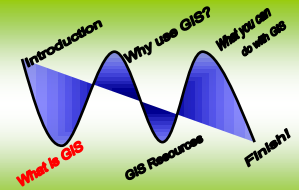
# Introduction



- GIS Coordinator
- Librarian
- Information Professional
- AICP Planner

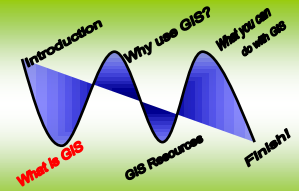


# What GIS is...



- **G**eographic **I**nformation **S**ystem...or **S**cience
- Spatial mindset
  - Spatial analysis
  - Visualization in 2D, 3D, or 4D
- Implement with software tools i.e. ArcGIS

# See things in a new way...



Percentage of  
population  
below poverty  
level viewed as  
height

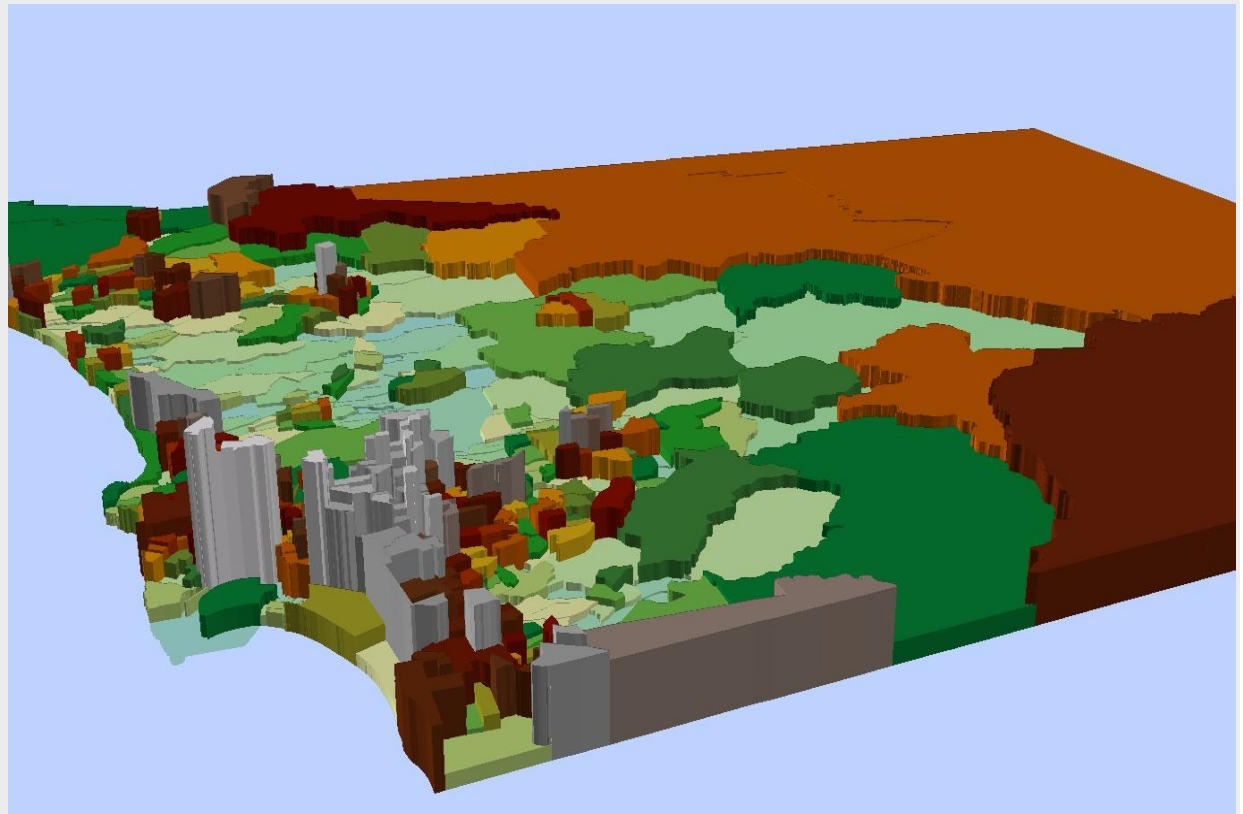
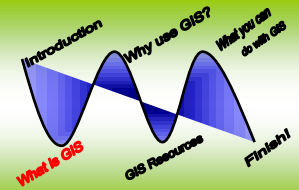
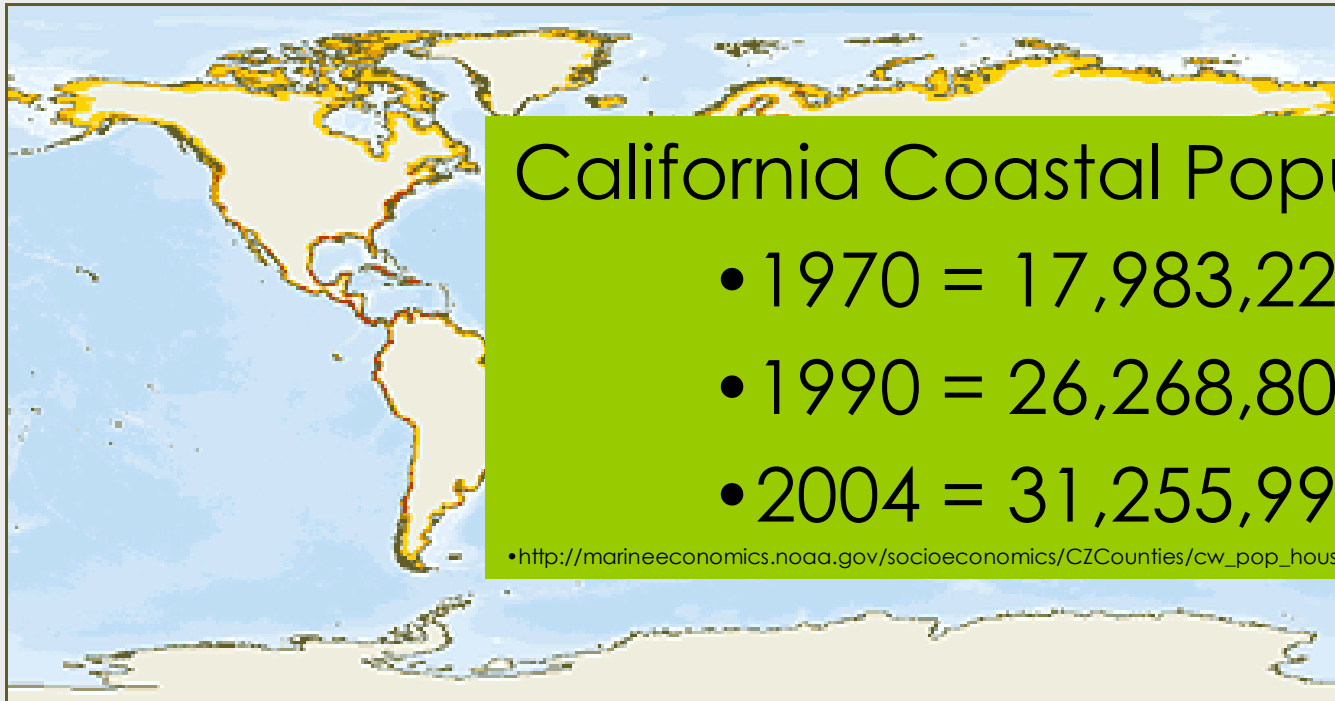


Image created by TELESIS with UCSD's Regional Workbench Consortium

# Another perspective



- Global population w/in 100km of coast



## California Coastal Population

- 1970 = 17,983,220
- 1990 = 26,268,804
- 2004 = 31,255,993

• [http://marineeconomics.noaa.gov/socioeconomics/CZCounties/cw\\_pop\\_housing/cw\\_mainpage.html](http://marineeconomics.noaa.gov/socioeconomics/CZCounties/cw_pop_housing/cw_mainpage.html)

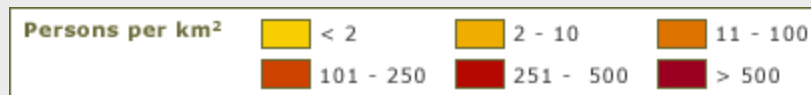
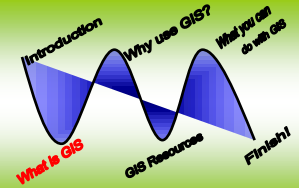


Image from [http://earthtrends.wri.org/maps\\_spatial/maps\\_detail\\_static.php?map\\_select=196&theme=4](http://earthtrends.wri.org/maps_spatial/maps_detail_static.php?map_select=196&theme=4)

# How GIS relates to **you**



## Visualize, explore and shape environments

### Built environments

- Urban & regional planning
- Economic & community development
- Architecture
- Culture

### Natural environments

- Science
- Environmental justice
- Earth
- Atmosphere
- Ocean

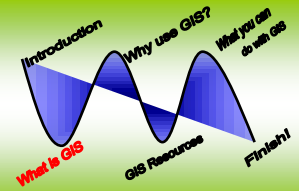
### Social environments

- Education
- Social equity
- Policy



Image from  
<http://oceanexplorer.noaa.gov/technology/tools/mapping/mapping.html>

# Representation of the 'real' world



- Layers with attributes
- Attributes can be almost anything
- Two main data types
  - Raster
  - Vector

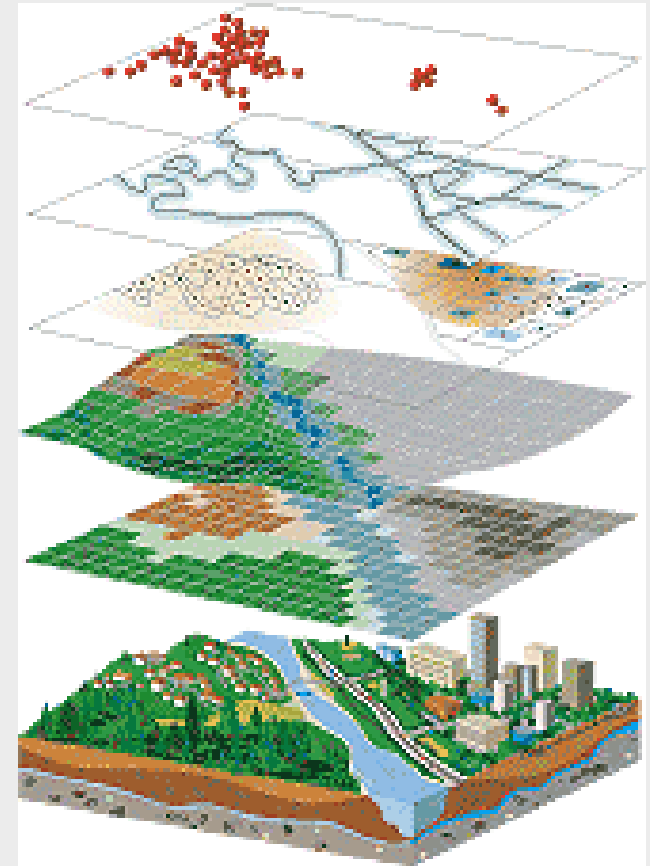
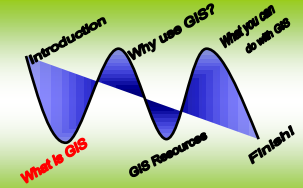


Image from ESRI



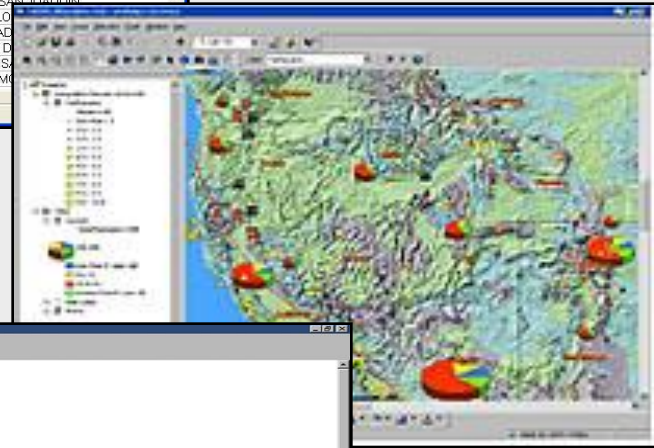
# Three 'views' of GIS



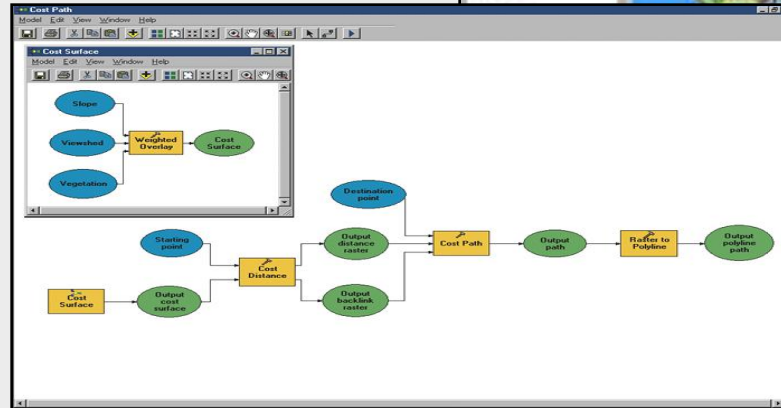
- Database

ID	ZIP_CODE	CITY	STATE	AREA_CODE	CITY_ALIAS_NAME
1	00501	HOLTSVILLE	NY	516	HOLTSVILLE
2	00501	HOLTSVILLE	NY	516	IRS SERVICE CENTER
3	00544	HOLTSVILLE	NY	516	HOLTSVILLE
4	00544	HOLTSVILLE	NY	516	IRS SERVICE CENTER
5	00601	ADJUNTAS	PR	787	ADJUNTAS
6	00601	ADJUNTAS	PR	787	JARD DE ADJUNTAS
7	00601	ADJUNTAS	PR	787	URB SAN JOAQUIN
8	00602	AGUADA	PR	787	EXT LO
9	00602	AGUADA	PR	787	AGUAD
10	00602	AGUADA	PR	787	ALTS D
11	00602	AGUADA	PR	787	URB IS
12	00602	AGUADA	PR	787	URB M
13	00602	AGUADA	PR	787	URB M

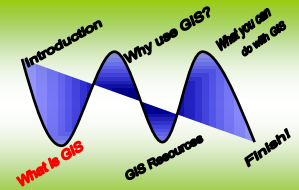
- Map



- Model

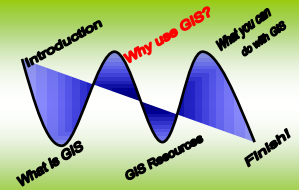


# The GIS Process



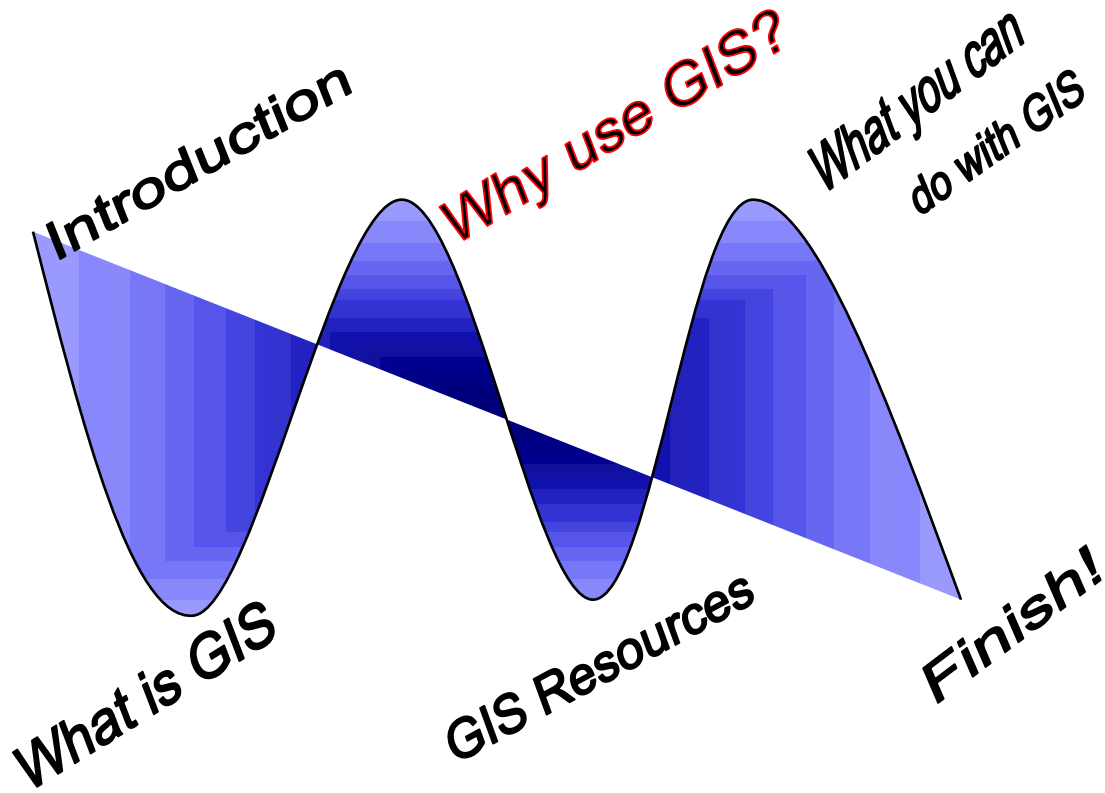
- Ask a question
- Obtain necessary data
- **Determine best method of analysis**
  - **Temporal**
  - **Spatial**
  - **Attribute**
- Analyze
- Present results

# Why use GIS?

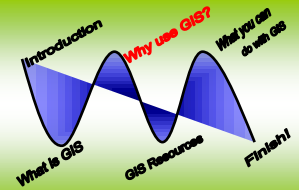


**Communicate.  
Sell your position.**

**...as the saying goes, a picture is worth a  
thousand words!**

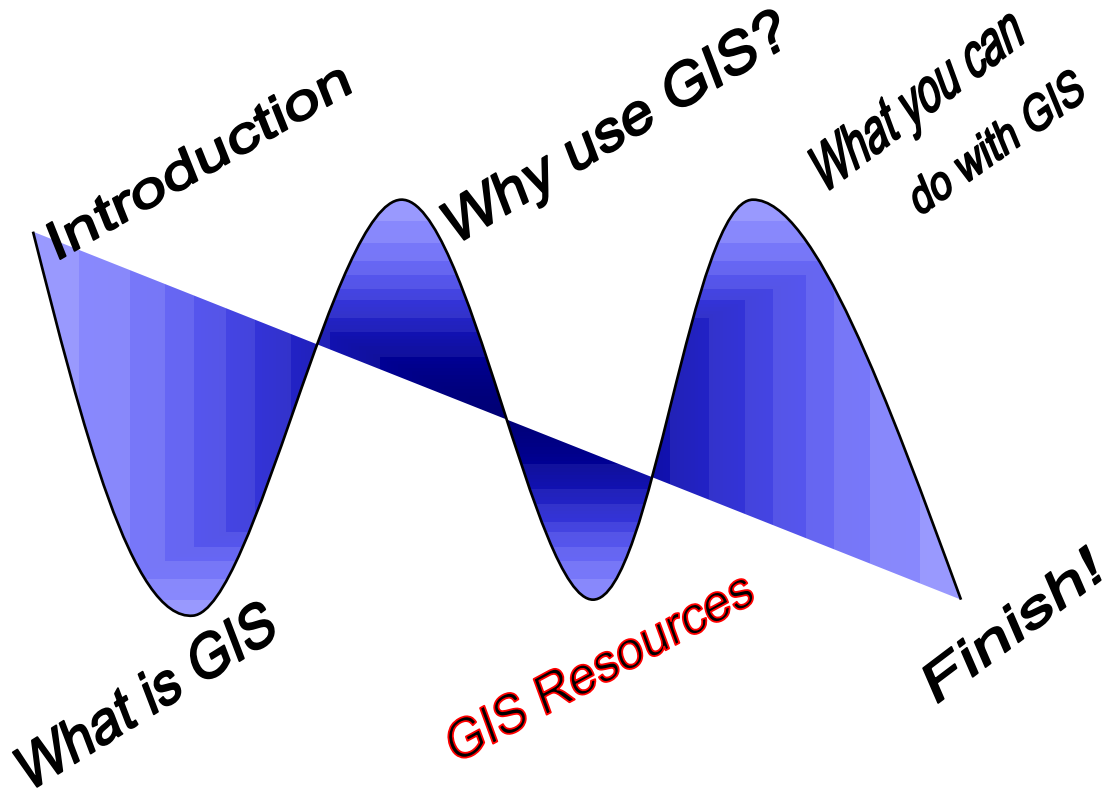


# GIS Jobs!

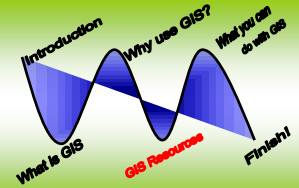


**“...People with the skill to use GIS are in demand** across a broad range of professions, in government, business and nonprofit organizations nationwide. “

*(University of Texas at Arlington School of Urban and Public Affairs website)*

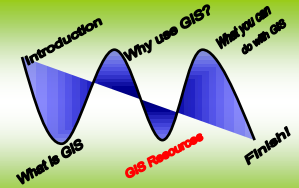


# GIS Resources

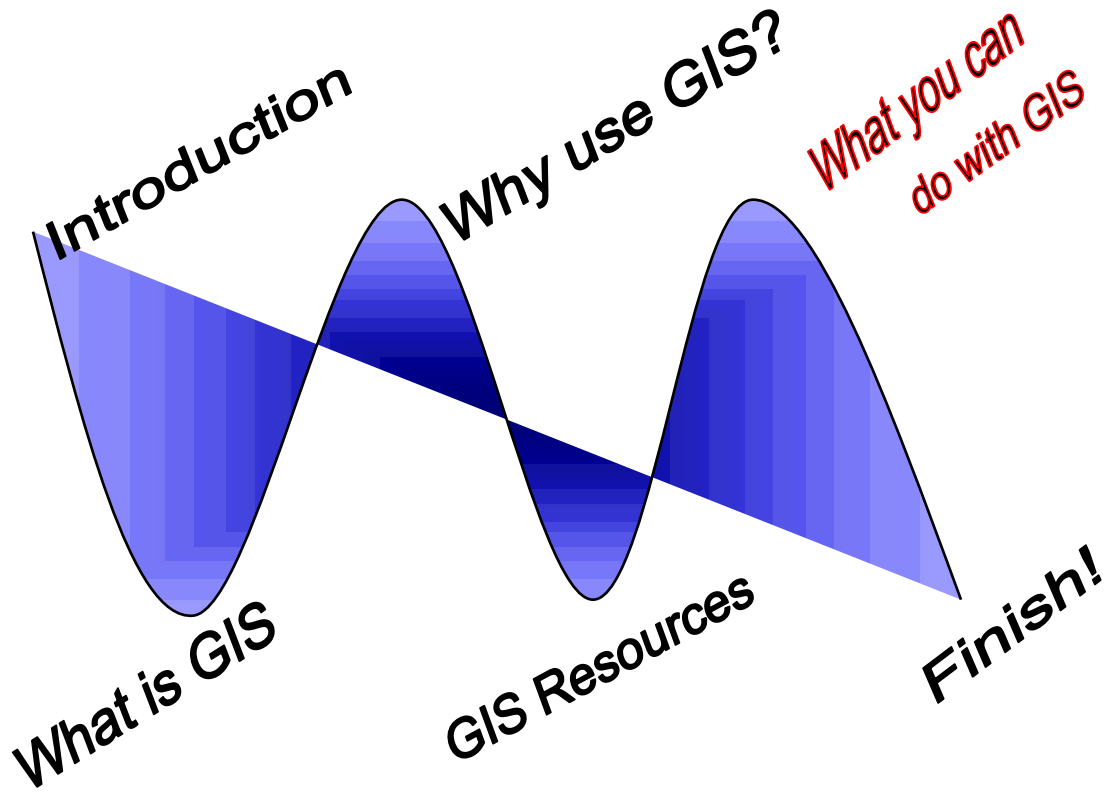


- **Geisel GIS Lab**
  - Computers, printers, scanner
- **Instruction**
  - Online & workshops
- **Software**
  - ArcGIS Desktop & Google Earth PRO
- **Data**
  - Some already there, some in progress
- **Community**
  - Lunches (mark your calendar for May 15!)
- **Me!**

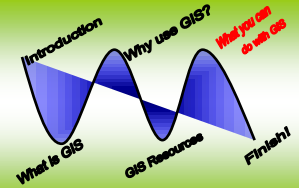
# GIS Resources



- Free consultations to determine how GIS can fit with your project
- Free tailored assistance with data collection & analysis
- Free poster printing if you use GIS in your research

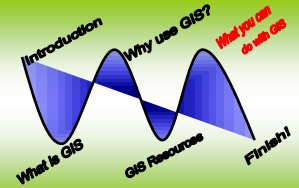


# What YOU can do with GIS



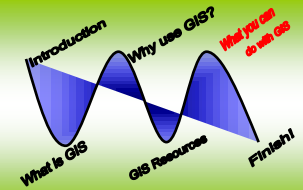
- Turn Excel files and tables into GIS data
- Turn Census Resources into GIS data
  - American FactFinder
  - National Historical Geographic Information System (<http://www.nhgis.org/>)
- Lots of San Diego data available!!
  - <http://www.sandag.org>
  - <http://www.sangis.org>
  - In the Geisel GIS Lab

# What YOU can do with GIS (continued)



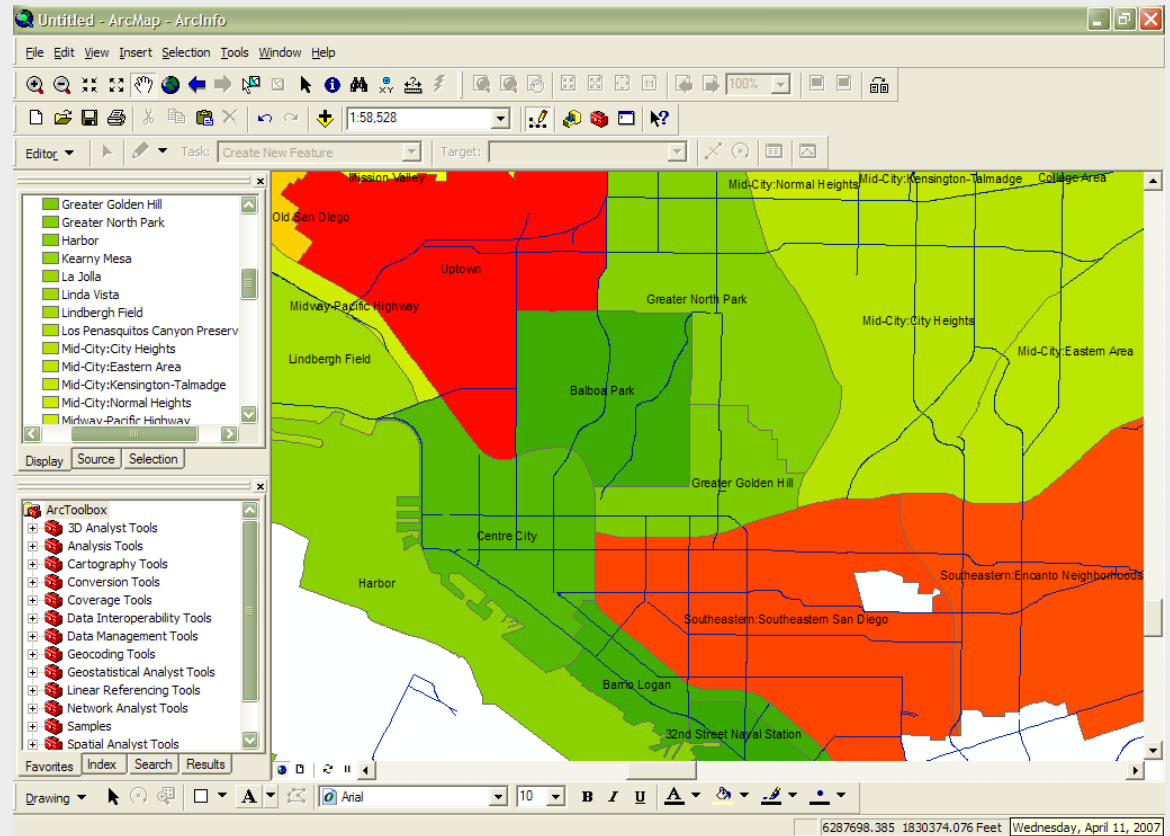
- **Examples from SANDAG**
  - Land Use (mid 1980s – Present)
  - Community Planning Areas
  - Transit Routes & Stops
  - Hospitals
  - Schools
- **Examples from SanGIS**
  - Zoning
  - Parcels
  - Parks
  - Business Enterprise Zones

# What YOU can do with GIS (continued)

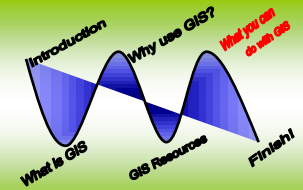


- **Community Planning Areas with roads...**

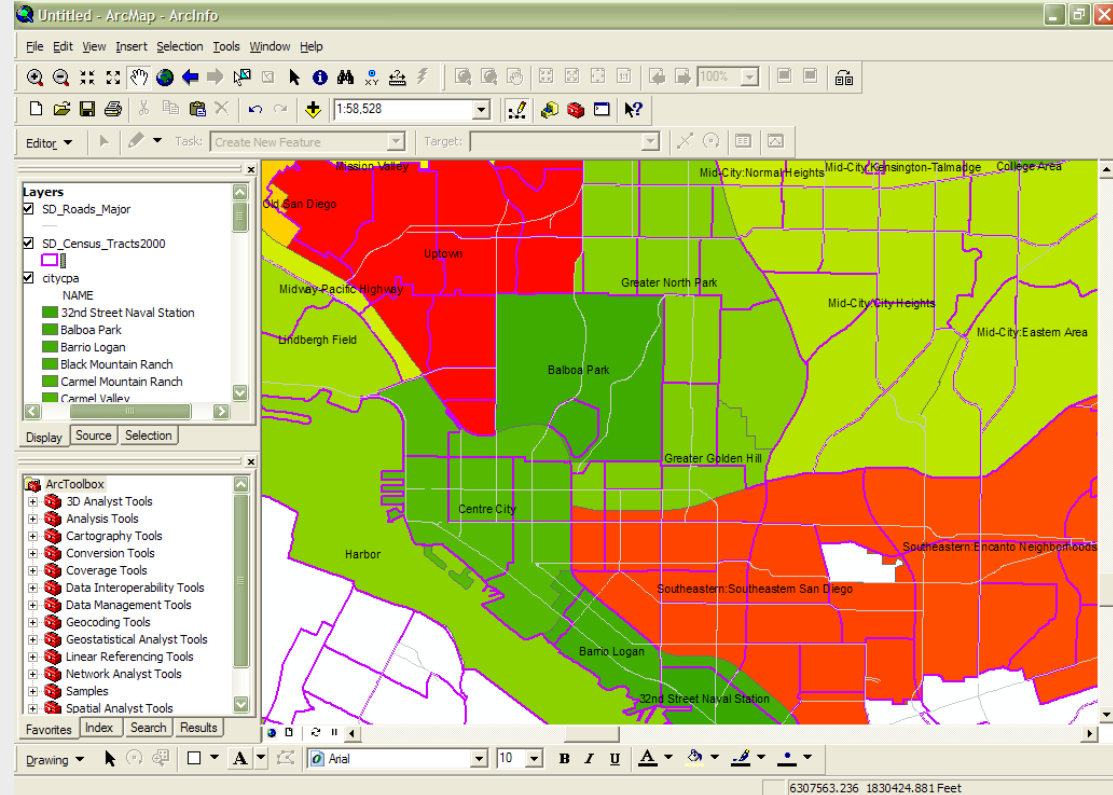
**You could add in layers for Parks, Schools, economic data, historic info, you name it!**

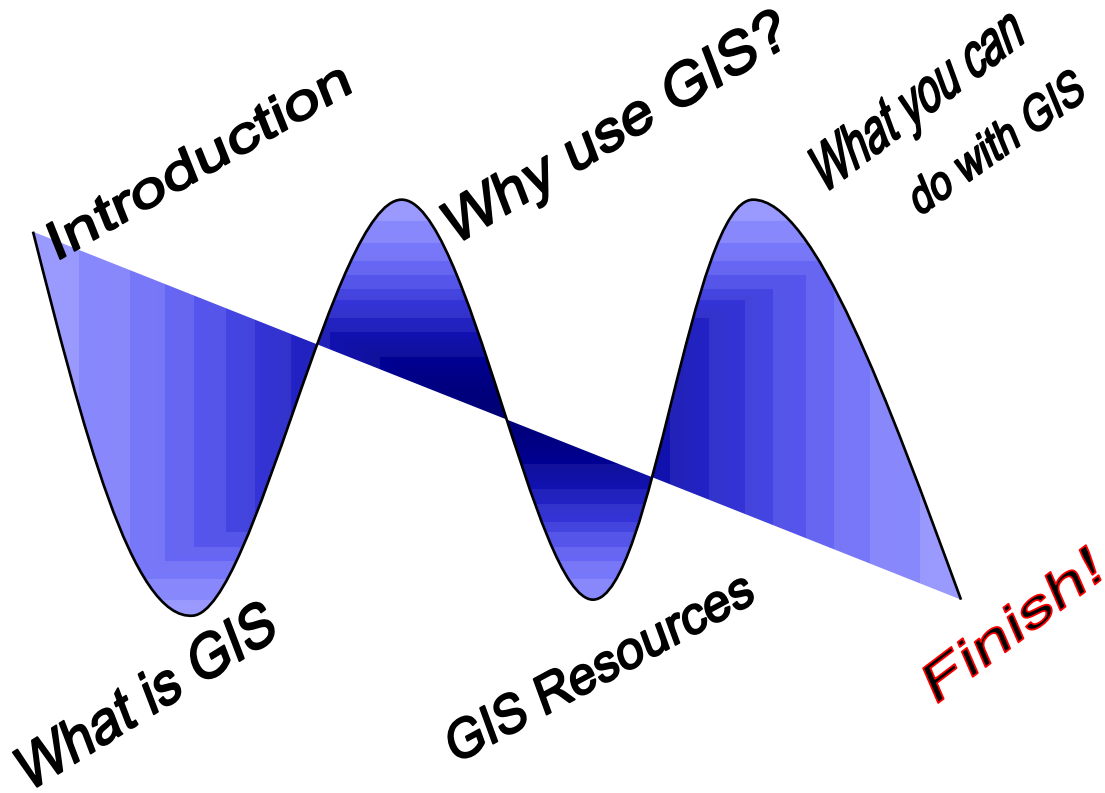


# What YOU can do with GIS (continued)



- **Community Planning Areas with roads & 2000 Census Tracts...**





# It's up to you.

“The application of GIS is limited only by the imagination of those who use it.”

*Jack Dangermond, ESRI President & Founder*

Image credit to Nature Magazine's 2020 Future of Computing

# You have help!

Tracey Hughes, GIS Coordinator  
Geisel GIS Lab



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Geographic Information Systems (GIS) @



UCSD Libraries

Here to help you explore our world...