Olympic National Park
National Park 1938

I. History
   A. Native Americans – 8 original tribes along coast
   B. 1592 Juan de Fuca – Greek pilot sailing for Spain
   C. 1810 – fur traders
   D. 1846 became American territory
   E. Formed to protect Roosevelt Elk & primeval forests

II. Introduction
   A. Olympic Peninsula on w. coast of Washington
   B. 1889: core of Olympic Mountains are slate and sandstone instead of granite - usually assumed to be core of mountains
   C. 1970’s relating the formation to plate tectonics

III. Role of Plate Tectonics
   A. Eastward movement of Juan de Fuca plate from Juan de Fuca Ridge 250 mile to west
      a. first began 55 MYA
      b. basin sedimentary rocks & volcanic rocks of Juan de Fuca plate forced up on continent instead of being subducted
         1.) Soleduck Fm – metamorphic core
            a.) metamorphosed as pushed eastward
            b.) east-west deformation formed an arc → horseshoe folds → dome → uplift → Olympic Mts - among youngest metamorphic mountains in world – 10 my old
         2. Surrounding the metamorphic core
            a. Crescent Formation – upper oceanic crust scraped off onto continent
            b. Aldwell Formation – moderately deformed marine mudstone and siltstone
            c. Lyre & Tyee Formations – moderately deformed marine sandstone & conglomerate
d. **Twin River Formation** - moderately deformed mixture of marine and land sediments

2. Parallel faults in horseshoe shape
   a. allows for hot springs along fault areas

B. Geology of Coastal Area

1. **Grenville Point Volcanics** - folded submarine lava flows; intervals of sediments

2. **Quinault Formation** - submarine sediments – conglomerate, sandstone, siltstone; piercement structures

3. **Hoh Assemblage**: tectonic mélange – rock mixtures caused by tectonic forces
   a. faulted, tilted, overturned sandstone & siltstone

IV. Pleistocene

A. Lowered sea level & stream valleys now underwater – Straits of Juan de Fuca

B. Land depressed – waves cut benches, land rebounded, benches now 50’ higher than sea level

C. Continental and alpine glaciation

2. Glaciers found at low altitude – 4500”

3. 7 glaciers on Mt. Olympus

4. 54 glaciers on remaining peaks

5. glacial trough – Enchanted Valley- Mt. Anderson

6. cirque lakes – Hart Lake and Lake La Crosse

7. Lake Quinault dammed by moraines

8. Glacial features not long lasting because of weathering and erosion

V. Other features

A. Rainfall

1. 140”/year on west
   a. chemical weathering dominates
b. Rainforests in westward sloping valleys of Hoh, Quinault, Queets, & Bogachier Rivers

2. 17”/year on east
   a. physical weathering dominates
   b. exposure to Arctic winds and severe winters

3. 200” in mountains

4. rivers have established pattern of scenery

B. Coastal Features

1. high energy coast–375’ eroded back/100 yrs

2. wave-cut features–coastal processes, change in sea level, tectonic warping, & minor uplift
   a. headlands
   b. wave-cut terraces
   c. sea caves
   d. sea arches and sea stacks
   e. hot springs
   f. red sands – garnets carried by rivers

Elwha River Restoration will restore the river to its natural free-flowing state, allowing all five species of Pacific salmon and other anadromous fish to once again reach habitat and spawning grounds. The Elwha watershed is the largest in Olympic National Park; restoration of salmon to more than 70 miles of river and tributaries will return vital nutrients to the watershed and restore the entire ecosystem. For the Lower Elwha Klallam Tribe, this project will bring cultural, spiritual and economic healing as salmon return after a century’s absence and flooded sacred sites are restored.

Generators inside the powerhouse of the 108-foot dam west of Port Angeles were turned off June 1, 2011 and on Sept. 17 the first concrete was removed from the dam. The Elwha Dam and its cousin — the 210-foot Glines Canyon Dam eight miles upstream — will be taken down over three years as part of the $327 million Elwha River Restoration Project. Both dams were built without methods of fish passage.