**Workgroup #4: Working Lands & Economy**

Climate Change Adaptation: Planning for Climate Change at the Landscape Scale for Clatsop and Tillamook Counties, Oregon. September 16, 2014. Mtg #2.

Risks Effects

|  |  |
| --- | --- |
| Sediment Transport to Streams  Changes over time | * Smothering spawning beds * Transporting too much debris * 🡫 Water quality – turbidity, intakes clogging, “sediment” pollution * Altered hydrology affecting dev’t * Changed food regime * Possible 🡩 coastal accretion * Possible 🡩 dredging/costs |
| Risk of 🡩 forest Fire | * Opportunity for invasives * Loss of Carbon sequestration * Loss of habitat for current forest species * 🡫 timber * 🡩 risk of landscape * 🡩 forest/urban fringe * 🡩 habitat for fire adaptive species * 🡩 damage to structures * 🡫 timber jobs * 🡫 tourism |
| 🡩 Ocean Acidification | * 🡫 shellfish industry * Disrupt food web * Commercial fisheries disrupted * May affect tourism * So many unknowns… |
| Salt water intrusion | * 🡩 Salinity on ag. Land   Change’s crops   * Eel-grass beds moving, affecting breeding, etc. * Contaminates fresh water and ground water sources. |
| 🡩 groundwater pumping | * 🡫 aquifer, salt water intrusion * 🡩 energy used to pump |
| More frequent & intense storms | * 🡩 runoff from pesticide and CAFOs * Water quality 🡫 * Subsiding and accretion of beaches negatively affects tourism * Negative impact on shellfish, commercial & recreational |
| 🡩 temperature | * 🡩 stress on plants & animals * Invasives moving in * More cuttings of crops * 🡩 diseases * Northern range shift of biota |
| 🡩 air temperature and effects on “evapo-transportation” | * 🡩 water demand in all sectors * Change in local climate feedback loop |

Risks Effects

|  |  |
| --- | --- |
| Reduced summer base flows in late summer | * 🡫 habitat * Fewer deep pools * 🡩 temperature * 🡫 water for irrigation and municipalities * Water rights conflicts * Urban/rural fights * 🡩 drying of fuels in riparian areas * More people in rivers at low flow may exacerbate water quality |
| Shifts in upwelling regime | * Reduces fish productivity * 🡩 hypoxia * 🡩 acidification |
| Conversion of grasslands to row crops | * 🡩 carbon dioxide * 🡩 fuel consumption from tilling soil * Water hungry crops * 🡩 fertilizer use * 🡩 sedimentation * Less resilient crops to climate change |
| 🡩 climate refugees to Oregon | * 🡩 ALL pressures noted |

The workgroup then focused in on a few of the risks identified above to think about management objectives to address those risks.

Risk: 🡩 Erosion & Sedimentation

Effects: above

Management Objectives:

* “protective riparian buffers” trap and slow down and filtrate sediment 🡩 shading
* “protect, enhance, restore buffers”
  + Incintivise
* Different logging practices on steep slopes “disturbance”
* Confluence of objectives
* Increasing watershed integrity, 🡩 resilience to disturbance
* Change building practices to minimize erosion/sedimentation
* Land practices in ag. (no till, drought adapted crops) – increase rotation of crops
* More forest burns 🡩 erosion

Risk: Increased forest fires

Effects: above

Management Objectives:

* Reduce fuels to 🡫 fires through thinning
* Create job … using biofuels from thinning
* Increase diversity of forest species
* Adapt reforestation species to new conditions
* Maintaining buffer zones and forest canopy undisturbed
* Keeping people (1° ignition source) out in fire season.
* Improve fire forecasting tools, both short-term forests and seasonal fire risks, etc.
* Improve accuracy and lead-time of climate systems to anticipate fire potentials.
* 🡫 expectation of humans to know the future weather
* Education people about variability and the “unknowns”

Risk: Reduced base flows, 🡩 seasonal extremes of rivers

Effects: above

Management Objectives:

* Plant drought resistant species
* 🡩 water storage, conservation
* Research water-year data to anticipate trends, leads to more resilient water practices
* Change financial incentives to change consumptive patterns.
* Regionalization of water systems and treatment to 🡩 resilience and buffer
* Diversify municipal and ag water sources
  + Take less from more sources
* 🡩 riparian buffers
* 🡩 fish passage at damns to maximize benefit (to accommodate water change)
* Water catchment and rain gardens
* Maximum use of technology for water supply and delivery
* “Healthy watersheds and rivers”

Using best technology spreads across all management objectives – data collection, monitoring, etc.