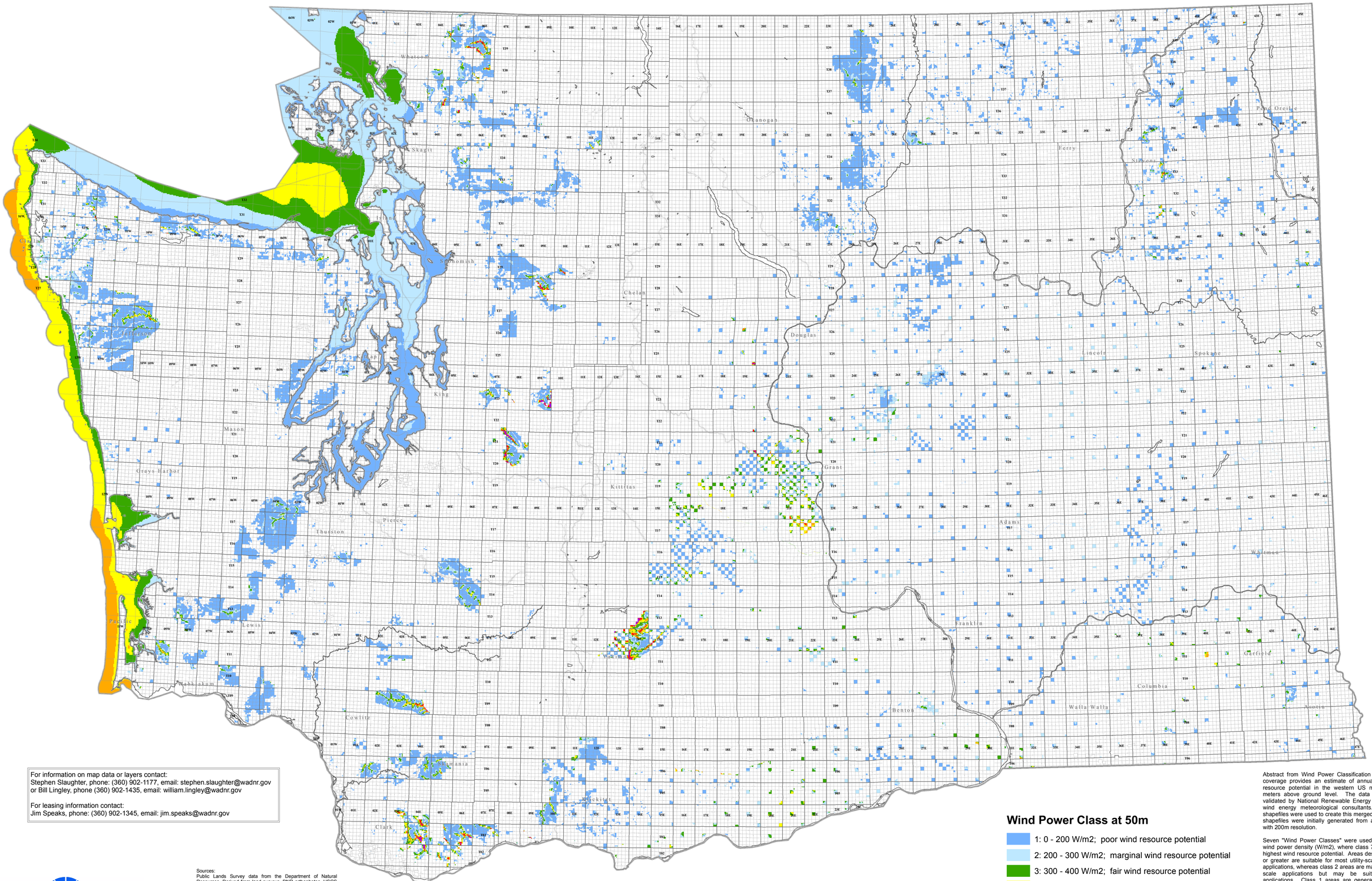
First approximation of wind energy potential for DNR managed surface lands (does not include NRCA, NAP, or severed mineral lands) and offshore

Estimated wind power classification at 50-meters above ground level. Lands shown in green, yellow, orange, red, and purple are generally considered to have potential for wind energy production. Note: the paucity of weather data suggests some lands with good wind potential are not delineated by this model.



For information on map data or layers contact:
Stephen Slaughter, phone: (360) 902-1177, email: stephen.slaughter@wadnr.gov
or Bill Lingley, phone (360) 902-1435, email: william.lingley@wadnr.gov

For leasing information contact:
Jim Speaks, phone: (360) 902-1345, email: jim.speaks@wadnr.gov

Wind Power Class at 50m

- 1: 0 - 200 W/m2; poor wind resource potential
- 2: 200 - 300 W/m2; marginal wind resource potential
- 3: 300 - 400 W/m2; fair wind resource potential
- 4: 400 - 500 W/m2; good wind resource potential
- 5: 500 - 600 W/m2; excellent wind resource potential
- 6: 600 - 700 W/m2; outstanding wind resource potential
- 7: > 800 W/m2; superb wind resource potential

Abstract from Wind Power Classification metadata: This coverage provides an estimate of annual average wind resource potential in the western US measured at 50 meters above ground level. The data was previously validated by National Renewable Energy Laboratory and wind energy meteorological consultants. A series of shapefiles were used to create this merged coverage. The shapefiles were initially generated from a raster dataset with 200m resolution.

Seven "Wind Power Classes" were used to break down wind power density (W/m2), where class 7 represents the highest wind resource potential. Areas designated class 3 or greater are suitable for most utility-scale wind turbine applications, whereas class 2 areas are marginal for utility-scale applications but may be suitable for rural applications. Class 1 areas are generally not suitable, although a few locations (e.g. exposed hilltops) with adequate wind resource for wind turbine applications may exist in some class 1 areas. The degree of certainty with which the wind power class can be specified depends on three factors: the abundance and quality of wind data; the complexity of the terrain; and the geographic variability of the resource. Certainty ratings were based on these three factors and can be found in the source document: "Wind Energy Resource Atlas of the United States" (Pacific Northwest Laboratory, 1986).

Source: RS/GIS Laboratory, Utah State University, Sage-grouse Rangewide Conservation Assessment Project, 2004

Sources:
Public Lands Survey data from the Department of Natural Resources. Derived from land surveys, DNR orthophotos, USGS 7.5' quadrangles, DNR tract books. Updated on a 7 year cycle.

Wind Power Classification data from the RS/GIS Laboratory, Utah State University, Sage-grouse Rangewide Conservation Assessment Project, 2004. Title: Western US Wind Resource at 50 Meters Above Ground Level.
See http://rredc.nrel.gov/wind/pubs/atlas/ for mor information.

Department of Natural Resources Trust Lands data derived from land surveys, DNR orthophotos, USGS 7.5' quadrangles, and DNR tract books. Updated as needed.

Pacific Northwest Laboratory, 1986, Wind Energy Resource Atlas of the United States: Solar Energy Research Institute [now the National Renewable Energy Laboratory. At:
http://rredc.nrel.gov/wind/pubs/atlas/

March 2006

1:600,000

0 12.5 25 50 Miles

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Map by Stephen Slaughter, 03/06/2006