Imagine...
Producing More ...
Paying Less

NOAA's National Spatial Reference System is critical to our nation's productivity and to the conservation of our rich natural resources.

Following the 1989 *EXXON Valdez* spill, Congress mandated that response plans be practiced by the entire oil spill response community. Central to an exercise – and a real spill – are tracking and predicting the movement of the waterborne oil and estimating the likely environmental impacts. NOAA's coastal mapping, whose foundation is the National Spatial Reference System, provides information for managing cleanup activities, characterizing marine habitats, and assessing environmental damage.

Wetlands are disappearing at an alarming rate, placing our ocean and coastal resources at serious risk. By analyzing digital chart data using the National Spatial Reference System, GPS, and GIS, coastal managers can develop maps that identify wetlands, local sources of pollution, and other data critical to sustaining healthy coasts.

Some farms have 20 or more different soil types within one field. Until recently, farmers have addressed this variability by applying high rates of chemicals to entire fields – a "one size fits all" approach – because they couldn't determine the optimal application precisely enough on an acre-by-acre basis. Precision farming uses NOAA's National Spatial Reference System, GPS, and GIS to tailor applications of seed and chemicals to small areas of land, decreasing both production costs and the runoff of contaminants.

"We are harnessing power in the sky to chart a prosperous new course on the ground."
– Vice President Al Gore

LEFT: Using precision farming techniques based on geodetic coordinates, farmers can farm by the foot — not by the field. Computers in huge spreader machines guided by GPS regulate the precise amount and mix of chemicals for every square foot. *(Inset photo: U.S. Agricultural Research Service)*

RIGHT: Environmental sensitivity maps and spill-response models help cleanup managers identify the most vulnerable ecological areas near a spill and predict how the spill will respond to weather, current, and tide conditions. *(Photo: U.S. Fish and Wildlife Service)*

LEFT: Estuarine and coastal wetlands are decreasing nationwide by an average of 31 square miles a year. GPS and GIS technologies are helping coastal managers make more informed decisions about fisheries programs, stock assessment, algal blooms, and other issues affecting the health and vitality of coastal ecosystems. *(Photos: Stephen C. Delaney, U.S. Environmental Protection Agency)*